

Neurohormonal changes in dementia

Maryam Zahmatkesh

Neuroscience and Addiction Studies Department, School of Advanced Medical Technologies, Tehran University of Medical Sciences, Tehran, IRAN

Introduction: There are several evidences in regards to neurohormonal changes in different type of dementia. It is believed that most of peripheral hormones are also synthesized in the brain or modulate brain homeostasis by act on their central receptors. These include brain erythropoietin system, thyroid hormone, melatonin, neurosteroids, insulin and other peripheral hormones. The aim of this study is to provide a summary of the research implicating a role for neuro-hormones in dementia.

Method: The studies were gathered from the PubMed database over the past 10 years. We searched the name of all hormones with brain, and dementia. We included the English articles both animal and human studies.

Results: It has been shown that low vitamin D was concomitant with all-cause dementia. Furthermore there was a strong correlation between the level of melatonin decreases and the progression of dementia. Erythropoietin has been shown to attenuate the A β 25-35-induced tau phosphorylation in human neuroblastoma cells. The neurosteroid biosynthesis pathway is also altered in Alzheimer type of dementia. Reduced brain estrogen production as a risk factor for developing dementia has been reported. Insulin resistance has also been implicated by multiple studies in the development of dementia.

Conclusion: There are several studies that have been shown neurohormonal modulations during different type of dementia. It seems that the future treatments should target the hormonal changes in its earliest stages, before irreversible mental decline has occurred.

Neuroprotective role of Melatonin in Rat Model of Alzheimer's type of dementia

Mitra Ansari Dezfouli

Neuroscience Department, School of Advanced Medical Technologies, Tehran University of Medical Sciences, Tehran, IRAN

Introduction: Melatonin, has a number of physiological functions, including regulating circadian rhythms, clearing free radicals, modulating immunity and generally inhibiting the oxidation of biomolecules. Reduced melatonin level in serum and cerebrospinal fluid and the loss of melatonin diurnal rhythm have been reported in Alzheimer's disease (AD). The present study carried out to evaluate the effect of melatonin on behavioral impairment and hippocampal neural damage in an animal model of AD.

Method: In this study, melatonin was administrated 10mg/ Kg during two weeks in amyloid beta injected rats. Memory was assessed by evaluating the alternation behavior in Y-maze. Elevated Plus Maz(EPM) was used to investigate anxiety. Neuronal density and morphology analyzed by Nissl staining .

Result: The percentage of alternation behavior increased in (A β)+i.p.Melatonin group in compare with (A β)+i.p.vehicle group which indicate that melatonin administration improved memory(67.8 \pm 2.5 vs 43 \pm 2.8, P<0.05). In (A β)+i.p.Melatonin group in compare with (A β)+i.p.vehicle the percentage of open arm entries and time spend in the open arms were significantly increased [(37.2 \pm 4.2 vs 16.8 \pm 2.0, P<0.05) , (22.6 \pm 1.8 vs 4.3 \pm 0.8, P<0.05)] which indicate that melatonin administration improved anxiety related behavior. Melatonin administration enhanced cell density packing and reduced morphologically damaged in pyramidal neurons in hippocampal tissues .

Conclusion: These findings suggest that melatonin administration improves cognitive functions and may be a potential therapeutic approach against cognitive decline in AD.

Does subtotal brain estrogen synthesis inhibition induce dementia?

Ladan Marboti,

Neuroscience Department, School of Advanced Medical Technologies, Tehran University of Medical Sciences, Tehran, IRAN

Introduction: Protective effects of estrogens on brain cognitive control areas, such as hippocampal formation, have been indicated through several investigations. Estrogens, as neuromodulators, induce synaptogenesis in addition to the signaling and excitability alternation. The inhibition of systemic estrogen synthesis via potent aromatase inhibitors, such as letrozole is an accepted therapeutic approach in postmenopausal women with breast cancer. However, there are reports concerning cognition function alternation in these patients. Therefore, in the present study we examined the effect of subtotal brain estrogen deprivation through intracerebroventricular administration of letrozole on female rat cognition tests.

Method: Female Wistar rats were implanted with cannula into intracerebroventricular region through stereotaxic surgery. One week after surgery, rats were infused with letrozole (in three doses of 0.2, 0.4 and 0.8 $\mu\text{g}/\mu\text{l}$) for 14 times once a day. To assess letrozole effect on short term memory and recognition, Y-maze and Object Recognition Test were carried out respectively on proesturs phase of estrus cycle.

Results: The inhibition of subtotal estrogen synthesis resulted in significant decreases in short term memory and object recognition in associative behavioral tests compared to sham operated and control groups.

Conclusion: Even the partly inhibition of estrogen synthesis impairs short term memory and recognition test. Our results potentially imply that memory deficits in endocrine treatment of breast cancer with letrozole must be considered.

Hormone therapy and dementia in post menopause women

Mehdi Shafiee Sabet

Department of neurology, Arash women's hospital, Tehran University of medical sciences, Tehran, Iran

Introduction: Observational studies suggest reduced risk of dementia in users of hormone therapy (HT), but trials show higher risk. We examined whether the association of HT with dementia varies with timing or type of HT use.

Methods: We conducted a vast review to consider the correlation between hormone therapy and prevalence of dementia in post menopause women.

Results: Women who used any type of HT within 5 years of menopause had 30% less risk of dementia, especially if use was for 10 or more years. By contrast, dementia risk was not reduced among those who had initiated HT 5 or more years after menopause. Instead, rates were increased among those who began "opposed" estrogen-progestin compounds within the 3 years preceding the Cache County Study baseline.

Conclusion: Association of HT use and risk of dementia may depend on timing of use. Although possibly beneficial if taken during a critical window near menopause, HT (especially opposed compounds) initiated in later life may be associated with increased risk. The relation of AD risk to timing and type of HT deserves further study.

Gonadal hormones as therapeutics for dementia

Anahita Torkaman-Boutorabi

Neuroscience and Addiction Studies Department, School of Advanced Medical Technologies, Tehran University of Medical Sciences, Tehran, IRAN

Dementia is an expanding problem facing an ageing society. Currently, there is no obvious treatment. It is well-known that sex hormones, namely 17β -estradiol and testosterone, possess neuroprotective- and cognitive-enhancing effects. However, certain gap in the knowledge underlying their molecular mechanisms has delayed their use as treatment strategies in dementia. With recent progress in the pharmacology and molecular biology, especially in the development of selective estrogen receptor modulators and the recent discovery of the small-molecule brain-derived neurotrophic factor receptor agonist, 7,8- dihydroxyflavone, the exploitation of these signaling pathways for clinical use has become possible.

Cognitive impairment in schizophrenia

Zahra Mirsepassi, Psychiatrist

Abstract:

Cognitive impairment is an important characteristic in schizophrenia and different cognitive domains are affected in this illness. Some of these impairments are presented before onset of illness and also consists after remission. Pharmacotherapy is useful in reduction of symptoms but the role of medications in cognitive improvement is controversial. Furthermore, cognitive deficits are related to social functioning and outcome. In spite of these evidences, there is no place for cognitive impairment in schizophrenia in classifications. The cognitive impairment in schizophrenia is discussed in this presentation.

Assessment of cognitive impairment in schizophrenia

Rosa Alikhani, Psychiatrist

Abstract:

Schizophrenia as a well-known illness, has three main symptoms include positive, negative and the third is Cognitive deficits which is the main. Cognitive deficits can be detected before the onset of other symptoms and even before the first break. they tend to continue through the course of illness and even get worse in the late life.

Some aspect of cognitive impairments like Attention, working memory and Executive function are strongly correlated with functional prognosis.

Here we talk about the important domains of cognitive deficits in Schizophrenia: Attention, Working memory, Verbal learning, Language skills, Executive function and social cognition.

The importance of assessing cognitive deficits in Schizophrenia is that we need them for both evaluating the therapeutic effects and adverse effects of treatment and also research. We need have a tool to compare the cognitive profile in patients treated with first generation antipsychotics and second generations.

In clinical trials of cognitive-enhancing drugs for Schizophrenia, we should measure the cognition.

Now we describe two new interview-based assessment of cognition, the Schizophrenia Cognition Rating Scale(SCORS) and the Brief Assessment of Cognition in Schizophrenia(BACS).

Neurobiology of cognitive impairment in schizophrenia

Somaye Arabzadeh, Psychiatrist

Abstract:

Cognitive impairment is present in many patients diagnosed with schizophrenia. Impairments are often observed in early stages of the disease and predict the functional outcome of patients. The neural basis of cognitive impairments has been investigated by a number of techniques including single unit recording, functional neuroimaging and EEG performed on human and non-human primates. Here, we review some of the more prevalent and debilitating aspects of cognitive impairment: (i) working memory and (ii) executive function. FMRI studies show that in patients with schizophrenia, impairments of working memory are correlated with higher activity in the frontal gyrus, and reduced connectivity between the prefrontal and hippocampal cortex. Similarly, people who are clinically at a high risk for psychosis exhibit increased activity in prefrontal, parahippocampal and caudate regions. In addition, a number of studies report that direct perturbation of brain activity can affect cognitive function. For example, transcranial direct current stimulation is found to produce improvements on executive function and working memory; improved working memory performance is associated with increased activity in the medial frontal cortex while improved executive function is linked to reduced activation in the anterior cingulate cortex. Understanding the neural basis of cognitive impairments in schizophrenia is expected to enhance our mechanistic understanding of the disease and its outcome, and provide avenues for new treatments.

Cognitive rehabilitation in schizophrenia

M.Ghadirivasfi, Psychiatrist

Schizophrenia is a neuropsychiatric disorder which affects perception, thinking and mood. Its symptoms fall into five domains: positive symptoms (hallucinations and delusions), negative symptoms (deficits), neurocognitive deficits, and social cognition impairment and emotion dysregulation. Positive symptoms are due to structural and functional brain disorders that are responsible for the impairment of basic information processing, which is manifested in false interpretations. Deficit symptoms are associated with the blocking or lack of important mental functions, characterized by the limitations in the following areas: beginning and sustaining activities, expression of emotions, non-verbal communication, feelings of joy and pleasure, and interaction with other people. The presence of these symptoms leads to apathy and reduced facial expression. Recent studies have shown that neurocognitive impairment is the core feature of schizophrenia.

In fact, schizophrenia is largely considered an essentially neurocognitive disorder.

It was agreed that 5 areas or cognitive domains suffered impairment in schizophrenia: perception, attention, working memory, executive functions, long-term memory. Patients with schizophrenia show deficits with social skills which impaired in these mentally ill patients. The last part of pathology in schizophrenia is emotion.

Considering that, with the lack of medicine in this domain and based on studies done, neurocognitive rehabilitation has been a promising effects on cognitive function. Cognitive enhancement is becoming an important strategy in multimodal treatments of schizophrenia. Surprisingly, the cognitive rehabilitation treatment seems to improve not only cognitive functioning but other functional aspects as well.

Currently, the Integrated Psychological Treatment, which is cognitively and psychosocially domains targeted, offers the most convincing outcomes. Changes in elementary cognitive functions are linked to changes in more complex cognitive functions. In other words, attention and working memory are considered as the fundamentals of neurocognitive function.

The data in studies done in last decades highlight the importance of attention, memory, and executive functions as the main targets of neurocognitive assessment in schizophrenia. With regard to the cognitive mechanisms underlying cognitive rehabilitation, it is important to stress that improvements occur in the impaired variables: attention, memory, and executive functions.

The correlation is significant between the differences before and after the rehabilitation, indicating that improvements in cognitive functions are followed by improvements in functional outcomes. Although there is strong evidence that cognitive impairments are invariable over time, surprisingly, it is not clear that cognitive improvements due to cognitive intervention show a similar pattern of invariability.

Fundamentals of Cognitive Rehabilitation in Psychiatric Disorders

Kamalzadeh, Leila, M.D.

Assistant Professor of Psychiatry, Iran University of Medical Sciences, Tehran, Iran

Abstract: Cognitive deficits are common in psychiatric disorders and can significantly influence quality of life and treatment outcomes. As such, methods for improving cognitive functioning in psychiatric patients have garnered much attention over the past two decades. These techniques are categorized as cognitive rehabilitation or cognitive remediation and generally focus on improving cognitive processes, such as attention, memory, and higher level executive functions, including social cognition. These interventions encompass three approaches: first, attempts at restoration of lost function and repairing neurocognitive deficits. Second, teaching compensatory techniques to adapt to the deficit by means of the use of alternative strategies and modifications in the environment, and third, potentiating the performance of other cognitive processes which have remained intact to maintain global function. Although cognitive rehabilitation is apparently aimed at cognitive processes, these processes are rarely the focus of clinical complaints and are targeted because of their functional implications. Thus, the main goal of cognitive rehabilitation is to improve psychosocial functioning.

Many of the guiding principles of cognitive remediation that are currently used in practice were initially developed in the realm of brain injury rehabilitation. The fundamental principle in brain injury rehabilitation is to acutely intervene to reduce damage to the brain and stabilize the initial pathology then shift to recovery and rehabilitation as the primary clinical focus. This is a different paradigm than what is typically done in mental health as severe psychopathology often has a more chronic course requiring ongoing treatment leading cognitive rehabilitation to frequently occur concurrently with treatment of the underlying psychopathology. Cognitive rehabilitation approaches have been applied across various mental illnesses including schizophrenia, attention deficit hyperactivity disorder, anxiety disorders, mood disorders, substance use disorders and autism spectrum disorders. There are two general classes of cognitive remediation interventions delivered at present. These include "bottom-up" training which aims to improve basic sensory processes and top-down training focusing on higher level cognitive skills, such as attentional control. Interventions can be delivered via computerized programs, of varying length and complexity, or can be undertaken by a trained clinician.

Here we present a brief review of general principles and commonly used strategies for implementing effective cognitive rehabilitation in psychiatric patients.

Cognitive impairment after delirium state

Hashempour, Sara, psychiatrist,

Fellowship trainee in psychosomatic medicine, Tehran University of Medical Sciences

Abstract: Delirium is a common neuropsychiatric syndrome that occurs across health care settings which is associated with adverse outcomes. Although Cognitive impairment is a risk factor for delirium, there are limited data on long-term cognitive outcomes following delirium. Recent studies suggest that delirium is associated with risk of dementia.

Non-psychiatrists typically use the CAM (Confusion Assessment Method), a simple and well-validated bedside test, to diagnose delirium. However, delirium is under- diagnosed because the symptoms fluctuate, patients may simply appear sedated (hypoactive delirium), and its seriousness is underappreciated so caregivers may not look closely. Acute hospitalization with delirium in cognitively normal elderly individuals (>65yrs) often leads to cognitive decline from six months to one year in 25-70 percent of survivors (equivalent to at least a 5 point drop on MMSE).

The greater the pre-hospitalization cognitive impairment, the greater the cognitive decline after delirium (MCI can become dementia, mild dementia can become severe dementia, etc.).

The neurobiological mechanisms of delirium are not known but the vulnerability and predisposing factors are well characterized.

More studies are needed to defined mechanisms of the relationship between delirium and cognitive decline.

This will help to further focus on early intervention and prevention of delirium and hopefully eliminate or reduce the poorer long term cognitive outcomes.

Here we review the cognitive impairments of delirium, risk factors, assessment scales and prevention strategies.

Cognitive rehabilitation in substance use disorder

Soraya, Shiva, M.D.

Assistant Professor of Psychiatry, Iran University of Medical Sciences, Tehran, Iran

Drug addiction is a major public health problem. There are no approved therapies in many addictions, including cocaine, methamphetamine and marijuana addiction. Behavioral therapy is effective, but its effects vary from person to person. The findings show that behavioral interventions can increase the effectiveness of control in addicts. Studies show that most chronic forms of addiction may be associated with significant cognitive impairment, especially in attention, concentration, working memory, and response control functions. In some studies, these disorders are predictive of poor outcome. Cognitive rehabilitation corrects the cognitive deficits associated with the recovery from addiction. Among the cognitive rehabilitation interventions for drug use disorders, with regard to the mechanisms involved, cognitive error correction exercises and inhibition of response and training related to work memory and targeted interventions are the most studied cases. In substance use disorder, specially the use of methamphetamine, impulsivity predispose problem in self-regulation, and work-related exercises on working memory improve impulsivity and improve self-regulation in substance use problems. Cognitive rehab is generally effective in improving cognitive processes. Cognitive enhancement to improve treatment outcomes is a new achievement worthwhile of future studies.

Cognitive rehabilitation in Alzheimer's disease

Shariati, Behnam, M.D.

Assistant Prof of Psychiatry, Iran University of Medical Sciences

Abstract: The prevalence of dementia varies substantially worldwide.(Rizzi, Rosset, & Roriz-Cruz, 2014). Alzheimer's disease is the most common type of dementia among western countries, corresponding to about 60% of cases (Kalaria et al., 2008). There is need to develop new treatments for Alzheimer's disease (AD) and to understand the drug development process for new AD therapies(Cummings, Lee, Mortsdorf, Ritter,treatments for Alzheimer's disease (AD) and to understand the drug development process for new AD therapies(Cummings, Lee, Mortsdorf, Ritter, & Zhong, 2017). Combined cognitive and physical exercise interventions have potential to elicit cognitive benefits in older adults with mild cognitive impairment (MCI) or dementia (Karssemeijer et al., 2017). Based on the cognitive reserve hypothesis, evidence from epidemiological studies shows that low education and cognitive inactivity constitute major risk factors for dementia. This indicates that a cognitively active lifestyle may protect against cognitive decline or delay the onset of dementia (Mistridis et al., 2017).There are some different cognitive enhancement approaches in AD like “cognitive stimulation”, “cognitive training” and “cognitive rehabilitation”(Choi & Twamley, 2013).

In this lecture our purpose is to review efficacy and limitations of cognitive rehabilitation on symptoms and pathogenesis of Alzheimer's disease.

Frontal lobe epilepsy: a great imitator

Marjan Asadollahi, M.D.

Assistant Professor of Neurology, Fellowship in Epilepsy

Frontal lobe epilepsy is the second most common epilepsy after temporal lobe epilepsy. Frontal lobe seizures are often occurring in clusters at sleep and are brief in duration with minimal post-ictal confusion. These kinds of seizures could mis-diagnose as psychogenic seizures or parasomnia.

Frontal lobe seizures could have diverse clinical symptoms. Fraciobrachial marching clonic jerks arise from precentral gyrus. Somatosensory motor area seizures could manifest with bilateral upper extremities asymmetric tonic postures. Dialeptic seizure or frontal absence could originate from frontopolar area. Hypermotor seizures could arise from mesial frontal structures (cingulate gyrus, fronto-orbital area). Frontal lobe seizure could even present with negative motor phenomena.

Frontal lobe epilepsy surgery could be challenging due to eloquent areas in this brain area. Moreover, frontal lobe has a large silent area as a result seizures originating from silent areas could manifest only after propagation to a symptomatic area. This could sometimes cause difficulties in determining the epileptogenic zone.

In this presentation we aim to describe different presentations of frontal lobe seizures.

Psychogenic nonepileptic seizures

Aidin Shariatzadeh, M.D

Neurologist, Fellowship in Epilepsy

Psychogenic nonepileptic seizures consist of paroxysmal changes in responsiveness, movements, or behavior that superficially resemble epileptic seizures but lack a neurobiological origin similar to epileptic seizures and are not associated with electrophysiological epileptic changes. Psychogenic nonepileptic seizures are relatively common, it has been reported that from 5 to 10% of outpatients in epilepsy clinics and 20 to 40% of inpatients in epilepsy monitoring units.

Trauma/abuse, anxiety, and unknown causes were almost equally identified as possible etiologies of PNES. It tends to begin in adolescence and young adulthood, although the seizures can begin at any age. There are reports about PNES in young children (as young as 5 years of age), and some studies reported PNES in the elderly (even above 70 years of age).

Because of widespread differential diagnosis including frontal lobe focal seizures and cardiac disease and the huge amount of money expending on this problem each year, it seems that the medical system should pay more attention to this problem and finding more solution to decrease its consequence should not be overlooked.

Autoimmune epilepsy

Behnam Safarpour Lima, M.D

Assistant Professor of Neurology, Fellowship in Epilepsy

Auto-immune epilepsy is one of the novel causes of drug resistant epilepsy. This condition should be suspected in any patient presented with unexplained new-onset intractable epilepsy along with psychiatric manifestations and neurological deficits. The most common neurological problems in these patients consist of memory problems and movement disorders.

Auto- antibodies linked to autoimmune encephalitis are subdivided to three categories:

- 1) Antibody to intracellular antigens: These antibodies are mostly related to cancers and have less pathogenic roles.
- 2) Antibodies to synaptic antigens: Anti GAD, Anti amphiphysin.
- 3) Antibodies to neuronal surface antigens: VGKC complex antibodies, Anti-NMDA, Anti-AMPA, Anti GABA_B.

Malignancy work up, screening for serum and CSF auto-antibodies and a trial of immunotherapy should be considered in any patient suspect to have autoimmune epilepsy. Obviously early diagnosis and appropriate treatment could improve the clinical course and the prognosis in these patients. In this presentation we aim to comprehensively describe the clinical manifestation, antibodies and treatment options in autoimmune epilepsy patients.

Temporal lobe epilepsy: its presentations, surgical candidates

Marjan Asadollahi, M.D.

Assistant Professor of Neurology, Fellowship in Epilepsy

Temporal lobe epilepsy is the most common type of focal epilepsy. Temporal lobe seizures could arise from mesial temporal structures (mTLE) or temporal neocortex (nTLE). Ictal semiology helps in differential diagnosis of these conditions. Auras of epigastric rising sensation, fear, de ja vu points to mTLE in converse vertigo and auditory hallucinations show that the seizures arise from nTLE. Compare to mTLE, seizures arising from temporal neocortex are briefer in duration and higher probability for secondary generalization. Moreover, ictal behaviors help in determining whether the epileptogenic zone is in dominant or non-dominant hemisphere. Post-ictal cough, vomiting, water drinking, spitting points to non-dominant temporal lobe. Retained awareness during ictal phase shows that seizure arises from non-dominant temporal lobe. In this presentation we aim to describe temporal lobe auras, ictal behaviors and surgical candidates.

Neuroimaging by structured illumination microscopy

A. H. Baradaran Ghasemi¹, H. Latifi², M. Ghandi Monfared¹, L. Dargahi³

¹Department of Physics, Shahid Beheshti University, Tehran, Iran

²Laser and Plasma Research Institute, Shahid Beheshti University, Tehran, Iran

³Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

(email: a_b.ghasemi @sbu.ac.ir)

Abstract: Recently, there has been growing interest in making use of optical methods for super-resolution neuroimaging. Among the methods, structured illumination microscopy (SIM) has attracted considerable interest due to its ease of setting up optical system as well as its low cost. SIM is able to double the image resolution and go beyond the optical diffraction limit in an ordinary optical microscope. Moreover, in contrast to ordinary optical microscopes which are functioning through illumination with homogenous intensity, the illumination pattern in SIM can be tailored specifically. Due to these fascinating properties, SIM is a candidate for imaging of neural network. This talk is to introduce SIM method in Neuroimaging and some achievement in imaging laboratory at department of physics in Shahid Beheshti University.

Keywords: Structure Illumination Microscopy, Super-resolution microscopy, Neuroimaging

Mechanisms of Degeneration and Regeneration in Neural injury

Mohammad Taghi Joghataei^{1,2}, Fereshteh Azedi^{1,2}

¹ Department of Neuroscience, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran

² Division of Neuroscience, Cellular and Molecular Research Center, Iran University of Medical Sciences, Tehran, Iran

* *Corresponding Address:*

Mohammad Taghi Joghataei, PhD

Full professor of Neuroanatomy and Neuroscience

Department of Neuroscience, Faculty of Advanced Technologies in Medicine

Iran University of Medical Sciences, Tehran, Iran

Tel/Fax: +98-21- 88622687

E-mail: joghataei@iums.ac.ir, mt.joghataei@yahoo.com

Background:

Axonal degeneration is a common hallmark of both nerve injury and many neurodegenerative conditions. Degeneration of the axonal compartment is distinct from neuronal cell death, and often precedes or is associated with the appearance of the symptoms of the disease. A complementary process is the regeneration of the axon, which is commonly observed following nerve injury in many invertebrate neurons and in a number of vertebrate neurons of the peripheral nerve system (PNS). Important discoveries, together with innovative techniques, are now paving the way towards a better understanding of the dynamics and molecular mechanisms underlying these two processes. In this study, we will discuss these recent approaches, focusing on the balance between axonal degeneration and regeneration.

Methods:

Providing a permissive growth environment by transplanting neural cells and stem cells with using tissue engineering and nanofiber scaffolds, promoting the survival and growth of damaged axons using neurotrophins like stromal-derived factor-1 and granulocyte colony-stimulating factor, neutralizing inhibitory molecules associated with the failure of axonal regeneration, functional electrical stimulation and combination therapy with different methods versus mono-therapy are some of these approaches.

Results:

Using these approaches, considerable functional recovery was reported. It seems that co-transplantation of different cells and combination therapy versus mono-therapy accompanies with other factors like enzymes and growth factors via new delivery systems may yield better results in the balance between axonal degeneration and regeneration.

Conclusion:

Like two sides of the same coin, axonal degeneration and regeneration are crucial processes regulating normal development as well as pathological conditions of the nervous system. Research aimed at understanding the molecular and cellular basis underlying these mechanistic differences might reveal important elements necessary for the development of more effective therapies for neurodegenerative conditions and nerve injuries.

Keywords:

Regeneration, Degeneration, Neural Injury, Cellular and molecular mechanisms, Stem cells, Combination therapy

Intrathecal injection of CD133-positive enriched bone marrow progenitor cells in children with cerebral palsy: feasibility and safety

Dr Alireza-Zali

Functional Neurosurgery Research Center, Shohada Tajrish Neurosurgical Comprehensive Center of Excellence, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Cerebral Palsy (CP) with an incidence of 2 per 1000 live births is a non-progressive disorder characterized by central nervous system damage during fetal life at birth or later.

This disorder affects motor activity, sensation, cognition, perception, speech and communication. Despite numerous treatments such as occupational therapy, botulinum toxin and surgery, functional impairments continue to exist.

Recently, stem cells have become a new source of hope that hold considerable promise for overcoming several neurological disorders. Current studies have proposed that cellular transplantation may have some regenerative and functional efficacy in the treatment of CP; however, much remains to be understood regarding its safety, feasibility and efficacy.

CD133⁺ cells are a subpopulation of bone marrow (BM)-derived hematopoietic stem cells with the potential for angiogenesis, neuroprotective and neurotrophic factor secretion. In order to assess the potential effect of CD133⁺ cells in patients with CP, we designed a clinical trial that evaluated the safety and feasibility of intrathecal transplantation of BM-derived CD133⁺ cells in children with CP.

Children (n = 12), aged 4 to 12 years, who were diagnosed with different types of CP underwent BM aspiration. CD133(+) cells were enriched from the BM samples and intrathecally injected. The Gross Motor Function Measure (GMFM-66), Gross Motor Function Classification System (GMFCS), UK FIM+FAM, Functional Independence Measure (FIM) and Functional Assessment Measure (FAM) were assessed at baseline and 6 months after the procedure. Patients' ability to balance was measured by the Berg Balance Scale (BBS), and severity of spasticity was evaluated by the Modified Ashworth Scale. Magnetic resonance imaging was done at baseline and 6 months after therapy.

There were no adverse events detected by clinical and laboratory tests or imaging studies, with the exception of a seizure in 1 patient. A significant improvement was observed 6 months after cell transplantation versus baseline according to GMFM, GMFCS, FIM+FAM, Ashworth Scale, and BBS outcomes.

It seems that subarachnoid injection of CD133-positive enriched bone marrow progenitor cells in children with CP is a safe approach. The results suggest a possible short term improvement in neurological function.

Visual-Saliency-Modulated Just Noticeable Distortion Modeling in Digital Images

Dr. Hadi Hadizadeh

Quchan University of Advanced Technology, Quchan, Iran

Simon Fraser University, Burnaby, BC, Canada

Abstract:

It is known that the human visual system (HVS) cannot sense small visual variations whose amplitude is below the so-called just noticeable distortion (JND) threshold due to several physical limitations in the eyes and the brain. JND modeling is widely used for perceptual redundancy estimation in images/videos for a variety of different applications such as image/video coding and transmission, quality assessment, watermarking, etc. Perceptual redundancies in visual contents may also be produced by the visual attention (VA) mechanism of the human brain. VA provides an automatic mechanism for selection of particular aspects of a visual scene that are most relevant to our ongoing behavior while eliminating interference from less relevant data so as to reduce the computational load on the brain. According to the current knowledge, it is believed that VA can be driven by "visual saliency", which is a measure of propensity for drawing VA to a specific location in a scene. It is known that visual saliency has a modulatory effect on JND thresholds. Specifically, it is known that JND thresholds in attended (or very salient) regions are smaller than JND thresholds in un-attended (or less salient) regions. Hence, to better estimate visual redundancies, it is reasonable to consider the interplay between JND thresholds and saliency. Most of the existing JND models consider the effect of visual saliency on JND thresholds. In this talk, we first introduce a visual-saliency-modulated JND model. We then talk about some practical applications of it in engineering.

Effect of Subcutaneous Granulocyte-Colony Stimulating Factor Administration on Neurological and Functional Outcomes in Subacute Traumatic Spinal Cord Injuries: a Double Blind Randomized Controlled Clinical Trial

Nazi Derakhshanrad, M.D, Ph.D.¹ · Hooshang Saberi, M.D, M.P.H*^{1,2} ,

¹*Brain and Spinal cord Injury Research Center (BASIR), Neuroscience Institute, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran*

²*Department of Neurosurgery, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran*

Abstract

OBJECT: Granulocyte-Colony Stimulating Factor (G-CSF) is a major growth factor that has already been clinically tested for chronic Traumatic Spinal Cord Injuries (TSCIs) cases in this center. In this study we try to determine the safety and efficacy of G-CSF administration for neurological and functional improvement in subacute incomplete TSCI.

METHODS: This phase II/ III, prospective, double-blind, parallel Randomized, placebo-controlled, Clinical Trial (RCT), was performed from August 2014 to June 2017 in the Brain and Spinal cord Injuries Research (BASIR) center, at Tehran University of Medical Sciences (TUMS). Sixty patients with incomplete subacute TSCI, American Spinal Injury Association (ASIA) Impairment Scale (AIS) B, C and D were enrolled. The injury duration was selected to be between 1-6 months. Thirty patients were allocated into the treatment group and 30 patients into the control group. All the cases underwent uniform outpatient rehabilitation program consisting of a multidisciplinary education program before intervention with 3 follow-ups, combined with a twice-weekly physical therapy, occupational therapy, associated with home nursing as a rehabilitation package for 6-months in the post-acute period after injections.

Patients were assessed by ASIA, Spinal Cord Independence Measure (SCIM-III) and International Association of Neurorestoratology-Spinal Cord Injury Functional Rating Scale (IANR-SCIFRS) just before intervention and at 1, 3 and 6 months after seven subcutaneous administrations of 300 µg/day of G-CSF in the treatment group and placebo in the control group for 1 week. Randomization was performed with random block design. The patients and evaluators were blinded regarding the treatment groups.

RESULTS: Sixty patients were randomized and allocated into two study groups. Among them, 28 patients (93.3%) in the G-CSF group and 26 patients (86.6%) in the placebo group completed the study protocol. After 6 months of follow up, AIS grade remained unchanged in the placebo group while in the G-CSF group, 5 cases (45.5%) improved from AIS B to C, five (45.5%) AIS C patients improved to AIS D, and 1 case (16.7%) improved from AIS D to E. The mean (\pm SE) change in ASIA motor score in the G-CSF group was significantly more than the placebo group ($P < 0.001$). The mean (\pm SE) light touch and pinprick sensory scores was significantly more than the placebo group ($P = 0.005, 0.002$ respectively). Evaluation of functional improvement by IANR-SCIFRS instrument revealed significantly more functional improvement in G-CSF group in comparison to the placebo group, ($P < 0.001$). Also significant difference was observed in functional improvement between the two groups as measured by SCIM-III instrument ($P < 0.001$).

CONCLUSIONS: Granulocyte-colony stimulating factor administration for incomplete subacute spinal cord injuries is associated with significant motor, sensory, and functional improvement in comparison to placebo. Multicenter trials would be the next step to further assess the beneficial and hazardous effects of the treatment.

Granulocyte-Colony Stimulating Factor Administration for Neurological Improvement of Post-Rehabilitated Chronic Incomplete Traumatic Spinal Cord Injuries: a Double Blind Randomized Controlled Clinical Trial

Hooshang Saberi, M.D, M.P.H*^{1,2}

Associate Professor of Neurosurgery

Nazi Derakhshanrad, M.D, Ph.D. ¹

Ph.D. of Clinical Neuroscience

¹Brain and Spinal cord Injury Research Center (BASIR), Neuroscience Institute, Imam Khomeini Hospital,

² Dept of Neurosurgery, Tehran University of Medical Sciences, Tehran, Iran

*Address correspondence to Hooshang Saberi, M.D., M.P.H., Brain and Spinal cord Injury Research Center (BASIR), Imam Khomeini Hospital Complex, Keshavarz Boulevard, Tehran, Iran. Postal Box: 14185-61; Postal code:1449614535;Tel: +98 21 66581560; Fax: +98 21 66938885; E-mail: hgsaberi@yahoo.com

Abstract

OBJECT: Granulocyte-Colony Stimulating Factor (G-CSF) is a major growth factor for activation and differentiation of granulocyte colonies in the bone marrow. This cytokine has been widely and safely employed, in different conditions over many years. In this study we have tried to determine the efficacy of G-CSF administration for Traumatic Spinal Cord Injury (TSCI).

METHODS: This double blind parallel Randomized, placebo-controlled, Clinical Trial (RCT), phase III study, was performed from June 2013 to June 2016 in the Brain and Spinal cord Injuries Research (BASIR) center at Tehran University of Medical Sciences (TUMS) on 120 patients with incomplete chronic TSCI, American Spinal Injury Association (ASIA) Impairment Scale (AIS) B, C and D of at least six months duration. Sixty patients were allocated into the treatment group and 60 patients into the control group. All the cases had completed an outpatient rehabilitation program in the post-acute period and were in a neurological and functional plateau. Patients were assessed by ASIA, Spinal Cord Independence Measure (SCIM-III) and International Association of Neurorestoratology-Spinal Cord Injury Functional Rating Scale (IANR-SCIFRS) just before intervention and at 1, 3 and 6 months after seven subcutaneous administrations of 300 µg/day of G-CSF in the treatment group and placebo in the control group for 1 week. Randomization was performed with randomized block design, the patients and evaluators were blinded regarding the treatment groups. One patient did not receive the allocated intervention completely and 5 patients were lost to follow-up and finally, 114 patients were enrolled for analysis.

RESULTS: One hundred twenty patients were randomized and allocated into the study groups. Among them, 56 patients (93.3%) in the G-CSF group and 58 patients (96.6%) in the placebo group completed the study protocol. After 6 months of follow up, AIS in the placebo group remained unchanged while in G-CSF group, 1 case improved from AIS B to C, and 4 AIS C patients improved to AIS D. The mean (\pm SE) improvement in ASIA motor score in G-CSF group was significantly more than placebo group ($P < 0.001$). The mean (\pm SE) light touch and pinprick sensory scores in G-CSF group was significantly more than the placebo group respectively ($P < 0.001$). Evaluation of functional improvement by IANR-SCIFRS instrument revealed significantly more improvement in G-CSF group in comparison to the placebo group, ($P < 0.001$). Also, significant difference was observed in functional improvement between the two groups as measured by SCIM-III instrument ($P < 0.001$).

CONCLUSIONS: Granulocyte-colony stimulating factor administration for incomplete chronic spinal cord injuries is associated with significant motor, sensory, and functional improvement.

Distinct Roles of Parvalbumin- and Somatostatin-Expressing inhibitory Interneurons in shaping visual responses in primary visual cortex

Dr. Mirshahram Safari

Neural circuits in the cerebral cortex consist primarily of excitatory pyramidal (Pyr) cells and inhibitory interneurons. Interneurons are divided into several subtypes, in which the two major groups are those expressing parvalbumin (PV) or somatostatin (SOM). These subtypes of interneurons are reported to play distinct roles in tuning and/or gain of visual response of pyramidal cells in the visual cortex. It remains unclear whether there is any quantitative and functional difference between the PV → Pyr and SOM → Pyr connections. We compared unitary inhibitory postsynaptic currents (uIPSCs) evoked by electrophysiological activation of single presynaptic interneurons with population IPSCs evoked by photo-activation of a mass of interneurons *in vivo* and *in vitro* in transgenic mice in which PV or SOM neurons expressed channelrhodopsin-2, and found that at least about 14 PV neurons made strong connections with a postsynaptic Pyr cell while a much larger number of SOM neurons made weak connections. Activation or suppression of single PV neurons modified visual responses of postsynaptic Pyr cells in 6 of 7 pairs whereas that of single SOM neurons showed no significant modification in 8 of 11 pairs, suggesting that PV neurons can act solo whereas most of SOM neurons may act in chorus on Pyr cells.

Using Transcranial Electrical Stimulation to Improve Treatment Outcomes in Substance Use Disorder

Hamed Ekhtiari, Iranian National Center for Addiction Studies, Tehran University of Medical Sciences

Abstract: Transcranial Electrical Stimulation (TES) is a device-based technology employed to change cortical excitability by applying a very weak (0.1 to 2 m Amp) electrical current over the skull. There is growing body of evidence that TES with direct current (tDCS) can modulate cognitive functions that are important to addiction treatment such as drug craving or risky decision making among drug users. Recent meta-analyses proposed positive hopes for the application of this technology in drug addiction treatment with repeated sessions of stimulation. In this talk, we will review most updated evidences in the field including studies we have done in our team among methamphetamine users. Meanwhile, we will have an overview about the neural mechanisms of tDCS effects on drug craving as one of the central cores for relapse and treatment failure in addiction medicine based on the recent evidences from neuroimaging studies.

Evaluation of the efficacy of allogeneic umbilical cord derived hematopoietic stem cells and mesenchymal stromal cells in patients with spastic cerebral palsy on developmental function , A Clinical trial phase 2

Mahmoud Reza Ashrafi Professor of Pediatric Neurology , Tehran University of Medical Sciences
Amirali Hamidie Associate professor of Pediatric hematology Tehran University of Medical Sciences
Anahita Majmaa Pediatrician , Hadi Montazer lotfeelahi Assistant professor of Pediatric Neurology Alborz University of Medical Sciences

Cerebral palsy(CP) consisted of a group of nonprogressive disorders of brain injuries ,and is one of the major problems of pediatric neurology and at the present time there is no standard medical or surgical treatment for it .Stem cell therapy is one of a new and hopeful therapeutic methods of CP .This study designed for the evaluation of therapeutic effects of intrathecal hematopoietic and mesenchymal stem cells derived from allogeneic umbilical cord in improvement of developmental functions of spastic CP patients between 4-14 years old . Developmental conditions consisted of GMFM88 , GMFCS , CP QOL-child , MACS and Stanford Binet and spasticity according to Ashworth scale and brain imaging findings documented at the start and during the study period . The patients referred to neurology clinic of Children's Medical Center . Suitable cases selected from patients with remarkable cerebral damage of non congenital origin in imaging .If parents after awareness of etiology and study design and even probable adverse effects have a consent , recruited . 108 cases will be recruited and randomly divided to 3 groups of 36 cases : hematopoietic stem cells derived from allogeneic umbilical cord , Mesenchymal cells derived from allogeneic umbilical cord and control group without injection and appearance simulating lumbar puncture without awareness of the patients and evaluators .

Insulin signaling in learning and memory in response to stress

Gholam Hossein Meftahi¹

¹ Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran

Abstract

It is becoming evident that exposure to stress not only might result in insulin resistance (type 2 diabetes), but also changes of the insulin signaling cascade cause cognitive impairment and developing several neurodegenerative diseases such as Alzheimer's disease (AD). In recent years, there is great interest in determining the interaction between insulin signaling and memory in response to stress. On the other hand, evidence reveals that stress causes type 2 diabetes and AD that both diseases show several similarities including impairment in the insulin signaling pathway. Thus, here, we give an overview of the main functions of insulin in the learning and memory. The effect of insulin signaling pathway damage in response to stress in the brain regions, which is involved in the learning and memory is also discussed. Finally, we show evidence supporting the notion that insulin is a link between diabetes and the onset and progression of neurodegenerative diseases such as AD.

Keyword: Insulin; Learning and memory; Alzheimer's disease; Diabetes

A Report of Recent Activity of Neurophotonics Group on Brain Surface Optical Imaging

H. Latifi¹, M.S. Feiz¹, M.I. Zibaii¹, L. Mohammadzadeh¹, H. Ghazvini¹, A. Asadollahi Fana¹, M.K. Zand¹, M. Ezzatpour¹, A. Kolbadinezhad¹, F. Niknam¹, Z.S. Rezaei¹, A. Rezaei¹

F. Motamedi², L. Dargahi², M. Janahmadi², M.S. Safari², M. Mohajeri³, S. Khaksar², M. Nategh²

¹Laser and Plasma Research Institute, Shahid Beheshti University, Tehran, Iran

²Neuroscience Research Center, Shahid Beheshti Medical University, Tehran, Iran

³Canadian Center for Behavioral Neuroscience Lethbridge, Lethbridge, Canada

(email: latifi@sbu.ac.ir)

Abstract: In this conference, we will present a report of recent activity in NeuroPhotonics Lab. at Shahid Beheshti University. Among them we will focus on four methods namely Laser Speckle Contrast Imaging (LSCi), Intrinsic Optical Signal Imaging (IOSi), Voltage-Sensitive Dye imaging (VSDi) and Laser Scanning Confocal Microscopy (LSCM). The main purpose of our work is hardware and software development of the above mentioned systems so that they can be used by neuroscientists.

We have visualized blood flow by Laser Speckle Contrast imaging method using speckles of laser, also blood velocity profile has been calculated. This method is based on changing of contrast relative to changing the interference patterns of reflecting light. It is possible to achieve the special and temporal resolution of ~10 micrometers and few millisecond respectively.

The changes of Oxygen concentration in blood is measured using Intrinsic Optical Signal imaging method. This method is based on the changes of red light absorption relative to changes of concentration of blood chromophores. It is possible to achieve the special and temporal resolution of ~20 micrometers and ~0.5 s, respectively.

By utilizing Voltage-Sensitive Dyes and fluorescent microscopy, the surface of the brain is studied. These types of dyes are sensitive to changes of local electrical potential and hence can be good candidates to measure the neuronal activity. So the activity map of the brain surface can be measured in special and temporal resolution of ~50 micrometers and few millisecond respectively. We have also developed a Laser Scanning Confocal Microscope and have obtained three-dimensional images of various brain samples using the set up.

Keywords: Optical imaging, Speckle, Intrinsic, Voltage-Sensitive Dyes

Sex differences in response to stress induced memory impairment

Hassan Ghoshooni¹, Hedayat Sahraei¹

¹Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.

Abstract:

Mental illness may be related to the sex. For example, the rate of depression is larger in women than men. The severity of depression is related to plasma glucocorticoid levels. In addition, data indicated that the stress system is more sensitive in females. Neuroregeneration in the dentate gyros is sensitive to the glucocorticoid in the way that excesses in the glucocorticoid level increases the neuroregeneration in the female but decreases the phenomenon in the male. In the present study the effects of stress on memory impairment in male and female mice was investigated. Male and female NMRI mice divided into two experimental and control groups. The experimental group was experienced the stress of foot electric shocks (10 min; 40 mV, 10 Hz) for 4 consecutive days. Control mice were placed in the apparatus in off mode. Then the animals were The Barnes maze was used for memory evaluation. Our data indicated that stress increases the time and distance to reaching the target hole in the stressed groups. This increment was more pronounced in the female animals than the males. In conclusion, stress causes the memory impairment in both male and female which was more effective in females.

Key Words: Female; Male; Memory; Stress

Maternal separation decreased hippocampus insulin content accompanied with blunted spatial memory formation in male rats' offspring

Soheila Maghami¹, Homeira Zardoost^{1, 2*}, Fariba Khodaghali^{3, 4}, Mehdi Hedayati⁵, Hedayat Sahraei⁶

¹Department of Physiology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

²Neurophysiology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

³NeuroBiology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

⁴Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

⁵Cellular and Molecular Research Center, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

⁶Neuroscience Research Center, Baqiyatallah (a.s) University of Medical Sciences, Tehran, Iran

Abstract

This study explored the effects of maternal separation as a chronic early life stress on insulin content of hippocampus, and its possible relationship with spatial memory later in puberty.

Male rat offspring were divided into two groups of “stress” and “non-stress”. The stressed animals were separated from their mothers during postnatal days (PND) 1–21. At puberty the study animals were tested for spatial memory. One day after memory test termination, the animals were decapitated and their blood samples collected to measure plasma corticosterone concentrations and hippocampi were isolated to determine their insulin content.

Maternal separation increased plasma corticosterone levels in puberty but decreased hippocampus insulin content. Although at the end of memory tests the stressed rats reached the escape box using almost the same time and distance and errors as the non-stressed rats, the elapsed time and distance to reach the escape box were higher in the stressed rats than in the non-stressed ones at the first trials.

Overall, chronic maternal separation stress caused a trial dependent delay in spatial memory formation at puberty, which was accompanied by reductions in hippocampal insulin content. It seems that the elevated plasma corticosterone concentration along with the decrease in hippocampal insulin content were the major causes of the blunted memory formation in the stressed rats.

Key words: corticosterone; insulin; hippocampus; maternal separation; spatial memory

Using optogenetics for targeted neuromodulation

L. Dargahi¹, M.I. Zibaii², A. Ronaghi¹, M.H. Nazari², A. Haghparast¹, F. Motamdi¹

¹Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

²Laser and Plasma Research Institute, Shahid Beheshti University, Tehran 1983963113, Iran

(email: l.dargahi@sbmu.ac.ir)

Abstract: Controlling the activity of neurons is typically done with electrical stimulation or classical pharmacological approaches. However, the need for modulating the activity of specific neuron types embedded within brain circuits has led to development of new techniques like optogenetics and other approaches including DREADDs, magnetogenetics and sonogenetics. Optogenetics use genetic techniques for cell type-specific expression of opsins and then apply optics to control or monitor the activity of opsin-expressing light-sensitive cells. In the present work, we used lentivirus mediated delivery of excitatory channelrhodopsin-2 (ChR2(H134R)) or inhibitory halorhodopsin (eNpHR 3.0) genes into rat medial entorhinal cortex neurons, in different experimental groups. The activity of dentate gyrus (DG) neurons were then measured upon blue (473 nm) or yellow (589 nm) light illumination at different frequencies and pulse numbers, using single unit electrical recording. The correlation between light pulse frequencies and DG neuronal firing rates was analyzed at different pulse numbers. The results showed that yellow light pulses on halorhodopsin expressing neurons or blue light pulses on channelrhodopsin-2 expressing neurons both can increase or decrease DG neuronal firing rates. These results demonstrate that targeted neuromodulation not only could be achieved by targeted expression of specific opsin types, but also could be obtained by adjusting the light pulse specificities.

Keywords: Optogenetics, Halorhodopsin, Channelrhodopsin, Dentate gyrus neurons, Entorhinal cortex

Development of new advanced tools for manipulating neurons with optogenetics

M.I. Zibaii¹, H. Latifi¹, Z. Noraepour¹, M. Salmanpour, F. Karami¹, M.H. Nazari¹, A. Ghorbani¹, M. Mohammadi¹, A. Haghparast², L. Dargahi², A.Z. Ronaghi², Z. Fattahi², S. Chavoshinezhad², S. Jafar Abadi Ashtiani³, H. Sarfaraz³

¹Laser and Plasma Research Institute, Shahid Beheshti University, Tehran, Iran
(email: m_zibaye@sbu.ac.ir)

²Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

³School of Electrical and Computer Engineering, Tehran University, Tehran, Iran

Abstract: Optogenetics is a new neuromodulation technique which allows neurons to be controlled by light, instead of electrical current with spatial and temporal precision to study the real-time dynamics of the neural network and for clinical treatment of neurological diseases. For this purpose, neurons of interest are genetically encoded to produce and express light-sensitive proteins such as channelrhodopsin (ChR2) and halorhodopsin (NpHR). In this way, optogenetics provides multi-modal control over neural function, genetic targeting of specific cell types, and the potential to reduce electrical stimulation artifacts while recording electrical activity. Optical manipulation is fast, selective, and minimally invasive. It provides distinct advantages over traditional electrical means or pharmacological approaches for cell perturbation. It is predicted that the photon will progressively replace the electron for probing neuronal function, particularly for targeted stimulation and silencing of neuronal populations.

As optogenetic neuronal control strategies develop, the demand for devices allowing combined light delivery and electrophysiological recording is growing. These devices, commonly called opto-electrodes or optrodes, already exist under a wide variety of forms. We believe the optogenetics and optrode technology is going to play a crucial role in contributing to our deep understanding of how diverse classes of neural circuit components interact to give rise to complex behaviors, pathological conditions, and therapeutic responses. In this presentation, we introduced optical and electro optical devices designed for optogenetics experiments include fiber-optic for anaesthetized animals, hybrid probe (optrode) and coaxial optrode for simultaneous optical stimulation and electrical recording ,optopatch headstage for in vitro studies, implantable fiber optic cannula for freely moving animals and a multimodal optrode based on microstructure fiber optic for optical stimulation, electrical recording and drug injection as localized and simultaneous. Also, we present portable microdevices, multielectrode array and implantable systems carried by freely moving animals are being fabricated that take advantage of wireless energy harvesting to power a system and allow for natural movements that are vital for behavioral testing and analysis.

Keywords: Optogenetics, light-sensitive protein, Optical stimulation, optrode

The optogenetic manipulation of anterior cingulate cortex produces changes in behavior and cellular pathobiology in autistic like animal model

Seyedeh Elhamosadat Seyedjavad Javaheri², Mohammad Ismail Zibaii³, Leila Dargahi⁴,

Mohammad Reza Bigdeli¹

¹Institute for Cognitive and Brain Sciences, ²Faculty of Life Sciences and Biotechnology, ³Laser and Plasma Research Institute, Shahid Beheshti University, G.C., Tehran, Iran

⁴Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Introduction: Autism is neurodevelopmental spectrum disorder (ASD) caused by genetic and epigenetic agents. ASD leads to various parts of the brain changes, in particular deficit in the structure and function of the prefrontal cortex. Two main clinical features of that include deficits in social interactions and repetitive behaviors. As a main epigenetic factor result in autistic like disorder can be pointed to stress in sensitive moments of life, especially early maternal separation. The aim of this study was to investigate the effect of glutaminergic neurons activity enhancement in Cg1 region of anterior cingulate cortex as a part of medial prefrontal cortex on behavioral modification of autistic-like rats.

Material and method: In this research, twenty four Wistar rats were studied in three separate groups. Each group has eight members. To create autistic-like model in two groups, the process of separating the child from the mother at PND1 to PND10 days, three hours daily, was carried out. The members of control group, in this period of time, stayed next to their mothers. Then, to investigate the behavioral changes induced by effective interventions, Optogenetic technic using vector (plenty-CamKII-chR2 (h134R) -mchrry), to increase the activity of glutaminergic neurons in the Cg1 region of the anterior cingulate cortex (ACC), as an independent variable in the autistic-like group was used. To evaluate the interventional variable, the negative control group and another autistic-like group, as a sham group, also received vector (plenty-CamKII-mchrry). After passed time required for the expression of virus and six days duration of bilateral ACC region stimulation, with blue laser radiation in freely moving animals, behavioral tests include of open field test, for Measuring the amount of rearing and repetitive behaviors and stranger test, for evaluating the trend of rats to Communicate with a stranger's rat , were recorded.

Result: The studies indicated a significant reduction in self grooming duration as a repetitive behavior and a dominant increase in rearing, as search activation, also significant increase in trend of rat to stranger rat relative to familiar one, in the autistic-like group with chr2 compare with sham group. ($p \leq 0.05$).

Conclusion: there was no meaningful discrepancy between the chr2 carrier group and the negative control group. Therefore, functional impairment of the ACC glutaminergic circuits plays an important role in the occurrence of autistic-like behaviors; So that by increasing the performance of this circuit with optogenetic intervention, the clinical behaviors of autism disorder in autistic-like rat was improved.

Optogenetically activation of ventral tegmental area dopaminergic fibers can improve the cognitive behavior in kindled mice

Mahboobeh Ahmadi¹, Nahid Roohi¹, Yaghoob Fathollahi¹, Bechara Saab², Javad Mirnajafi-Zadeh¹

- 1- Department of Physiology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
- 2- Preclinical Laboratory for Translational Research into Affective Disorders, DPPP, Psychiatric Hospital, University of Zurich, Switzerland

Optogenetic allows tight spatial and temporal control of the activity of specific kinds of neurons in the living brain. By using this technique, the researcher can determine the precise role of different neurotransmitters and neuromodulators. Dopamine is a neuromodulator in the central nervous system that is thought to play an important role in many functions including the seizure-induced cognitive impairments. To determine the effects of dopaminergic fibers stimulation on cognitive behaviors, we used DAT Cre + mice. Cre+ mice were genotyped by PCR. AAV1.EF1a.DIO ChR₂(H134R).eYFP.WPRE.hGH was injected into the VTA to express ChR₂ in the VTA dopaminergic neurons. The expression of ChR₂ was detected through fluorescence microscopy. Four weeks following virus injection, animals were anesthetized and the optrode was implanted into the ventral tegmental area (VTA). Behavioral stages of seizure was monitored for 30 min following PTZ injection To determine the effect of photo-stimulation of VTA dopaminergic neurons on object recognition test, animals were stimulated through optrode(1 Hz, 5 ms, 600 pulses, 25 mW). Obtained results showed that photostimulation of VTA improves the short term spatial memory while have insignificant effect on non-spatial memory.

Keywords: Optogenetic, Object recognition, Dopamine

Neural strategies for information coding

**Mohammadreza Daliri
Moein Esghaei**

The human visual system encodes an extraordinarily large feature space, enabling us to perceive an unlimited variety of visual concepts. The neural mechanisms/strategies used by the central nervous system to carry out this coding is not fully clear. Here we introduce the efforts we have put to solve this problem in our lab, using electrophysiological recordings in non-human primates and humans. We explore some of our recent results suggesting that synchrony either within or between brain regions could encode the spectrum of visual complexity, all the way from primitive visual features to high-level object categories. We further introduce some of our findings on how different visual features could be encoded and conjoined in a single brain region, allowing us to perceive multi-dimensional real-world visual concepts.

Role of stem cell in stroke treatment

Masoud Mehrpour MD, MPH

Head of stroke center

Firoozgar general hospital

Iran university of medical sciences

Stroke is the second cause of death in the world. Although it has been well controlled in developed countries. On the other hand, stroke is still a leading cause of long-term disability and the leading preventable cause of disability, according to the American Heart Association.

New era for stroke treatment are focused on treating the root cause by repairing the damaged cells and tissue through targeted replacement of neural cells.

Clinical trials of stem cell therapy in patients with stroke have been conducted using adult stem cells like mesenchymal stem cells and bone marrow mononuclear cells for more than two decades. Results of randomized controlled trials showed that adult stem cell therapy was safe but its efficacy was controversial and need more studies and new stem cell therapy strategies. Our limited experience on autologous bone marrow mononuclear cells for acute stroke showed safe during one year follow up and also showed promising improvement in function.

It is too soon to expect that stem cell therapy can revolutionize the stroke treatment, but it can help for decreasing disabilities.

Spiking Activity Locked with a Specific Beta Oscillation Phase of the Subthalamic Nucleus in Patients with Parkinson's Disease

Sina Salehi¹, Mohammadamin Khosrozadeh¹, Arsham Ghavasieh¹, Ali Razmkon², Peyman Petramfar³, Majid Reza Farrokhi^{1,2}

1 Shiraz Neuroscience Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

2 Department of Neurosurgery, Shiraz University of Medical Sciences, Shiraz, Iran

3 Department of Neurology, Shiraz University of Medical Sciences, Shiraz, Iran

Correlative evidence suggests that an abnormal synchronized oscillatory activity in the basal ganglia may contribute to bradykinesia in patients with Parkinson's disease (PD). This synchrony preferentially occurs over 13–30 Hz, the so-called beta band, and even a direct stimulation of the basal ganglia in the beta band slows movement. Moreover, beta activity is increased when the movement has to be resisted or voluntarily suppressed. We simultaneously recorded both local field potential (LFP) and multi-unit activity from the subthalamic nucleus (STN) of 5 patients with PD during stereotactic deep brain stimulation surgery. The power spectral density (PSD) was calculated for the recorded data over 10 second in each depth using Welch's method. We compared PSD at the high frequency band (500-3000 Hz) in each recorded depth to identify the borders and length of the STN. Then the spike field coherence (SFC) inside and outside the STN were calculated. Our findings showed higher beta activity in LFP when microelectrodes were entered into STN. Furthermore, SFC showed that the neuronal spiking in STN was locked to the beta oscillations in the LFP and this coupling was mostly happened between $\frac{\pi}{4}$ to $\frac{\pi}{3}$ beta phase.

Intraoperative Neurophysiology Monitoring During Dorsal Rhizotomy in a Case of Spastic Cerebral Palsy

Ahmad Soltani¹, Sina Salehi², Hamid Nemati^{2,3}, Majid Reza Farrokhi^{1,2}

¹ Department of Neurosurgery, Shiraz University of Medical Sciences, Shiraz, Iran

² Shiraz Neuroscience Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

³ Department of Neurology, Shiraz University of Medical Sciences, Shiraz, Iran

Selective dorsal rhizotomy (SDR) is a neurosurgical procedure which has been currently used as a surgical treatment for children with spasticity in the legs. In SDR, partial sectioning of the dorsal roots from L2 to S1 or S2 is usually performed. The primary goal of SDR is to reduce spasticity and to improve the range of movement with preservation of muscle strength by identifying components of dorsal roots involved in spasticity on the basis of intraoperative electrophysiological stimulation. Currently SDR is most commonly performed for the treatment of spastic cerebral palsy (CP) in children. We report herein an 8-year-old child with spastic CP who underwent IONM during SDR for treating his spasticity. Intraoperative nerve monitoring, consisting of motor evoked potentials (MEP), direct nerve root stimulation (dNRS), and free run electromyography (fEMG), was performed during the surgery. Electrophysiological monitoring was used first to help a differentiation between the ventral and dorsal roots and cutting the abnormal sensory rootlets. Each dorsal root was divided into 3 to 4 rootlets and each rootlet was suspended by hook electrodes. Then, while recording the EMG from the muscles, the dorsal rootlets were stimulated with pulses of 1-3 mA and a frequency of 50Hz. After the operation, his motor power of the lower extremities in proximal and distal muscles was 4 out of 5, his saddle sensation was normal, and there was no urinary and stool incontinency. Two months after the surgery, the patient could walk independently without help while before the operation, he could not.

Contribution of body and face selective ventral temporal cortical areas in representation of bodies

Sina Salehi^{1,2}, Josef Parvizi²

¹ Shiraz Neuroscience Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

² Laboratory of Behavioral & Cognitive Neuroscience (LBCN), Stanford Human Intracranial Cognitive Electrophysiology Program (SHICEP), Department of Neurology & Neurological Sciences, Stanford University, Stanford, California, USA

Unlike Fusiform Face Area (FFA), it is very recently introduced Extrastriate and Fusiform Body Areas (EBA, FBA) in the human brain and there were a few works about their function in body representation. To investigate this, we recorded intracranial EEG signals from the ventral temporal cortex of epilepsy patients implanted with subdural electrodes while they viewed different categories of faces, bodies as well as non-face stimuli. High Frequency Band of the iEEG signal were used as a response of cortical areas to the stimuli.

Like the FFA response to face subcategories, FBA had graded response to human body, mammal, bird and marine bodies but this was not true for FFA response to body and FBA response to face. Unlike FFA onset of response to face subcategories, FBA onset of response was almost the same to the 4 body subcategories and their timing were later than the face. Population analysis showed that pattern of activity across all body selective sites in VTC were correlated in response to body and some face stimuli, while for the face selective sites the correlation was for the face stimuli only. Interestingly, when we considered both face and body selective sites together, the population activity were highly correlated for face and body stimuli separately with reverse correlation between faces and bodies. These results suggest the cooperation of face and body selective cortical networks in representation of bodies.

Maternal stress reduces brain insulin content and induced learning and memory impairment in female F1 mice

Massomeh Mohammadi¹, Ali Haeri-Rohani¹, Parichehr Yaghmaei¹, Hedayat Sahraei²

¹Azad Islamic University, Science and Research Unit, Tehran, Iran.

²Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.

Abstract:

Early life stress is one of the most important determinants of the occurrence of mental illness in adulthood. In the present study the effects of intra-uterine stress on brain insulin content and memory impairment was investigated in the male F1 generation of NMRI mice. Female NMRI mice (purchased from the Pasteur Institute of Iran) were isolated from males after 24 hours mating and the zero day of pregnancy was confirmed by the presence of sperm in vaginal smear. The pregnant mice were then divided into two experimental and control groups. The experimental group was placed from day 1 of pregnancy until day 15 for 10 minutes under the stress of foot electric shocks (40 mV, 10 Hz). Control mice were placed in the apparatus in off mode for 10 minutes. On the first day after the shock and also on the 15th day, blood samples were taken from the retro-orbital sinus for the plasma corticosterone levels evaluations. Then the animals gave birth to their children and they took care of them until the thirtieth day which the F1 male and females animals were separated and were divided into four groups namely: male control, Female control, Male stress, and female stress. On the seventh day, experiments began. The Barnes maze was used for memory evaluation. Stiles a number of mice were first anesthetized and their brains were takeout and homogenized, and their brain insulin levels were measured. Our data indicated that stress increases the time and distance to reaching the target hole in the F1 generation as well as the decrease in brain insulin content in these animals. In conclusion, intra-uterine stress causes the memory impairment and decreases brain insulin content in the mice which may be true in human as well.

Key Words: Brain Insulin; F1 Generation; Memory; Stress

At the onset of the linguistic network

Fabrice Wallois (Director of the Inserm U 1105, University of Picardy)

Abstract: The development of the nervous system involves many processes related to genetic factors that allow the progressive weaving of neural networks and exogenous learning factors related to exposure to the environment. These different processes contribute to the establishment of structural and functional neurobiomarkers that can be addressed by non-invasive techniques to establish the normality or the malfunction of neuronal networks at an early stage of development. Concerning the functional analysis, electroencephalography (EEG) showed its relevance in the early evaluation of the normality of the brain activity. Its excellent temporal resolution makes it a tool of choice for the identification of early neurobiomarkers of initial development. The EEG makes it possible to directly question the activity of the neural networks both at rest and during sensory and cognitive stimulation from prematurity. Recently the U1105 unit has developed an innovative approach by making high-resolution EEG (EEG-HR) acquisitions in preterm and term infants so as to minimize the poor spatial resolution of the EEG at this early stage of development. Another way of indirectly addressing brain function is by analyzing the repercussions of brain activity on hemodynamic activity through neurovascular coupling. This is achieved by Optical Functional Imaging techniques using High-Density Near-Infrared Spectroscopy (IFO-HD). Combining EEG and optical imaging technique make it possible to study the activity of the neuronal and vascular networks very early during development and thus to identify early neurobiomarkers (1) of the spontaneous functional activity of the neurovascular entity and (2) the implementation of place of neurovascular coupling. They also make it possible to analyze the adaptation of the neurovascular entity to external stimuli and thus to define neurobiomarkers of the functional capacities of the networks in terms of sensorimotor and cognitive functional maturation with a good spatial resolution. We will present results on the establishment of the neural networks, Its functionalities in response to language stimulations and the maturation of the fine tuned articulation that exists between the neuronal and vascular system at this early stage of development in 28 weeks Gestational age premature.

The languages of the brain: How did language and mathematics emerge in humans during the course of evolution?

Stanislas Dehaene (Professor of Experimental Psychology the Collège de France)

Abstract: Scientists since Galileo have insisted that mathematics is structured as a language – but is this language similar to spoken language? Do mathematicians use classical language areas when doing mathematics? In the first part of the talk, I will present converging evidence that the left posterior superior temporal sulcus (pSTS) and inferior frontal gyrus (IFG, pars triangularis and orbitalis) play a central role in the syntax of spoken and written natural languages. In the second part, I will present fMRI studies investigating whether these brain areas also contribute to various aspects of mathematics. When professional mathematicians reflect upon high-level mathematical concepts in algebra, analysis, geometry or topology, the activation spares classical language areas. Instead, high-level mathematics involves bilateral intraparietal areas involved in elementary number sense and simple arithmetic, and bilateral infero-temporal areas involved in processing Arabic numerals. The evidence suggests that the acquisition of mathematical concepts recycles areas involved in elementary number processing. My conclusion will be that human brains are attuned to many different languages – spoken, written, mathematical, musical... – and that brain evolution may have endowed the human brain with a widespread ability to manipulate nested syntactic structures in most, if not all domains of human cognition.

The moral imperative of neuroscientists in ethics and law – Methods

Julia Christensen (Postdoctoral Fellow at the Warburg Institute, City University of London)

Abstract. A range of disciplines including cognitive neuroscience and experimental psychology investigate the question of what guides our moral judgment and behaviour. One method used extensively in this endeavour are ‘moral dilemmas’. Human sense of what is right and what is wrong in a given dilemmatic situation seems to be triggered by specific parameters of that situation. Therefore, moral dilemmas are formulated in such way that they probe for particular parameters, teasing them apart, as much as allowing to investigate the interaction between various parameters. However, given the complexity of dilemmatic situations, dilemma creation is troublesome. Different moral dilemma libraries are available in literature for empirical research. The most extensively used are the Trolley type dilemmas proposed by Foot, (1967) and Thomson (1976), and extended by researchers such as Greene et al. (2001, 2004) and Moore (2011). We have revised and validated a dilemma set based on these previous dilemmas. I will present this dilemma set and outline pros and cons. I then briefly present and discuss other types of paradigms available in cognitive neuroscience of morality, examining the benefits of implicit tasks as opposed to moral dilemma paradigms which probe for people’s explicit moral judgment. Finally, I discuss the difficult question what neuroscientific evidence might mean in the court room. It stands clear that no neuroscientific evidence should be used as the basis for criminal convictions, as the data do not allow for any certainty of judgment. However, what can this type of data tell us about the human mind and (criminal) behaviour? Nothing at all?

The moral imperative for neuroscientists in marketing

Joseph Devlin (Professor at the University College London, Department head of experimental Psychology)

Abstract. Consumers are not the “rational actors” assumed by economic theory – they are idiosyncratic human beings who make decisions based on emotions, heuristics and biases they are hardly aware of. Consequently, businesses, government, and organizations have considerable interest in how psychology and neuroscience can be applied to better understand behaviour and improve communication. Neuromarketing companies offer services to meet this demand, albeit often making outrageous claims and egregious errors. What responsibility do we, the scientific community, bear? We generate the information, knowledge, and insight but frequently leave others to interpret and use them. Similar examples from history illustrate that a failure to engage can have unwanted, and indeed, dangerous consequences. In this talk I will argue that we have a moral obligation to participate in these efforts beyond simply pointing out neuromarketing mistakes. Like it or not, neuroscientists are the best suited to use this knowledge responsibly, generate valid insights and apply them appropriately.

A multi-modal neuroimaging approach to track abstinence-mediated changes in brain structure and function in drug addiction

Muhammad Adeel Parvaz (Assistant Professor of Psychiatry, Icahn School of Medicine at Mount Sinai)

Abstract: Persistent deficits in the brain's structural and functional integrity characterize drug addiction. However, it is unclear whether these deficits recover with protracted abstinence in individuals with cocaine use disorders (iCUD). In this talk, I will present data from three different studies. The first study longitudinally quantified changes in brain structure and function using MRI and EEG techniques in 19 iCUD between baseline (4 – 6 weeks of abstinence) and a 6-months follow-up. The second study cross-sectionally tracked drug-cue reactivity in 76 iCUD with varying abstinence duration (2-days, 1-week, 1-month, 6-months, and 1-year). The last study examined self-regulation of drug-cue reactivity in 37 iCUD using EEG and eye-tracking. At follow-up, compared to baseline, iCUD showed: 1) increased grey matter volume in the vmPFC and the left IFG, which correlated with improved Wisconsin Card Sorting Task performance; 2) higher task activation in the midbrain, which correlated with reduced simulated cocaine choice; 3) increased reactivity to pleasant pictures but no difference in drug-cue reactivity. In the cross-sectional study, drug-cue reactivity revealed a parabolic inverted U-shaped trajectory with increasing abstinence duration (highest at 1- and 6-months). Results further show that iCUD can self-regulate cue-reactivity, which in turn lowers the drug-cue-related attention-bias. With these results, we have strived to show that psychophysiological and neuroimaging-based biomarkers can elucidate abstinence-mediated recovery in brain structure and function, a non-linear trajectory of drug-cue reactivity, and its self-regulation with associated spontaneous modulation of drug-cue-related attention-bias. These results call for development and application of more sophisticated neuroimaging methods to objectively track disease prognosis and treatment outcomes in drug addiction.

Neuromodulation of oscillatory circuits in the central nervous system: Lessons from a small circuit

Farzan Nadim (Professor in the department of mathematical sciences at New Jersey Institute of Technology)

Abstract: Neuromodulators are biochemicals that are released as neurotransmitters and hormones, and alter the excitability of neurons and the strength and dynamics of synapses. Consequently, neuromodulators can rapidly alter the properties of brain networks. All brain networks are influenced by multiple neuromodulators, each influencing distinct but overlapping neuron subtypes in the network. Neuromodulatory actions can drastically influence brain activity, as seen in the sleep-wake cycle where the entire brain can change its functional output as a consequence of the influence of a few monoamines and neuropeptides.

Although the actions of some modulators such as dopamine has been extensively studied at the level of individual neurons and brain systems, few studies have explored how modulation of neurons and synapses leads to distinct and specific network outputs. Even fewer studies have examined co-modulation of network activity, or how multiple modulators interact. This is partially due to the fact that understanding the consequences of neuromodulation is difficult, because neuronal activity is inherently nonlinear. Neuronal circuits in invertebrate systems have provided a wealth of knowledge on neuromodulatory actions, because these systems often have a small number of neurons with known network connectivity (connectome). I will show how studying neuromodulation of central pattern generator networks in the crustacean stomatogastric ganglion (STG) has provided insight into neuromodulation of network oscillations, and I will provide examples of the approaches that can be used to clarify the principles underlying co-modulation.

Count: 1

Abstract ID: 123

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effect of pre-training left prefrontal transcranial direct current stimulation (tDCS) on the impairment of fear memory induced by scopolamine

Submission Author: Shahsanam Abbasi

Shahsanam Abbasi¹, Mohammad Nasehi², MohammadReza Zarrindast³, Hamid Reza Soleimanpour- Lichaei⁴

1. Department of Stem Cells and Regenerative Medicine, National Institute of Genetic Engineering and Biotechnology, Tehran, Iran
2. Institute for Cognitive Science Studies (ICSS), Tehran, Iran
3. Institute for Cognitive Science Studies (ICSS), Tehran, Iran
4. Department of Stem Cells and Regenerative Medicine, National Institute of Genetic Engineering and Biotechnology, Tehran, Iran

Background and Aim : Given the positive effect of tDCS on cognitive deficits, we aimed to determine whether the left prefrontal pre-training application of anodal or cathodal tDCS would improve the scopolamine-induced memory deficit

Methods : We applied pre-training left prefrontal anodal or cathodal tDCS (200 μ A, at 20 or 30 min duration) in scopolamine (0.02 and 2 mg/kg) treated mice

Results : Our results revealed that pre-training systemic administration of scopolamine (2 mg/kg) disrupted both contextual and auditory fear conditioning. Applying anodal or cathodal tDCS, regardless of the duration of stimulation, impaired the acquisition/retrieval of cued and contextual fear conditioning in both groups of the mice which received saline or ineffective doses of scopolamine (0.02 mg/kg). In mice treated with the effective doses of scopolamine, anodal but not cathodal tDCS could restore the scopolamine-induced contextual conditioning deficit. While both types of stimulations did not improve the scopolamine -induced auditory fear conditioning deficit, they facilitated the retrieval of both contextual and cued fear memory

Conclusion : so it seems that application of anodal tDCS would improve the scopolamine induced contextual fear memory deficit.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : transcranial direct current stimulation (tDCS); Scopolamine; Fear memory conditioning

Count: 2

Abstract ID: 677

subject: Cognition: Learning and Memory

Presentation Type: Poster

Methadone-induced impaired on memory and motor functions after an acute methadone overdose in naïve adolescent male Wistar rats

Submission Author: Leila AhmadMolaei

Leila AhmadMolaei¹, Abbas Haghparast²

1. Neuroscience Research Center, School of Medicine, Shahid Beheshti University
2. Neuroscience Research Center, School of Medicine, Shahid Beheshti University

Background and Aim : Methadone has long been used for the treatment of pain, opioid dependence, detoxification or maintenance in opioid addiction due to its long efficacy and low cost. Despite its widespread use and availability, the serious concern with respect to methadone relatively safety remains obscure. Therefore, the purpose of this study is to characterize how acute methadone overdose affect the cognitive and motor performances in naïve healthy rats.

Methods : In order to induce acute methadone overdose, rats intraperitoneally (i.p.) received a single toxic dose of 15 mg/kg of methadone at equivalent doses (80% of the LD50). In order to evaluate cognitive and motor functions in rats in which have experienced apnea, an acute single dose of naloxone (2 mg/kg; i.p.) were administered following methadone-induced apnea.

Results : Our data revealed that a single toxic dose of methadone had no or subtle adverse effect on spontaneous behavior, but recognition memory impairment obviously seen in M/N-Day 5 group after methadone-induced apnea. In addition, descending time in both M/N-Day 5 and 10 groups, significantly increased in comparison with the control or M/N-Sedate groups.

Conclusion : it seems that an acute toxic dose of methadone revealed the delay-dependent impairment following methadone overdose-induced apnea

Keywords : Methadone; Cognitive performance; Motor coordination; Overdose; Toxic dose; Rat

Count: 3

Abstract ID: 375

subject: Cognition: Learning and Memory

Presentation Type: Oral

Phone sequence modeling using the formation of attractor dynamics in recurrent neural networks

Submission Author: Zohreh Ansari

Zohreh Ansari¹, Seyyed Ali Seyyedsalehi²

1. Biomedical Engineering Faculty, Amirkabir University of Technology
2. Biomedical Engineering Faculty, Amirkabir University of Technology

Background and Aim : In contrast with multilayer perceptron neural network, there are many recurrent connections between brain areas. Therefore, recurrent neural networks are more biologically plausible. In a recurrent neural network, the output of the network is fed back to its input. Therefore, with a constant external input, the state of the network is gradually changed by iterating through the recurrent connections. Changing the state of the network is continued until the network reaches an equilibrium point. This state is an attractor. The behavior of such a dynamic neural network corresponds to its weight values. If the network is trained well on the training patterns, the equilibrium points of this neural network will be those patterns. Thus, if a noisy sample of one of the learned patterns is given to the network, the state of the network changes in each iteration until it reaches to the corresponding point attractor. This property of attractor neural networks provides them the capability to be used in information retrieval and nonlinear filtering. In this article, attractor dynamics that can be formed in nonlinear recurrent neural networks are used for phonetic modeling in an Automatic Speech Recognition (ASR) system. A typical ASR system includes two main modules: acoustic model and phonetic model. An acoustic model models the sequence structure of speech representations into speech units like phones. While, a phonetic model models the temporal dependencies between phone labels.

Methods : The proposed recurrent neural network includes two recurrent connections. One recurrent connection is considered to model the temporal dependency between sequences of phones. The second connection from the output layer to the input regards for dynamic behavior of the network. Training of the proposed recurrent neural network for phonetic modeling is performed such that clean phone sequences are considered as its point attractors. In the test phase, the recognized phone sequences are fed to the proposed phonetic model. The recurrent connections

change the state of the network until the associated attractor is found out. Consequently, the network outputs more accurate phone sequences. By modifying the proposed phonetic model structure to cluster the related sequences in a multi-task learning way, its efficiency is improved.

Results : The advantage of the proposed recurrent neural network and its modifications was evaluated on FARSDAT (a Persian speech dataset). Experimental results verify that phone sequence modeling by implementing the formation of attractor dynamics in the proposed recurrent neural network structure achieves up to 6% absolute improvement over the phone accuracy rate of a well-behaved deep neural network acoustic model. This advance is comparable with that achieved by the well-known bi-phone phonetic model.

Conclusion : In this article, we presented a phonetic model which utilizes the formation of attractor dynamics for nonlinear filtering of invalid phone sequences. The point attractors of this neural network can correspond to the trained valid phone sequences. Thus, if the network is fed with a noisy version of the trained patterns, the state of the network evolves until it achieves to an equilibrium point. Moving towards point attractors aims to reach an improved speech recognition performance.

Keywords : recurrent neural networks; attractor dynamics; phonetic modeling; speech recognition

Count: 4

Abstract ID: 179

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effects of metformin on tactile learning, anxiety-like behavior and Brain Derived Neurotrophic Factor (BDNF) in ovariectomized mice

Submission Author: Maryam Bahmani

Maryam Bahmani¹, Dr. Mohammad Allahtavakoli², fatemeh Delrobaei³

1. Iran University of Medical Sciences Physiology Research Center
2. Physiology-Pharmacology Research Center, Rafsanjan University of Medical Sciences
3. Physiology-Pharmacology Research Center, Rafsanjan University of Medical Sciences

Background and Aim : Estrogen regulates many processes in the brain such as synaptic formation, learning, and memory. Empirical evidence shows that there is a correlation between menopause, memory deficit, and anxiety due to Estrogen deficiency. In this study we tested the effect of Metformin with Antioxidant Effect, which can improve the impairment of tactile learning and anxiety-like behavior in ovariectomized mice

Methods : Thirty-two female mice weighting 20 ± 5 g were divided into four groups of eight randomly, including sham group, ovariectomy, ovariectomy and doses (7, 15mg/kg) of Metformin. At first animals were ovariectomized and then they were treated with the doses of the Metformin or water for 21 days. Then, tactile learning, anxiety like-behavior (by Elevated Plus-maze) and BDNF Serum levels were determined

Results : Metformin at the doses of 7 or 15 mg/kg significantly improved tactile learning compared to ovariectomy group ($p < 0.001$). Metformin at the doses of 7 or 15 mg/kg significantly increased Open Arm Time (%OAT) compared to ovariectomy group ($p < 0.01$). Also Metformin at the doses of 7 or 15 mg/kg increased Open Arm Entries (%OAE) ($p < 0.001$). Also Metformin at the doses of 7 or 15 mg/kg increased BDNF Serum levels compared to ovariectomy group ($p < 0.01$).

Conclusion : Metformin especially at the dose of 7 mg/kg showed a significant role in the improving of anxiety tactile learning in ovariectomized mice

Keywords : Ovariectomy, Metformin, tactile learning, anxiety like-behavior

Count: 5

Abstract ID: 425

subject: Cognition: Learning and Memory

Presentation Type: Poster

The effects of aminoguanidine on hippocampal neurotrophin, cytokines level, brain oxidative stress status and memory deficits induced by lipopolysaccharide in rats

Submission Author: Farimah Beheshti

Farimah Beheshti¹, Mahmoud Hosseini², Majid Khazaei³, Hamid Reza Sadeghnia⁴, Mohammad Soukhtanloo⁵

1. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
2. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
3. Neurogenic Inflammation Research Center, School of Medicine, Mashhad University of Medical Sciences, Iran
4. Pharmacological Research Center of Medicinal Plants, Mashhad University of Medical Sciences, Mashhad, Iran
5. Department of Biochemistry, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : In the present study, the effect of an inducible NO synthase (iNOS) inhibitor, aminoguanidine (AG) on lipopolysaccharide (LPS)-induced memory impairment and hippocampal neurotrophin, cytokines level, brain oxidative stress status was evaluated.

Methods : The rats were divided into 5 groups and treated: 1) Control (Saline), 2) LPS (1 mg/kg), 3-5) LPS- AG50, LPS-AG100 and LPS-AG150 (AG 50, 100 and 150 mg/kg 30 min before LPS injection). The treatment was started 5 weeks before the behavioral experiments and continued during the behavioral tests (LPS injection two h before each behavioral experiment). Finally, brain tissue was removed for biochemical measurements. All data are presented as the mean \pm SEM. The analysis was performed using the SPSS software version 16.

Results : The escape latency in Morris water maze (MWM) test and the latency to enter the dark compartment in Passive avoidance (PA) test in LPS group were significantly higher than in control ($P < 0.001$) whereas, in LPS-AG 100 and LPS-AG150 groups they were shorter than LPS group (P

<0.001). Malondialdehyde (MDA), NO metabolites, interleukin- 6 (IL-6), Amyloid beta and tumor necrosis factor- α (TNF α) concentration in the hippocampus of LPS group were higher than control group ($P < 0.001$ - $P < 0.05$) while, in LPS-AG 100 and LPS-AG150 group they were lower than LPS group ($P < 0.001$ - $P < 0.05$). The thiol content and the activities of superoxide dismutase (SOD) and catalase (CAT) in the hippocampus of LPS group reduced compared to control group ($P < 0.001$ - $P < 0.05$) while, in LPS-AG 100 and LPS-AG150 groups they enhanced compared to LPS ($P < 0.001$ - $P < 0.05$). The hippocampal content of brain-derived neurotrophic factor (BDNF) in LPS group was significantly higher compared to the control group ($P < 0.001$). All treated group had lower BDNF content compared to LPS group ($P < 0.01$ - $P < 0.001$).

Conclusion : Briefly, our results indicated that detrimental effects of LPS on learning and memory is mediated by neuro-inflammation, brain tissue oxidative damage and decreasing the BDNF. With respect to the protective effects of AG against LPS-induced memory which was accompanied with decreasing of inflammatory cytokines, oxidative stress and increasing the anti-inflammatory mediators could be postulated. Additionally, increasing level of BDNF was another possible mechanism of AG for improving the cognitive dysfunction induced by LPS.

Keywords : Learning; Memory; Lipopolysaccharide; Aminoguanidine; neurotrophin; cytokines

Count: 6

Abstract ID: 350

subject: Cognition: Learning and Memory

Presentation Type: Poster

hippocampal signaling pathways mediate the stress-induced potentiation of scopolamine amnesia in rats

Submission Author: Mehdi Eivani

Mehdi Eivani¹, Sakineh Alijanpour², Ehsan Arefian³, Ameneh Rezayof⁴

1. Department of Animal Biology, School of Biology, College of Science, University of Tehran, Tehran, Iran.
2. Department of Biology, Faculty of Science, Gonbad Kavous University, Gonbad Kavous, Iran.
3. Department of Microbiology, School of Biology, College of Science, University of Tehran, Tehran, Iran
4. Department of Animal Biology, School of Biology, College of Science, University of Tehran, Tehran, Iran.

Background and Aim : Stress has effects on the different aspects of life especially learning and memory processes. The stressful situation activates the sympathetic nervous system and the hypothalamus-pituitary-adrenal (HPA) axis. Moreover, it has been shown that scopolamine (SCO), a muscarinic acetylcholine receptor antagonist interferes with cognitive functions in humans and animals. SCO has been widely used to induce an experimental model of Alzheimer's disease. The hippocampus is one of the important brain areas that plays a vital role in memory formation, and it is also an area that is very susceptible to stress. A large body of evidence indicated the alteration of brain-derived neurotrophic factor (BDNF), c-Fos and cAMP response element binding protein (CREB) during learning-related events. Considering these, the aim of the present study was to investigate whether (1) acute stress can affect the SCO-induced impairing effect on memory retrieval, (2) the hippocampal signaling pathways play a critical role in this process.

Methods : A step-through passive avoidance task was used to assess memory performance in male Wistar rats (200-220 g). An elevated platform (EP) apparatus was also used to induce stress. The alterations in the p-CREB/CREB ratio, and the levels of C-Fos and BDNF in the hippocampus were examined by Western blot analysis.

Results : The results showed that pre-test administration of SCO (0.5-2 mg/kg) dose-dependently induced amnesia and reduced the hippocampal p-CREB/CREB ratio and the levels of c-fos and BDNF. Moreover, the exposure to the acute elevated platform stress (10 min) potentiated the effect of an ineffective dose of scopolamine (0.5 mg/kg) on memory retrieval and decreased step-through

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

latency. Interestingly, a significant reduction in the p-CREB/CREB ratio and the levels of c-fos and BDNF in the hippocampus was observed following the mentioned treatment.

Conclusion : Taken together, these findings suggest that the exposure to the acute stress potentiates the SCO-induced memory impairment possibly via the attenuating of the p-CREB/CREB ratio, c-fos and BDNF levels in the hippocampus of the rats.

Keywords : Stress; Scopolamine; Hippocampus; BDNF; CREB; Rat

Count: 7

Abstract ID: 53

subject: Cognition: Learning and Memory

Presentation Type: Poster

The effects of donepezil and lovastatin on the reference and working memory by using 8 radial arm-maze task in male rats model of Alzheimer's disease

Submission Author: Azade Eskandary

Azade Eskandary¹, ahmad ali², hossein³, mohamad reza⁴

1. shahid chamran univercity
2. moazedi
3. najaph zade varzi
4. akhond

Background and Aim : Donepezil is the common standard symptomatic treatment of mild-to-moderate alzheimer's disease (AD) patients. However, experience from clinical practice with AChE inhibitors indicated only moderate efficacy and emergence tolerance. Thus, several pharmacological approaches can be used to conquer this incompetence. Among them, the combination of several drugs is widely used. Statins, an inhibitor competitive inhibitors of 3-hydroxy-3-methylglutaryl coenzyme A- (HMG-Co-A) reductase, are commonly prescribed drugs for the treatment of hypercholesterolemia. However, growing evidences demonstrated that this class of medicines exert neuroprotective effects in neurological disorders including Alzheimer's disease. To confirm such events, we investigated whether co-administration of lovastatin with donepezil had a synergistic cognition-improving effect in an animal model of AD.

Methods : Material and methods: In this experimental study, 35 adult male wistar rats were divided into 5 groups: NBM lesion group, which received electrically- induced lesion (0.5 m A, 3s) in NBM, Sham group (the electrode was impaled in to the NBM with no lesion), donepezil group (lesion + donepezil 0.1mg/kg), lovastatin group (lesion+ lovastatin 1 mg/kg), interaction group (lesion+ donepezil-lovastatin). Acquisition and retention testing was done by using an eight-radial arm maze task. For acquisition and recall testing, the pattern of arms entries was analyzed for types of errors.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : . Results: Bilateral NBM lesion indicated the reduction of spatial memory in the form of increasing of working and reference memory errors in acquisition test ($P? 0.05$). It further reduced these function in retention testing compared to the sham group. Combination treatment with donepezil and lovastatin improved the parameters of spatial memory errors in the acquisition and retention tasks comparing to the lesion group ($P? 0.05$).

Conclusion : Conclusions: Our results shown that the mutual lesions of NBM by electric current in rats induced significant destruction in working and reference memory by radial arm maze task. Co-administration of donepezil and lovastatin leads to improved spatial memory parameters in the eight-arm radial maze task. It seems that the synergistic effect may be mediated through increases ChAT activity and increase Ach to compensate for the cholinergic deficit in rat model of alzheimer' s disease.

Keywords : Alzheimer disease, Nucleus Basalis Mynert, Lovastatin, Donepezil, Radial maze

Count: 8

Abstract ID: 685

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effects of Glibenclamide on memory retention of passive avoidance learning in rats

Submission Author: Mohammad hossein Esmaeili

Mohammad hossein Esmaeili¹, mohammad Sofiabadi², Hashem Haghdoost³

1. Dept of physiology, Qazvine university of medical Sciences, Qazvine, Iran
2. Dept of physiology, Qazvine university of medical Sciences, Qazvine, Iran
3. Dept of physiology, Qazvine university of medical Sciences, Qazvine, Iran

Background and Aim : Peripheral and central injections of glucose enhance learning and memory in rats, and block memory impairments produced by morphine. One mechanism by which glucose might act on memory is by regulating the ATP-sensitive potassium channel. This channel may couple glucose metabolism and neuronal excitability, with channel blockade increasing the likelihood of stimulus-evoked neurotransmitter release. The aim of present study, was to investigate the effects of the ATP-sensitive potassium channel blocker Glibenclamide (Gla) on memory retention of passive avoidance learning in rats.

Methods : 40 male wistar rats were divided into: control, DMSO and Gla groups. All rates were trained in a passive avoidance task (50Hz, 1mA, for 3sec). DMSO (0.2ml) or Gla (1, 2, 5 mg/kg, i.p.) were injected for 10 days before training. Retention test was done 48h later. Memory retention of each animal was measured as latency takes to enter the dark chamber of the task.

Results : Gla impaired memory retention in a dose-dependent manner, So that the time spent in the light chamber area before entering to the dark area and Total time spent in the light chamber in the Gla groups were less than control group. These times in the Gla (5 mg/kg) group was significantly lower than control group ($p < 0.05$) Conversely Total time spent in the dark chamber in the Gla groups were higher than control group

Conclusion : Gla as an ATP-sensitive potassium channel blocker, probably through increasing Plasma insulin levels and thus decrease blood glucose, leads to memory loss in a dose dependent manner.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Glibenclamide , memory, learning

Count: 9

Abstract ID: 822

subject: Cognition: Learning and Memory

Presentation Type: Poster

rTMS Improves memory performance in individuals with Mild Cognitive Impairment via stimulating the left dorsolateral prefrontal cortex

Submission Author: Sara Esmaeili

Sara Esmaeili¹, Masoud Mehrpour², Ensieh Malekdar³, Majid Chegini⁴

1. Iran University of Medical Sciences
2. Iran University of Medical Sciences
3. Iran University of Medical Sciences
4. Iran University of Medical Sciences

Background and Aim : Mild cognitive impairment (MDI) is an intermediate phase between normal memory and dementia. The disease is progressive in nature. The aim of this study is to evaluate the effect of RTMS on Mild cognitive impairment

Methods : In this study, 16 patients with mild cognitive impairment were selected .They were randomly divided into two groups of 8 people (Group "A" and "B"). Each Group received both RTMS procedure and Placebo in sequence, each for 8 weeks and the treatments were switched between groups. MMSE & MOCA tests were performed before and one week after each intervention

Results : Statistics did not show significant difference between MMSE & MOCA tests scores in each group, prior to the intervention ($p>0.05$). However, one week after the performing of 16th session of RTMS therapy we observed significant difference in MMSE & MOCA tests ($P <0.05$). Analysis among the groups showed that the two groups did not show any significant differences in MMSE and MOCA score based on the sequence of the treatment types (RTMS or Placebo) which means that the two groups have gained statistically similar score after 16 sessions.

Conclusion : RTMS could be used as a tool to improve cognitive impairment in people with MCI situation.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Mild cognitive impairment (MCI), Repetitive Trans cranial magnetic stimulation (RTMS)

Count: 10

Abstract ID: 422

subject: Cognition: Learning and Memory

Presentation Type: Poster

Theta rhythm and its mechanism in the memory

Submission Author: Solmaz Fallahi

Solmaz Fallahi¹, Hamid Soltani Zangbar²

1. MSC of physiology, Department of physiology, School of Medical faculty, Tabriz University of Medical Sciences, Tabriz, Iran.
2. PHD. of Neuroscience, Department of Neuroscience, School of Advanced Medical sciences, Tabriz University of Medical Sciences, Tabriz, Iran.

Background and Aim : There is multiple evidence that theta rhythm associated closely with memory function and retrieving. Here we discuss models and their relationship with physiological and behavioral data.

Methods : Various databases such as Google Scholar, Pub Med and Science direct were reviewed and 60 papers were selected. Of these, 30 articles were selected as the main essay for writing this review.

Results : Data from animal models provide a view on the importance of theta rhythm, including correlations with coding by timing of spikes relative to phase of oscillations. Data supports the role of cortical circuits in setting the dynamics for encoding and retrieval within. some data supports models showing how neural circuits and cellular theta rhythmicity is involve in the hippocampal formation to code time and space as a possible layer for encoding events in episodic memory.

Conclusion : There is variate evidence about function of theta rhythm in the encoding and retrieving of memory. So this rhythm is one of the most important rhythm in physiological and behavioral representation of memory.

Keywords : Theta rhythm - memory - physiological representation

Count: 11

Abstract ID: 230

subject: Cognition: Learning and Memory

Presentation Type: Poster

The effects of *Nigella sativa* extract on hypothyroidism-associated learning and memory impairment during neonatal and juvenile growth in rats

Submission Author: Pouya Farahmand Nia

Pouya Farahmand Nia¹, Farimah Beheshti², Mahmoud Hosseini³, Mohammad Naser Shafei⁴,
Mohammad Soukhtanloo⁵, Leila Zarepoor⁶

1. Student Research Committee, torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran
2. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
3. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
4. Neurogenic Inflammation Research Center, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran,
5. Department of Biochemistry, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran,
6. 6 Human Health and Nutritional Sciences Department, College of Biological Sciences, University of Guelph, Canada

Background and Aim : It has been shown that hypothyroidism-induced oxidative damage in brain tissue is involved in its adverse effects on learning and memory. *Nigella sativa* (*N. sativa*) has been suggested to have antioxidant and neuroprotective effects. The objective of this study was to investigate the effects of hydroalcoholic extract of *N. sativa* on hypothyroidism-associated learning and memory impairment during neonatal and juvenile growth in rats.

Methods : Thirty pregnant rats were kept in separate cages. After delivery, the mothers and their offspring were randomly divided into six groups including: (1) control, (2) PTU (propylthiouracil), (3) PTU-NS 100, (4) PTU-NS 200, (5) PTU-NS 400, and (6) PTU-Vit C (vitamin C). All dams except the control group received 0.005% PTU in their drinking water during lactation. Besides PTU, dams in groups 3, 4, 5, and 6 received 100, 200, and 400 mg/kg *N. sativa* extract, or 100 mg/kg Vit C, respectively. After lactation period, pups continued to receive same experimental

treatment for the first 8 weeks of their life. Then, 10 male offspring of each group were randomly selected and assessed for the learning and memory abilities by using Morris water maze (MWM) and passive avoidance (PA) tests. Blood samples were collected for thyroxine assessment, animals were euthanized, and the brain tissues were removed and analyzed for total thiol groups and malondialdehyde (MDA) concentrations.

Results : PTU exposure significantly increased the time latency in MWM test, while reduced the time spent in target quadrant, and decreased the latency for entering the dark compartment in PA test. These effects were associated with significant reduction in serum thyroxine levels and brain levels of thiol groups, and significant elevation in hippocampal MDA. Administration of 400 mg/kg *N. sativa* extract and 100 mg/kg Vit C reduced the time latency, while increased the time spent in target quadrant compared to the PTU group in MWM test. Treatment by 100–400 mg/kg of *N. sativa* extract and also Vit C significantly increased the time latency for entering the dark compartment in PA test. The serum thyroxine concentrations of the animals treated by all doses of the *N. sativa* extract as well as by Vit C were higher than that of the PTU group. Two hundred and four hundred milligrams/kilogram of NS extract and 100 mg/kg Vit C decreased the MDA concentration in hippocampal tissues, while increased thiol contents compared to the PTU group.

Conclusion : The results of this study demonstrate that the hydroalcoholic extract of *N. sativa* have protective effects on hypothyroidism-associated learning and memory impairment during neonatal and juvenile growth in rats. The effects were comparable to Vit C and might be due to the protective effects of *N. sativa* extract against brain tissues' oxidative damage.

Keywords : *Nigella sativa*; Hypothyroidism; Learning; Memory; Oxidative stress

Count: 12

Abstract ID: 734

subject: Cognition: Learning and Memory

Presentation Type: Poster

The effects of pentoxifylline on spatial learning and memory in lipopolysaccharide- induce inflammation in rats

Submission Author: Maryam Farahmandfar

Maryam Farahmandfar¹, Zahra Akbari², Parham Reisi³

1. Department of Neuroscience, School of Advanced Medical Technologies, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Neuroscience, School of Advanced Medical Technologies, Tehran University of Medical Sciences, Tehran, Iran
3. Department of Anatomical Sciences, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran.

Background and Aim : Studies have shown that pentoxifylline in addition to protective effects on blood vessels, probably has positive influence against the brain inflammation. Therefore, the aim of this study was to evaluate the effects of PTX on spatial learning and memory in lipopolysaccharide (LPS)-induce inflammation in rats

Methods : Inflammation was induced by i.p. injection of lipopolysaccharide (5 mg/kg) in male Wistar rats. The rats in different groups received pentoxifylline (10, 25 and 50 mg/kg; i.p.) for 1 week before and 2 weeks after the LPS (5 mg/kg; i.p.) injection. Spatial memory was evaluated by Morris water maze test.

Results : The results of the learning section indicated a non-significant reduction in the time and traveled distance to the esophageal platform in the LPS group. But pentoxifylline at doses of 10 and 50 mg compared to the control group and LPS showed a significant decrease in time and traveled distance . The results of the memory section on the day after treatment showed that memory in the LPS group was significantly damaged That all three Doses of Pentoxifene have been able to prevent this decline. The results of the memory section in the 4 days after learning in the LPS group showed a significant reduction compared to the control group, which showed that the 10 and 50 doses showed a significant improvement compared to the LPS group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : With regard to these results, it was found that LPS can cause severe damage to learning and memory, but pentoxifylline, especially with doses of 10 and 50 mg, can prevent these injuries. The dose of 25 mg of pentoxifylline has no effect on the two other doses, which indicates that the dose of this drug can be effective in its anti-inflammatory effects.

Keywords : Learning and memory, Inflammation, Lipopolysaccharide, Pentoxifylline,.

Count: 13

Abstract ID: 451

subject: Cognition: Learning and Memory

Presentation Type: Poster

Hebb-Williams Maze is a non-pharmacological method for cognitive rehabilitation in dementia

Submission Author: Fatemeh Farokhi Sisakht

Fatemeh Farokhi Sisakht¹, Mehdi Farhoudi², Gisou Mohaddes³

1. school of Advanced Medical Sciences, Tabriz University of Medical Sciences, Tabriz, Iran
2. Neurosciences Research Center (NSRC), Tabriz University of Medical Sciences, Tabriz, Iran
3. Neurosciences Research Center (NSRC), Tabriz University of Medical Sciences, Tabriz, Iran

Background and Aim : Cognitive impairments are the most important outcome of neurodegenerative diseases such as Alzheimer disease (AD) and vascular dementia which result in a significant effect on quality of life and daily activities by decreasing degree of individual autonomy. Rehabilitation has been known as the most effective treatment for reducing cognitive deficits which is based on the principles of brain neuroplasticity. Cognitive activities are one of the programs presented for rehabilitation. These activities are attracting considerable attention in the treatment of cognitive disturbance. Hebb-Williams Maze (HWM) is a behavioral task used for measure of intelligence of the rodents which is utilized as a cognitive activity in animal studies. It is demonstrated that HWM attenuates memory deficits and normalizes pyramidal cell structure in hippocampal CA1 area in a rat model of vascular dementia and therefore, it has promoted cognitive recovery.

Methods : non method

Results : non results

Conclusion : non conclusion

Keywords : cognitive rehabilitation; cognition, dementia

Count: 14

Abstract ID: 531

subject: Cognition: Learning and Memory

Presentation Type: Poster

The effect of CA1 5HT3 receptors in fear memory and anxiolytic-like behaviors induced by cannabinoids

Submission Author: Maryam Farrahizadeh

Maryam Farrahizadeh¹, Mohammad Nasehi², Mohammadreza Zarrindast³

1. Iran University of Medical Sciences
2. Islamic Azad University Medical Branch of Tehran
3. Institute for Cognitive Science Studies

Background and Aim : Cannabinoids, exert their biological effects by interacting with specific receptors (CB1 and CB2, CB3). Progress is being made in development of novel agonists and antagonists with receptor subtype selectivity which should help to understanding the physiological and pathological functions of the endocannabinoid system. The psychoactive cannabinoid compounds cause a wide range of effects in cognitive function such as learning, memory and emotional reflection such as fear. 5HT3 inhibits or excites conditioning fear, by controlling the signal connection in “PTSD” or “Phobia” states. The aim of the present study is clarifying the interaction between the hippocampal serotonin (5-HT3) receptor and the cannabinoid CB1 receptor in the acquisition of fear memory and anxiety.

Methods : Adult male NMRI mice (25-30gr) anesthetized with 50 mg/kg ketamine and 5 mg/kg xylazine, injected intraperitoneally (i.p.). Two cannulas were placed 1 mm above the CA1 region of dorsal hippocampus by stereotaxic apparatus. Seven days after surgery the drugs (2- M-Chlorophenyl as a 5-HT3 receptor agonist and Y-25130 as a 5-HT3 receptor antagonist) injected into CA1 (bilaterally) in a total volume of 1µl/mouse (0.5 µl in each side) before training (pre-train) in fear conditioning task. During training, mice were placed in a square Plexiglas chamber (25 cm×25 cm×25 cm) with an grid floor consisting of parallel stainless steel rods (0.3 cm diameter spaced 1 cm apart), and were typically allowed to explore the chamber freely for 120 seconds. Thereafter, a tone (conditioned stimulus [CS], 4 kHz, 35 dB) was presented for 30 seconds, and a foot shock (unconditioned stimulus [US], 1 mA, 50 Hz) was given to the mice during the last two seconds of the sound. After 24 hours Fear conditioning task and hole board apparatus was used for the assessment of the fear memory and anxiety-like behaviors respectively.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : According to examines statistical analysis, pre-training intraperitoneal administration of ACPA (Arachidonylcyclopropylamide) (0.05 and 0.5 mg/kg) decreased the percentage of freezing time in both context- and tone-dependent fear conditions but didn't alter the head dip number in hole board . So it caused impairment of fear memory but didn't affect anxiety. Moreover, pre-train intra-CA1 microinjection of a subthreshold dose (0.01 μ g/mouse) of 5-HT₃ receptor agonist (2- M-Chlorophenyl), and 5-HT₃ receptor antagonist (Y-25130) did not alter the acquisition of fear memory and anxiety in saline treated mice. While the subthreshold dose of 2- M-Chlorophenyl increased the impairment of the acquisition of fear memory in ACPA-treated mice without any effect on head dip number and the subthreshold dose of Y-25130 restored the acquisition of fear memory deficit in ACPA-treated mice with no observable effects on anxiety.

Conclusion : our results showed that ionotropic receptor of serotonergic system (5HT₃) in the CA1 of hippocampus induced by ACPA, interferes in impairment of fear memory but doesn't interfere on anxiety. We suggest that the hippocampal 5-HT₃ serotonergic system modulates cannabinoid signaling induced by the activation of CB1 receptors in conditioned fear while the anxiety isn't affected in this process.

Keywords : ACPA;Dorsal hippocampus;5HT₃;Fear memory;Fear conditioning;Hole board

Count: 15

Abstract ID: 203

subject: Cognition: Learning and Memory

Presentation Type: Poster

Evaluating the Effect of Positive and Negative Emotions on Face Recognition Memory

Submission Author: Nazanin Fatemian

Nazanin Fatemian¹, Mehdi Tehrani-Doost², Farnaz Ghassemi³

1. PhD of Cognitive Neuroscience; 1.Department of Medical Physics, Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran; 2.Institute for Cognitive Science Studies - ICSS, Tehran, Iran
2. Professor of Child and Adolescent Psychiatry and Cognitive Neuroscience; 1.Tehran University of Medical Sciences, Tehran, Iran; 2.Institute for Cognitive Science Studies- ICSS, Tehran, Iran.
3. PhD of Medical Engineering-Bioelectrics; 1.Department of Biomedical Engineering, Amirkabir University of Technology- AUT, Tehran, Iran; 2.Institute for Cognitive Science Studies - ICSS, Tehran, Iran.

Background and Aim : One of the several factors that affect the accuracy of face recognition memory is the facial emotion. Although the effect of different facial emotions (i.e.; happy, sad, fearful and angry...) on face recognition memory has been studied in different researches, there is controversy in findings of the studies. Therefore, we conducted this study to evaluate the effect of facial emotions on face recognition memory while participants were asked to recognize faces with positive (happy), neutral and negative (sad) emotions.

Methods : 45 adults (23 men and 22 women) aged between 18 and 35 years without any major psychiatric and neurological disorders based on interview and without any memory impairment based on Mini Mental State Examination (MMSE) participated in this study. A computerized old/new face recognition task using the happy, neutral and sad faces was designed to evaluate the emotional face memory performance of the participants. At the first step, the images were recruited from Radboud face database after being evaluated in a pilot study on 100 different participants (45 men and 55 women) in order to measure the emotion recognition accuracy. Based on the results of this study, 54 face images with the agreement of the participants above 80% were selected for the main task. Face images were edited and uniformed using Adobe Photoshop9.0. The old/new emotional face recognition memory task consisted of two phases: 1) encoding or study phase: 6 face images (3 men and 3 women) with positive, neutral and negative faces were presented twice (36 trials) to the participants and they were asked to attend and memorize the faces and detect the

emotion by clicking the related key on the keyboard, 2) retrieval or test phase: 12 new faces (6 men and 6 women) with the same three expressions were added to the old faces and each were presented four times (216 trials). Participants were asked to recognize the old faces from the new ones by tapping the related key. Behavioral data were extracted using the MATLAB2015b. To compare the recognition memory performance and response times for faces the percentage of correct responses and the time to select the correct and incorrect responses were computed. Data were imported to SPSS16.0 and the repeated measure ANOVA was used to analyze the differences between the memory performances for different facial emotions.

Results : There was a significant difference for face recognition accuracy between the three expressed faces with a significant decrease in recalling happy faces compared to sad and neutral ones ($P < 0.05$). No significant difference was found between the different emotions in terms of correct response time.

Conclusion : It can be concluded that sad faces were recognized more correctly, followed by neutral and happy faces. There is no significant difference between the correct response times for the happy, neutral and sad faces.

Keywords : Emotional face, Face recognition memory, Positive and negative emotions.

Count: 16

Abstract ID: 398

subject: Cognition: Learning and Memory

Presentation Type: Poster

Epigenetics: a third factor in the development of autism spectrum disorder

Submission Author: Maede Ganji

Maede Ganji¹, Maryam Malek², Modjtaba Emadi-Baygi³, Parvaneh Nikpour⁴

1. Department of Genetics and Molecular Biology, Faculty of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
2. Department of Physiology, Faculty of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
3. Department of Genetics, Faculty of Basic Sciences, Research Institute of Biotechnology, Shahrekord University, Shahrekord, Iran
4. Department of Genetics and Molecular Biology, Faculty of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

Background and Aim : Autism spectrum disorder (ASD) is one of the neurodevelopmental syndromes which is heterogeneous and heritable and its symptoms appear during early development. The core symptoms of this syndrome are social interaction and communication impairment, repetitive and stereotypic behaviors. The increasing incidence of the disease has become a global concern in recent years. Genetics and environmental factors have proven roles in prevalence of ASD. Recent studies show that epigenetic variation such as DNA methylation, DNA hydroxymethylation and histone modification in genes which are involved in central nervous system (CNS) may lead to ASD. In the current study, we aimed to review all studies showing a relevance of epigenetics to ASD.

Methods : Epigenetics, autism, genetic and environmental factors were used as keywords for search in PubMed, OMIM and STRING databases. All studies were analyzed and results were retrieved.

Results : Epigenetics alteration in some genes such as BDNF, OXTR and SHANK which are involved in nervous system can lead to ASD. Highthroughput investigations on brain and blood tissue of autistic patients show hypomethylation or hypermethylation in promoter regions or other part of these genes.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our current knowledge shows that aberrant expression of genes due to the dysregulation of epigenetic factors may lead to autistic phenotypes. This finding necessitates the need for more studies on the role and function of epigenetic factors in the pathogenesis of ASD and other related diseases.

Keywords : Epigenetics; Autism; Methylation; Genetics

Count: 17

Abstract ID: 127

subject: Cognition: Learning and Memory

Presentation Type: Poster

Side effect of ethanol on learning in an evaluation of rat seeking behavior

Submission Author: Samira Geravand

Samira Geravand¹, Manizheh Karami², Mohammadreza Jalali Nadoushan³

1. Shahed University
2. Department of Biology, Faculty of Basic Sciences, , Tehran Shahed University
3. Dept. of Pathology, School of medicine, Shahed University, Tehran, Iran

Background and Aim : Background and Aim: Alcohol can have \rightarrow destructive effect on the structure, and volume of synaptic pathways, and system performance \rightarrow in learning and spatial memory. The aim of this study was to evaluate the side effects of ethanol on learning by observing seeking behavior of rats.

Methods : Materials and Methods: The treated animals were large white male Wistar laboratory rats (purchased from the Pasteur Institute of Iran) and were tested by observing novelty seeking behavior to the new environment based on the location conditioning. The exploratory behavior encompasses some components \rightarrow such as Sniffing, standing (Rearing), Grooming, and moving from one side of the evaluation device to the other side (Compartment entering). There are three conditioning phases as follows: Familiarization phase, Conditioning phase, and test or exam. Rats were injected high doses of alcohol (1, 2, 4, 8 mg / kg) after three days of dating and the conditioning phase while at this stage they were bound on one side of the device just before the test. And in the case of low doses of alcohol, animals at the beginning (day acquaintances) were familiar with the assessor and then they passed the intake (0.05-0.11 g / kg) of ethanol frequently (10 days, once per day). In the testing day, as the day they were familiar, they had accessibility to the whole device. In parallel with two methods, the injection of saline solution in the control \rightarrow was carried out.

Results : Results: In the case of high doses, on the test day, animals did not remember the information, and they had great tendency toward the new side on which they were not bound during the conditioning. At low doses, animals showed exploratory behavior such as Sniffing and Rearing

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

on the side of the device, that they frequently (10 days) there (after receipt of medication) were bound.

Conclusion : Discussion and Conclusion: Frequent consumption of alcohol in alcoholics causes to multiple problems including alcoholic liver disease. With respect to the results of the present research, a single administration of high concentrations of alcohol impairs learning and spatial memory consolidation; and repeated injections of low- concentration alcohol result in a change of physiological balance and makes psychological dependency on the material.

Keywords : Key words: Ethanol, Novelty - seeking behavior, Learning, Liver, Rat

Count: 18

Abstract ID: 417

subject: Cognition: Learning and Memory

Presentation Type: Oral

Investigation of structure and function of Central Nervous System(CNS), with explanation about neurogenesis and synaptogenesis

Submission Author: Fatemeh Ghanaee

Fatemeh Ghanaee¹, Dr. Ali Ghanaei chamanabd², Fatemeh Ghanaei³, Sahar Nazm bojnordy⁴

1. -
2. Associate professor of Ferdowsi University of Mashhad
3. Master student of cognitive science of ferdowsi University of Mashhad
4. Master student of cognitive science of ferdowsi University of Mashhad

Background and Aim : Abstract Introduction: The aim of this survey research is the investigation of the characteristics of CNS in structure and function and their characters in neurogenesis and synaptogenesis. The study is of descriptive type and the method of research is survey. The nervous system consists of the brain and spinal cord. brainstem nuclei control respiration and global states of consciousness such as sleep and wakefulness. Most of the fibers arriving at the cerebellum project to the cerebellar cortex, conveying information about motor outputs and sensory inputs describing body position. In the 1990s, it was discovered that the cerebellum is involved with more than motor functions. It has been implicated in aspects of cognitive processing including language, attention, learning, and mental imagery. the thalamus is the larger of the diencephalon structures. The thalamus is divided into several nuclei that act as specific relays for incoming sensory information. The hypothalamus is the main link between the nervous system and endocrinology. The limbic system plays a role in regulating emotions, behavior, memory, and motivation. This operating system is an emotional life and brain emotional activity that includes the hippocampus, amygdala, thalamus, hypothalamus and fornix and parahipocamp and the brain belt groove. The Somatosensory area of the parietal lobe is responsible for combining sensory and memory information. Lack of sensory communication leads to lack of understanding of the three-dimensional space and the disregard of body parts.

Methods : The study is of descriptive type and the method of research is survey.

Results : Results: The human brain is in the evolutionary cycle instead of increasing the number of neurons that increase the number of synapses, indicating that the brain goes to purposefulness and propriety. The brain blood flow is dependent on the metabolic cells and increasing its activity causes a doubling of blood flow in one area. various studies on rats and human research conducted on people with brain cancers show that occurs neuronitis in parts of the brain of adult humans such as hippocampus and Olfactory onion. Neuronitis occurs in the active and functional areas of the brain, facilitating neuronal activity is dependent on motor activity, relaxation and proper nutrition and mental activity, and stress greatly reduces the chance of producing neurons. In brain, neurons constantly being organized. The growth of the dendritic and synaptic terminals of the brain occurs before birth, but it does not end. When the nervous system reduces its connections, synaptogenesis occurs and this leads to the adaptation of the nervous system to the new situation.

Conclusion : Conclusion: Synapse elimination occurs along synapse, causing neurons to find a new order, and creates harmony and elegance in the nervous system. Keep in mind that this process occurs in different parts of the cortex at a different time.

Keywords : Central Nervous System(CNS), neurogenesis, synaptogenesis

Count: 19

Abstract ID: 731

subject: Cognition: Learning and Memory

Presentation Type: Oral

The effects of Estrogen and Progesterone Replacement on Methamphetamine-Induced Synaptic Plasticity Impairment in Ovariectomized Rats

Submission Author: Hamed Ghazvini

Hamed Ghazvini¹, Mehdi Khodamoradi², Vahid Sheibani³

1. Psychiatry and Behavioral Sciences Research Center, Addiction Institute, Mazandaran University of Medical Sciences, Sari, Mazandaran, Iran
2. Substance Abuse Prevention Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran
3. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran

Background and Aim : Methamphetamine (METH) is one of the well-known psychostimulant which produce long lasting cognitive impairment. Previous studies have indicated that estrogen and progesterone replacement therapy attenuate cognitive impairment against a wide array of neurodegenerative diseases

Methods : 21 days after ovariectomy, the animals were treated by estrogen alone , progesterone alone (8mg/kg, i.p.), in combination or vehicle during 14 consecutive days. On the 28th day, rats were exposed to single-day METH regimens (four injection 6 mg/kg, s.c, 2 h intervals) 30 min after the hormones treatment. Finally, we investigate the effect of progesterone on synaptic plasticity were examined by using in vivo field extracellular recording in the CA1 area of the hippocampus 7 days after the last treatment.

Results : The findings showed that the induction and maintenance phase of E-LTP impaired in the METH exposed animals compared to the other groups. Data from this study demonstrated that treatment with estrogen and progesterone significantly show a facilitation for the induction and an enhancement of maintenance of LTP in animals that received METH. On the other hand, the hippocampal synaptic plasticity in animals that received combination of estrogen and progesterone in METH-exposed rats did not significantly differ from that of METH-exposed animals that

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

received vehicle injections. Moreover, our results demonstrated that treatment with ovarian hormone did not change paired-pulse facilitation (PPF) ratio values.

Conclusion : Taken together, the present findings provide new insight about treatment with ovarian hormones on cognitive impairment induced by methamphetamine in OVX rats.

Keywords : Methamphetamine; Estrogen; Progesterone; LTP ; Synaptic plasticity.

Count: 20

Abstract ID: 334

subject: Cognition: Learning and Memory

Presentation Type: Poster

The effect of the interaction between testosterone and bicuculline in prelimbic region of prefrontal cortex on spatial learning and memory in adult male rat

Submission Author: Azadeh Gholaminejad

Azadeh Gholaminejad¹, Nasser Naghdi², Mohammad Nasehi³, Hamid Gholamipour Badie⁴

1. Department of Physiology & Pharmacology, Pasteur Institute of Iran 2. Institute for Cognitive Science Studies, Tehran, Iran
1. Department of Physiology & Pharmacology, Pasteur Institute of Iran 2. Institute for Cognitive Science Studies, Tehran, Iran
1. Institute for Cognitive Science Studies, Tehran, Iran
1. Department of Physiology & Pharmacology, Pasteur Institute of Iran

Background and Aim : The role of prelimbic region of prefrontal cortex (PFC) in spatial learning and memory is remained controversial. PFC has been involved in working memory, long-term memory and memory consolidation. Our previous study indicated that microinjection of testosterone in CA1 improved spatial learning and memory. However, some studies have shown that testosterone has an impairment effect on memory. In this study, the interaction between testosterone (androgenic receptor agonist) and bicuculline (GABA-A receptor antagonist) in prelimbic of PFC was examined.

Methods : 64 adult male rats were divided randomly into eight groups that include sham (three groups), testosterone (40, 80 μg / 0.5 μl DMSO / side), bicuculline (2,4 μg / 0.5 μl DMSO /side) and testosterone + bicuculline (80 μg testosterone 2 μg bicuculline /0.5 μl DMSO /side). Two guide cannulae were implanted bilaterally above the prelimbic region and five days later drugs were injected into the prelimbic area every day until training in Morris water maze. Animals were trained for four consecutive days and, the probe and visible tests were performed on day five. The data were analyzed by one-way analysis of variance (ANOVA) followed by Tukey's test. All results are shown as mean \pm S.E.M., $p < 0.05$ was considered statistically significant for all comparisons.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results showed that 80 μ g testosterone and also 2 μ g bicuculline could increase escape latency and traveled distance to platform as compare with their vehicles. Also, combination of testosterone 80 μ g + bicuculline 2 μ g significantly decreased spatial learning and memory. In the probe trial test, the time animals spent in the target quadrant was significantly decreased in testosterone, bicuculline and testosterone + bicuculline received groups as compared to the vehicle groups. There was no significant difference of performance among the groups on the visible platform day for escape latency or for traveled distance.

Conclusion : our findings show that while microinjection of bicuculline alone decreased learning and memory performance, it could not rescue the spatial learning and memory deficit induced by testosterone.

Keywords : GABA-A Receptor; Bicuculline; Testosterone; Prelimbic; Spatial Learning and Memory

Count: 21

Abstract ID: 114

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effect of different doses of vitamin D supplementations on spatial memory and BDNF serum concentration in ovariectomized rats

Submission Author: Samaneh Ghorbani Shirkoohi

Samaneh Ghorbani Shirkoohi¹, Samaneh Ghorbani Shirkouhi², Parvin Babaei³, Bahram Soltani Tehrani⁴

1. -
2. Cellular & Molecular Research Center, Faculty of Medicine, Guilan University of Medical Sciences, Rasht, Iran
3. Cellular & Molecular Research Center, Faculty of Medicine, Guilan University of Medical Sciences, Rasht, Iran
4. Cellular & Molecular Research Center, Faculty of Medicine, Guilan University of Medical Sciences, Rasht, Iran

Background and Aim : During menopausal period, estrogen withdrawal predisposes women to cardiovascular and cognitive dysfunctions. On the other hand, vitamin D (vit D) insufficiency may leads to develop dementias, including Alzheimer's disease and cognitive impairment. Here, we studied the effect of different doses of vit D supplementations on cognitive performance and brain derived neurotrophic factor (BDNF) in ovariectomized rats.

Methods : Forty eight female wistar rats were divided into 2 groups of sham operated (Sham, n = 8), and ovariectomized (OVX, n = 40). Then after 3 weeks OVX were divided into 5 groups of receiving high dose of Vit D (OVX + HD), low dose of Vit D (OVX + LD), Vit D deficient (OVX - D), Vehicle (OVX + Veh) and OVX without any treatment (OVX). After 2 months of related interventions, spatial memory was assessed using Morris Water Maze (MWM) task, and then serum concentration of BDNF was measured.

Results : different doses of vit D showed no significant change in acquisition or retrieval of spatial memory. Serum BDNF level was significantly higher in Vit D deficient group and was decreased after supplementations (p = 0.001).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : No significant relationship was found between serum Vit D and cognitive function. Vit D insufficiency elevates serum BDNF probably as a compensatory factor.

Keywords : Ovariectomy; spatial memory; Vitamin D; BDNF

Count: 22

Abstract ID: 339

subject: Cognition: Learning and Memory

Presentation Type: Oral

Probiotic administration improved stress-induced amnesia in rats

Submission Author: Ali Golbabaei

Ali Golbabaei¹, Ameneh Rezayof², Hamid Moghimi³

1. Department of Cellular and Molecular Biology, School of Biology, College of Science, University of Tehran, Tehran, Iran
2. Department of Animal Biology, School of Biology, College of Science, University of Tehran, Tehran, Iran.
3. Department of Microbial Biotechnology, School of Biology, College of Science, University of Tehran, Tehran, Iran

Background and Aim : Evidence suggests that there is a brain-gut axis of bi-directional communication between the central nervous system (CNS) and the gastrointestinal tract (GI) which modulates brain activities, including cognitive functions and emotional behaviors. It seems that probiotics affect this axis through different neurotransmitter mechanisms. Considering that probiotic administration may reduce stress-related behaviors and also memory formation can be affected under acute stress, the aim of the present study was to assess the possible effect of prolonged probiotic treatment on memory formation under acute stress in male Wistar rats.

Methods : A step-through type passive avoidance learning task was used to evaluate memory formation. To induce acute stress, an elevated platform apparatus was used for 30 min. Moreover, three probiotic species were chosen (*Lactobacillus brevis*, *Lactobacillus plantarum*, and *Bifidobacterium bifidum*), cultured on MRS broth, and the biomass was extracted for water feeding. The animals were isolated two weeks after birth and were randomly assigned to 3 groups of 7 rats. In the probiotic water (PW) group, the rats were fed with probiotic mixture (*L.brevis* [109CFU/day], *L.plantarum* [109CFU/day], and *B.bifidum* [106CFU/day]) in their daily water consumption for the next five weeks. In two tap water (TW) groups, the rats were given the tap water for the next five weeks. On the first day of 8th week, the rats were trained in the passive avoidance task to have a successful acquisition. Immediately after successful training, acute stress was induced by placing the rat on the elevated platform for 30 min in the PW group and one group of TW groups. The other TW group was not exposed to the acute stress as a control group. Twenty-

four hours after training, a memory retrieval test was performed to measure long-term memory formation.

Results : The results showed that 30 min exposure to stress decreased the step-through latency in the passive avoidance task in the animals which were given tap water and exposed to the elevated platform, indicating stress-induced amnesia. Interestingly, probiotic administration for five weeks reversed the impairing effect of acute stress on memory formation in the PW group.

Conclusion : Taken together, it can be concluded that gut microbiota plays a critical role in the effect of stress on memory formation. With regard to the improving effect of probiotic administration on stress-induced amnesia, further studies may lead to the possibility of using neuroactive molecules producing bacteria as therapeutic agents.

Keywords : Memory; Amnesia; Passive avoidance learning; Probiotic water; Rat(s)

Count: 23

Abstract ID: 271

subject: Cognition: Learning and Memory

Presentation Type: Poster

Title: The protective effects of taurine on passive avoidance memory impairment induced by scopolamine in adult male rats

Submission Author: Sarah Gorgani

Sarah Gorgani¹, Mehrdad Jahanshahi², Leila Elyasi³

1. Student Research Committee, Neuroscience Research Center, Department of Anatomy, Faculty of Medicine, Golestan University of Medical Sciences, Gorgan, Iran.
2. Neuroscience Research Center, Department of Anatomy, Faculty of Medicine, Golestan University of Medical Sciences, Gorgan, Iran.
3. Neuroscience Research Center, Department of Anatomy, Faculty of Medicine, Golestan University of Medical Sciences, Gorgan, Iran.

Background and Aim : Alzheimer's disease (AD) is an oncoming neurological disorder that is characterized by intracellular neurofibrillary tangles and extracellular deposits of amyloid Plaque. Also, loss of memory is among the first symptoms reported by patients suffering from AD. Taurine (2-amino ethane sulfonic acid) is a sulfur-containing amino acid present in many tissues of man and animals, plays an important role in several essential biological processes and recovers oxidative stress. Scopolamine, a muscarinic cholinergic receptor antagonist and rats with scopolamine-induced memory deficits are used as an animal model for screening antidementia drugs. In this study we want to assess the effects of taurine on memory retrieval in the passive avoidance task at scopolamine treated rats.

Methods : Thirty-two adult male wistar rats (200±20 g) randomly distributed into four groups. All rats treated with different doses of taurine (25, 50, 100 mg/kg, intraperitoneally) for 14 days and then, rats received a single dose of scopolamine (3 mg/kg, intraperitoneally) for passive avoidance memory impairment. 24 h after last drug injection, all rats tested for passive avoidance memory.

Results : Scopolamine injection significantly reduced latency time to enter the dark chamber of shuttle box. Although, pretreatment with three doses of taurine for 14 days increased the latency time; only, administration of taurine at a dose of 100 mg/kg significantly increased the latency time in comparison with saline-scopolamine treated rats (p<0.05).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : It is concluded that taurine can improve passive avoidance memory impairment induced by scopolamine in adult male wistar rats.

Keywords : Taurine; Scopolamine; Passive avoidance memory; Rat

Count: 24

Abstract ID: 559

subject: Cognition: Learning and Memory

Presentation Type: Poster

Crocic suppress learning and memory deficits induced by A β neurotoxicity

Submission Author: Mohammadmehdi Hadipour

Mohammadmehdi Hadipour¹, Gholam Hossein Meftahi²

1. Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran
2. Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran

Background and Aim : It was suggested that crocin, the main constituent of saffron, improved learning and memory in Alzheimer's disease (AD). The aim of this study was to investigate the effect of crocin on emotional memory deficits in AD model rats.

Methods : In this study we used male adult Wistar rats (200-250 gr). A β neurotoxicity was induced by injection of amyloid beta 1-42 (A β) peptide into the frontal cortex. Daily administration of crocin (30mg/kg-IP) was performed in the treated group for twelve consecutive days after A β injection. Then, Passive avoidance learning test, was performed to evaluate learning and memory. On day four after surgery, the rats were underwent passive avoidance (shuttle box) training. On the other hand, step through latency time in days one (on the 4 day after A β injection surgery), four (on the 8 day after A β injection surgery) and seven (on the 11 day after A β injection surgery) were assessed.

Results : Passive avoidance assessment of learning and memory performance showed that the bilateral injection of A β 1-42 peptide into frontal cortex significantly alter the rate of learning acquisition than the control and sham-treated rats. On the other hand, Step-through latency time was profoundly decreased in the A β treated rats in 1 (107.7 \pm 53.60 s, n=7), 4 (54.01 \pm 32.27 s) and 7 (11.11 \pm 7.529 s) days after the shock experience compared with control ((259.0 \pm 26.60 s, (264.8 \pm 29.35 s, 200.4 \pm 35.50 s, respectively in day 1, 4 and 7 post surgery; n=7; P<0.001,) and sham (300.0 \pm 00.0 s, 224.9 \pm 30.75 s, 166.9 \pm 26.33 s, respectively in day 1, 4 and 7 post surgery; n=8; P<0.001) groups. The animals that were treated with A β combined with either crocin (A β + crocin group, n=8) for 12 consecutive days revealed a significant memory improvement compare

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

to animals treated with A β alone (283.3 \pm 10.85 s, 261.0 \pm 26.00 s, 269.0 \pm 18.33 s, in 1, 4 and 7 days, respectively).

Conclusion : In conclusion the results of present study provide possible neuroprotective effect of crocin against the memory damage induced by A β neurotoxicity.

Keywords : Alzheimer disease; Crocin; Amyloid beta; Passive avoidance test; Memory damage

Count: 25

Abstract ID: 401

subject: Cognition: Learning and Memory

Presentation Type: Poster

The effect of fixed-scheduled feeding with high fat, standard and restricted diet on memory in male rats

Submission Author: Alireza Halabian

Alireza Halabian¹, Maedeh Ghasemi², Maryam Radahmadi³, Hojjatallah Alaei⁴

1. Department of biology, School of Science, Isfahan University, Isfahan, Iran
2. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
3. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran.
4. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

Background and Aim : Calorie restriction, in the absence of malnutrition, has beneficial effects on brain function such as memory. However, scheduled feeding results in adipogenesis and increased body weight. The present study investigated the effect of fixed-scheduled feeding with high fat, standard and restricted diet on memory in male rat (in three meals a dark phase).

Methods : In this experimental study, forty male Wistar rats (180-200-gr) were distributed into four groups (n=10). Rats were schedule-fed by stately feeding schedule of three meals/dark phase with different caloric intake in three types; high fat, standard and restricted diet for 14 days compared with control free intake. In a high-fat diet, cholesterol (60%) was fed into three specific meals. While in the standard diet, the food was free at 3 meals for rats. Also in the limited group, the food was well-defined and restricted (3g/ rat) for animals. Finally, memory functioning was evaluated using the passive avoidance test at the end of experiments.

Results : Results showed that after 14 days, rats on the executed restricted feeding and spatially high fat schedule displayed impairment of memory compared control free intake,. This memory deficit significantly ($P < 0.01$) was observed in scheduled high fat feeding. In fixed schedule- fed groups, standard diet significantly ($P < 0.001$) prevented the memory impairments compared to high fat and restricted feeding groups. Also, latency of entrance to dark compartment significantly ($P < 0.05$) increased in fixed schedule-fed groups when compared to control free intake.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The present findings showed the fixed-scheduled restricted feeding and spatially high fat schedule could impair memory. Other results also showed that standard feeding schedule group (3 meals) has an improvement effect on memory compared to control free intake. Therefore, it is suggested that the feeding with fixed schedule standard diet increases memory and brain function even better than control free intake

Keywords : Fixed-scheduled feeding, High fat diet, Standard diet, Restricted diet, Memory

Count: 26

Abstract ID: 420

subject: Cognition: Learning and Memory

Presentation Type: Poster

The effects of thymoquinone on hippocampal cytokine level, brain oxidative stress status and memory deficits induced by lipopolysaccharide in rats

Submission Author: Mahmoud Hosseini

Mahmoud Hosseini¹, Rahimeh Bargi², Fereshteh Asgharzadeh³, Farimah Beheshti⁴, Hamid Reza Sadeghnia⁵, Majid Khazaei⁶

1. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
2. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
3. Neurogenic Inflammation Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
4. Department of Physiology, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
5. Pharmacological Research Center of Medicinal Plants, Mashhad University of Medical Sciences, Mashhad, Iran
6. Neurogenic Inflammation Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : The study objective was to determine the protective effects of thymoquinone (TQ) on brain tissues oxidative stress status, hippocampal cytokine level, and learning and memory deficits induced by lipopolysaccharide (LPS) in rats.

Methods : Animals were randomly divided into the following groups and treated: (1) Control (saline), (2) LPS (1 mg/kg i.p.), (3–5) 2, 5 or 10 mg/kg TQ extract 30 min before LPS injection. The treatment was started since two weeks before the behavioral experiments and continued during the behavioral tests (LPS injected 2 h before each behavioral experiment). Finally, the brains were removed for biochemical assessments.

Results : Morris water maze (MWM) test results showed that LPS increased escape latency compared to control group whereas TQ decreased them vs. LPS group. In passive avoidance (PA) test, LPS reduced the latency to enter the dark compartment vs. control group, while TQ treatment attenuated this effect of LPS. Additionally, LPS increased interleukin-6 (IL-6) and tumor necrosis

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

alpha (TNF- α) in the hippocampal tissues. It also elevated malondialdehyde (MDA) and nitric oxide (NO) metabolites and decreased thiol content, superoxide dismutase (SOD) and catalase (CAT) in both hippocampus and cortex vs. control group, while TQ decreased IL-6, TNF- α , MDA and NO metabolites and increased thiol content, SOD and CAT compared to LPS group.

Conclusion : Findings of current study indicated that TQ improved LPS-induced learning and memory impairments induced by LPS in rats by attenuating the hippocampal cytokine levels and brain tissues oxidative damage.

Keywords : Rat; Lipopolysaccharide; Thymoquinone; Memory; Oxidative damage; Cytokine

Count: 27

Abstract ID: 338

subject: Cognition: Learning and Memory

Presentation Type: Poster

Hippocampal glutamatergic NMDA receptors mediate the interactive effects of tamoxifen and fluoxetine on memory formation in rats

Submission Author: Oveis Hosseinzadeh Sahafi

Oveis Hosseinzadeh Sahafi¹, Ameneh Rezayof²

1. Department of Animal Biology, School of Biology, College of Science, University of Tehran
2. Department of Animal Biology, School of Biology, College of Science, University of Tehran

Background and Aim : Tamoxifen, as a selective estrogen receptor modulator (SERM), is a predominant antiestrogen drug which blocks the function of steroidal receptors. It has been used for treating men and women's cancers, chiefly used for breast cancer via inhibiting the effect of steroidal hormones. On the other hand, fluoxetine is an antidepressant of the selective serotonin reuptake inhibitor (SSRI) class, which sometimes prescribes for depression or hot flashes in women who suffer from breast cancer. Considering that tamoxifen may impair cognitive functions and also estrogenic and serotonergic receptors mediate learning and memory processes, the aim of the present study was to investigate the interactive effects of tamoxifen and fluoxetine on memory formation in male Wistar rats.

Methods : To evaluate the possible role of the dorsal hippocampal glutamatergic NMDA receptors in the functional interaction between tamoxifen and fluoxetine, these receptors were simultaneously blocked in the CA1 regions of the dorsal hippocampus. It should be noted that all animals were bilaterally cannulated into the CA1 regions for injecting D-AP5, a selective NMDA receptor antagonist using a stereotaxic instrument. A step-through type inhibitory avoidance apparatus was used to evaluate memory retrieval.

Results : The results showed that pre-test intraperitoneal (i.p.) injection of the different doses of tamoxifen (3-6 mg/kg) dose-dependently decreased the step-through latency, suggesting an amnesic effect of the drug. Pre-test injection of fluoxetine (1-5 mg/kg, i.p.) 15 min before tamoxifen inhibited tamoxifen-induced memory retrieval impairment. Interestingly, pre-test bilateral microinjection of DAP-5 (0.5-1.5 μ g/rat) into the CA1 regions (intra-CA1), 5 min before intraperitoneal injection of an effective dose of fluoxetine (5 mg/kg, IP), reversed the improving

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

effect of fluoxetine on tamoxifen response in the passive avoidance task. It is important to note that the injection of the same doses of DAP-5 by itself had no effect on memory retrieval.

Conclusion : It can be concluded that the inhibitory effect of tamoxifen can be attenuated by fluoxetine administration. Moreover, it seems that the hippocampal glutamatergic system via NMDA receptors mediates the functional interaction between fluoxetine and tamoxifen in memory formation. The present findings also showed that the impairing effects of chemotherapy on memory formation should be considered during cancer treatment.

Keywords : Keywords: Hippocampal glutamatergic system; Tamoxifen; Fluoxetine; Rat(s)

Count: 28

Abstract ID: 796

subject: Cognition: Learning and Memory

Presentation Type: Poster

modulation of right dorsolateral prefrontal cortex in event-based prospective memory: An rTMS study

Submission Author: Narjes Hosseinzadehbahreini

Narjes Hosseinzadehbahreini¹, Reza Rostami², Javad Hatami³

1. Tehran university
2. Tehran university
3. Tehran university

Background and Aim : Prospective memory as daily memory is introduced as reminder for objects, goals, and performance of plans in future. One of the kind of this memory is Event-based memory; Event-based prospective memory is included doing an act at the time of occurrence of external event. In this study, Event-based prospective memory was measured by visual computer based task.

Methods : In this study, an experimental task was designed to assess the prospective memory as pretest and posttest. Participants are included 20-40 years old persons who were candidates for test. rTMS protocol was 110% of AMT, 10 Hz stimulation frequency, 40 trains of 4 s duration (1560 pulses), inter train intervals of 26 s.

Results : The findings of T test indicated that there was a significant difference between prospective memory scores in pretest and posttest. In fact participants gain more score in the posttest compared with pretest. ($p < 0.01$).

Conclusion : According to the research findings, it can be concluded that using rTMS in DLPFC area is effective on improvement of prospective memory function.

Keywords : Prospective memory; Event-based prospective memory; rTMS; DLPFC

Count: 29

Abstract ID: 445

subject: Cognition: Learning and Memory

Presentation Type: Poster

Expression of Neurturin Genes in the Hippocampus of Rat Neonate Born to Mother with Diabetes

Submission Author: Faezeh Idoon

Faezeh Idoon¹, Akram Sadeghi², Mohammad Mehdi Hassanzadeh Taheri³, Javad Hami⁴, Hadi Asghari⁵

1. Department of Anatomical Sciences, School of Medicine, Birjand University of Medical Sciences, Ghaffari St, Birjand, Iran
2. Cellular and molecular Research Center, Birjand University of Medical Science, Birjand, Iran
Department of Anatomical Sciences, School of Medicine, Birjand University of Medical Sciences, Ghaffari St, Birjand, Iran
3. Department of Anatomical Sciences, School of Medicine, Birjand University of Medical Sciences, Ghaffari St, Birjand, Iran
4. Cellular and molecular Research Center, Birjand University of Medical Science, Birjand, Iran
5. Institute of Microstructure Technology (ITM), Karlsruhe Institute of Technology Karlsruhe, Germany

Background and Aim : Diabetes Mellitus as a common metabolic disorder in women of reproductive age is rising throughout the globe (1). Previous investigations show that during gestation this metabolic condition is associated with structural and functional changes (1) of different organs including the central nervous system (CNS) (2). Neurodevelopmental assessment of the child born to diabetic mothers has displayed (3) a short and long-term neurocognitive and neurobehavioral abnormalities in the offspring (4).

Methods : Susceptibility of hippocampal neurons to changes in glucose homeostasis (5); especially during CNS development in several studies has been demonstrated (1). Neurturin (NRTN) is a member of the glial-cell-line-derived neurotrophic factor (GDNF) family (6, 7); and is one of the members of the transforming growth factor- β (TGF β) superfamily (8). In the majority of experimental studies the important role of NRTN and its receptor components (GFR α 2 and Ret) (9, 10) in the survival of different populations of neurons in the central and peripheral nervous systems have been proved (6, 11).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : (6, 11). Lenhard et al. showed that expression levels of NRTN mRNAs reach maximum during the critical differentiation period of hippocampal neurons (in the first two postnatal weeks) (12). Multiple lines of evidences revealed that in early stage of hippocampal development (embryonic day 14) the expression of NRTN mRNA are at the highest.(12, 13)

Conclusion : Due to the fact that all GDNF family of ligands such as NRTN are essential for the maturity and maintenance of the nervous system at the first two first weeks after birth- vital period for development of CNS - and the survival and the cell proliferation of the hippocampus are affected negatively by metabolic disturbances including hyper- and hypoglycemia; this study was designed to investigate the effect of maternal diabetes and also insulin treatment on the mRNA expression of NRTN in rat neonate's hippocampus during the first two postnatal weeks.

Keywords : Neonatal Rats– Diabetes Mellitus – Hippocampus –Neurturin

Count: 30

Abstract ID: 49

subject: Cognition: Learning and Memory

Presentation Type: Oral

NMDA receptors in the dorsal hippocampal area are involved in tramadol state-dependent memory of passive avoidance learning in mice.

Submission Author: Majid JafariSabet

Majid JafariSabet¹

1. Department of Pharmacology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran, Tehran, Tehran, Iran (the Islamic Republic of) ; jafarisabet.m@iums.ac.ir.

Background and Aim : The neurobiological mechanisms of tramadol abuse underlying the cognitive function are still imprecise. Considering these, the aim of the present study was to examine the possible effects of intra-CA1 injections of NMDA, an N-methyl-D-aspartate glutamate receptor (NMDAR) agonist and DL-AP5, a competitive NMDAR antagonist, on tramadol state-dependent memory.

Methods : A single-trial step-down passive avoidance task was used for the assessment of memory retrieval in adult male NMRI mice.

Results : Post-training i.p. administration of an atypical MOR agonist, tramadol (2.5 and 5 mg/kg) dose dependently induced impairment of memory retention. Pre-test injection of tramadol (2.5 and 5 mg/kg) induced state-dependent retrieval of the memory acquired under post-training administration of tramadol (5 mg/kg) influence. Pre-test intra-CA1 injection of NMDA (10-5 and 10-4 µg/mouse) 5 min before the administration of tramadol (5 mg/kg, i.p.) dose dependently inhibited tramadol state-dependent memory. Pre-test intra-CA1 injection of DL-AP5 (0.25 and 0.5 µg/mouse) reversed the memory impairment induced by post-training administration of tramadol (5 mg/kg). Pre-test administration of DL-AP5 (0.25 and 0.5 µg/mouse) with an ineffective dose of tramadol (1.25 mg/kg) restored the retrieval and induced tramadol state-dependent memory.

Conclusion : It can be concluded that dorsal hippocampal NMDARs mechanisms play an important role in the modulation of tramadol state-dependent memory.

Keywords : Tramadol; NMDA; DL-AP5; Dorsal hippocampus; State dependent memory

Count: 31

Abstract ID: 461

subject: Cognition: Learning and Memory

Presentation Type: Poster

Evaluation of chronic tramadol administration on memory of rat

Submission Author: Leila Kanaani

Leila Kanaani¹

1. Azad University, Iran

Background and Aim : The impairment of memory functions is very common in patients with chronic pain, particularly in patents with existing cognitive disorders. In this study, we investigated the effects of chronic exposure of tramadol, which could impair the memory evaluated in the ORT.

Methods : For this purpose, this study was carried out on 15 (3×5 group) male Wistar rats (weighing 220±20 g). The animals had free access to food and water before the experiment. They were kept at a constant room temperature (22±1C) under a 12-12 h light/ dark cycle, while using an apparatus consisting of a circular arena, Then, TRM was dissolved freshly in distilled water.

Results : The animal was received gavage 50 mg/kg daily for 30 days according to the respective chronic treatment groups. Each respective control group took distilled water in the same manner. The administration of drug was done between 8-22 am every day. To check the memory in the scheme of Task Recognition Object, a test was employed to detect objects based on the animal's natural desire to explore new object in front of a familiar object. The results showed that the physiological function of GABA and inhibitory effect of ACh release of TRM in cholinergic activity can indicate some negative behavioral effects of TRM.

Conclusion : In summary, our research confirms that the low doses in chronic exposure of tramadol could impair the memory evaluated in the ORT. The agonistic property of Tramadol for GABA receptor, disruption of normal GABA physiological function and the inhibitory effect of Tramadol on the ACh release and the cholinergic activity could be supposed as some possible mechanism of negative behavioral effect of Tramadol.

Keywords : Tramadol; Memory; rat

Count: 32

Abstract ID: 441

subject: Cognition: Learning and Memory

Presentation Type: Oral

Beneficial effects of garlic on learning and memory deficits and brain tissue damages induced by lead exposure during juvenile rat growth is comparable to the effect of ascorbic acid

Submission Author: Alireza Karampour

Alireza Karampour¹, Simagol Ghasemi², Mahmoud Hosseini³, Farimah Beheshti⁴, Fatemeh Alipour⁵

1. Student Research Committee, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran
2. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
3. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
4. Department of Physiology, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
5. Department of Anatomy and Cell Biology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : The neuroprotective effects of both garlic and ascorbic acid (AA) have been documented. In this study the effects of garlic and ascorbic acid on memory deficits and brain tissue oxidative damages induced by lead exposure was investigated.

Methods : The juvenile rats were divided and treated: (1) Control, (2) Lead (lead acetate in drinking water, 8 weeks), (3) Lead – Ascorbic Acid (Lead-AA), (4) Lead – Garlic (100 mg/kg, daily, gavage) (Lead-Gar). The animals were examined using Morris water maze (MWM) and passive avoidance (PA) tests. Finally, brain tissue was removed for biochemical measurements. All data are presented as the mean \pm SEM. The analysis was performed using the SPSS software version 16.

Results : In MWM, the escape latency and traveled path in the Lead group were significantly higher while, the time spent in the target quadrant (Q1) was lower than Control. Both Lead-Gar and Lead-AA groups spent more times in Q1 than to lead group. There were no significant differences in swimming speed between the groups. In PA test, the time latency for entering the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

dark compartment by Lead group was lower than Control. Treatment of the animals by AA and garlic significantly increased the time latency. In Lead group, the total thiol concentration in brain tissues was significantly lower while, MDA was higher than Control. Treatment by both garlic and AA increased total thiol concentrations and decreased MDA. Both garlic and AA decreased the lead content of brain tissues.

Conclusion : It is suggested that treatment with garlic attenuates the learning and memory impairments due to lead exposure during juvenile rat growth which is comparable to AA. The possible mechanism may be due to its protective effects against brain tissues oxidative damage as well the lowering effects of brain lead content.

Keywords : Lead; memory; learning; oxidative stress; garlic; ascorbic acid

Count: 33

Abstract ID: 198

subject: Cognition: Learning and Memory

Presentation Type: Poster

The improving effect of nicotine on ethanol-induced amnesia was attenuated by inhibition of nitric oxide synthase in the rat mediodorsal thalamus

Submission Author: Farnaz Karimani

Farnaz Karimani¹, Ameneh rezayof²

1. School of Biology, college of science, University of Tehran, Tehran, Iran
2. School of Biology, college of science, University of Tehran, Tehran, Iran

Background and Aim : Clinical and subclinical studies showed that ethanol impaired the different stages of memory formation including encoding, storage and retrieval. There is a functional interaction between ethanol and nicotine in cognitive functions. It is well known that the mediodorsal thalamic nucleus (MD) is critically involved in memory dysfunction. Furthermore, previous studies showed that the inhibition of the synthesis of nitric oxide impairs learning and memory processes, while the nitric oxide precursor L-arginine facilitates memory storage and retrieval. Considering that ethanol and nicotine are usually abused together and their co-abuse affects memory retrieval, in the present study, the inhibition of nitric oxide synthase in the rat mediodorsal thalamus was evaluated in the effect of nicotine administration on ethanol-induced amnesia in adult male Wistar rats (200-230 g).

Methods : Each animal was anesthetized with an intraperitoneal injection of ketamine/xylazine mixture (50 mg/kg and 5 mg/kg, respectively) and then was bilaterally cannulated in the MD using a stereotaxic apparatus according to the rat brain atlas of Paxinos and Watson. All animals were allowed to recover before the beginning of the experiments for one week. The animals were trained in a step-through type of passive avoidance task. 24 h after the training, a memory retrieval test were performed to assess memory formation in the animals.

Results : Our results showed that intraperitoneal (i.p.) administration of ethanol (1 g/kg) 30 min before testing phase (pre-test administration) induced amnesia, suggesting an impairing effect of ethanol. Pre-test systemic administration of nicotine (0.05-0.2 mg/kg, s.c.) 15 min before ethanol

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

administration improved ethanol-induced amnesia. The inhibition of nitric oxide synthase in the mediodorsal thalamus by microinjection of L-NAME (0.25-1 $\mu\text{g}/\text{rat}$) 5 min before administration of nicotine (0.2 mg/kg) inhibited the improving effect of nicotine on ethanol-induced amnesia, showing an inhibitory effect of L-NAME on nicotine response. It is important to note that bilateral microinjection of the same doses of L-NAME into the MD did not affect memory retrieval.

Conclusion : Taken together, the MD plays a critical role in the interactive effects of nicotine and ethanol on memory retrieval. Moreover, it can be concluded that the blockade of nitric oxide system inhibited the improving effect of nicotine on ethanol-induced amnesia. It seems that cognitive factors may be the reasons for co-abuse of nicotine and ethanol.

Keywords : Ethanol; Nicotine; L-NAME; Mediodorsal thalamic nucleus; Amnesia; Rat(s)

Count: 34

Abstract ID: 153

subject: Cognition: Learning and Memory

Presentation Type: Poster

Protective effect of Honey on LPS-induced oxidative damage in the hippocampus of rat

Submission Author: Leila Karimi zandi

Leila Karimi zandi¹, Maryam Noorbakhshnia²

1. PhD student at Neuroscience Department, School of Advanced Technologies in Medicine Tehran University of Medical Sciences, Tehran, Iran
2. Department of biology, faculty of science, University of Isfahan, Esfahan, Iran

Background and Aim : One of the main causes of diseases with defects in learning and memory, is nervous system inflammation (neuro-inflammation) and oxidative stress which usually accompanied with neuro-inflammation. Lipopolysaccharide derived from the walls of gram negative bacteria or LPS is a strong bacterial endotoxin that can be used in laboratories as induction of inflammation. Injection of LPS changes brain action, induces neuroinflammation and memory impairment at hippocampus. Considering Hippocampus vital role at learning and memory, many recent researches have shown that antioxidants (Glutathion), proteins, Vitamins, organic acids, mineral salts, amino acids, lipids in honey had influential protective impact on this role. The present study aimed to prevent from impairment of memory and passive avoidance learning (PAL) caused by LPS through honey gradients. Another goal of our study was determine the level of Glutathione reductase activity.

Methods : The wistar male rats (weight between 180-220g) were used for intraperitoneal (IP) injection to induce neuronal inflammation. The acute dose of LPS was 1mg/kg. The rats were administered by force-feeding (gavage) for 15 days and PAL test was performed using a step-through instrument, finally. The TNF- α lever was used as a factor of inflammation. Furthermore, changes in the amount of antioxidant activity was investigated. The amount of malonedialdehyde was measured as oxidative stress factor.

Results : The results showed that injection of LPS, significantly, caused memory deterioration, inflammation and finally induction of oxidative stress. Furthermore, honey gradients significantly

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

prevented from LPS -induced PAL and memory deterioration, inflammation and finally oxidative stress.

Conclusion : Microglia in such regions that involved in memory and learning (hippocampus) have most activity and indicate highest rate of atrophy, pathology inflammation and neuronal diseases. Our investigation showed that neuro-inflammation could reduce learning and memory abilities. It seems honey antioxidant such as glutathione reductase and other honey components can reduce inflammation and oxidative stress.

Keywords : Honey ; learning and memory; LPS ; oxidative damage

Count: 35

Abstract ID: 715

subject: Cognition: Learning and Memory

Presentation Type: Poster

the effect of Sleep deprivation on memory consolidation

Submission Author: Mohadeseh Kavyanpoor

Mohadeseh Kavyanpoor¹, marzieh bagheri², shole jamali³, abbas haghparast⁴

1. Neuroscience research center, school of medicine, shahid behshti university of medical science
2. Neuroscience research center, school of medicine, shahid behshti university of medical science
3. Neuroscience research center, school of medicine, shahid behshti university of medical science
4. Professor, Neuroscience Research Center, Shahid Beheshti University of Medical Sciences

Background and Aim : Sleep deprivation is a common problem that has adverse effects on the health and quality of human life. It can cause daily sleepiness or reduce the performance of a person. Sufficient Sleep has a positive role in the process of memory formation, by contrast, sleep deprivation produces a negative effect on memory. Accordingly, the goal of this study is to investigate the effect of sleep deprivation on memory consolidation in multiple learning tasks.

Methods : sixteen 4-weeks old wistar rats, were divided randomly to normal and sleep deprivation groups. Then, two groups were exposed to Morris water maze. Twenty-four hours later they did acquisition test. Then sleep deprivation group was transferred to the flowerpot device and normal group was transferred to the cage. Sleep deprivation protocol included 24 hours of sleep deprivation. Twenty-four hours later, both groups performed probe test. In probe test, the platform is removed and a memory test is taken. This test included a 60-second free-swimming exercise. Then, both groups were transferred to their cages for resting. They had normal sleep, until next day for the second probe test. All movements of rats were recorded in Morris water maze by CCTV camera. The delay in entering the platform area, the delay in entering the target quadrant and the time spent staying in the quadrant of the goal were recorded and considered as the learning scale

Results : Two way ANOVA statistics analysis showed that the time delay and distance traveled in the two groups significantly decreased, during the acquisition time. But, there was no significant difference between the two groups. Also, the results of independent T test showed that there was significant difference between two groups for finding platform, during probe test after sleep deprivation and normal sleep.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : 24 hours of sleep deprivation can disrupt memory consolidation, even though, it could not have a positive effect on memory consolidation, after 24 hours of normal sleep.

Keywords : Sleep deprivation; spatial memory; normal sleep

Count: 36

Abstract ID: 758

subject: Cognition: Learning and Memory

Presentation Type: Poster

The effect of high intensity interval training before stroke on spatial memory and motor activity of male rats

Submission Author: Mohadeseh Kavyanpoor

Mohadeseh Kavyanpoor¹, marzieh bagheri², alireza farsi³, abbas haghparast⁴

1. Neuroscience research center, school of medicine, shahid behshti university of medical science
2. Neuroscience research center, school of medicine, shahid behshti university of medical science
3. professor associated of sport sciences, shahid Beheshti university
4. Professor, Neuroscience Research Center, Shahid Beheshti University of Medical Sciences

Background and Aim : Stroke is a clinical syndrome with a severe injury to the nervous system due to blood flow restriction to the brain. The induction of generalized ischemia leads to wide neuronal injury in the hippocampus and the cortex of the brain, subsequently, behavioral disorders are created such as learning impairment and spatial memory. Pre-conditioning with sports activity can reduce stroke injury. The goal of this study is to investigate the effect of high intensity interval exercise before stroke on spatial memory and motor activity in male rats.

Methods : Thirty six 4-weeks old wistar rats, were divided randomly to 4 groups. Control (n=9), high intensity interval training (HIIT) without stroke intervention (n=9), HIIT with stroke intervention (n=9), and sham (n=9). They did progressive protocol for determination Vo₂max, after a week familiarization with treadmill. The HIIT program was performed 3 sessions a week. 48 hours after last session of training, animals were tested for the acquisition of spatial memory in three days and next day of last acquisition for stroke-surgery by MCAO and seven days later for the behavioral test.

Results : Two way ANOVA statistics analysis showed that during acquisition days, distance traveled and the time for finding the platform significantly decreased in all groups. Also, there was significant difference among groups. It shows HIIT before stroke can't reduce malignant effect of stroke. As well as, there was no significant difference between control and HIIT with stroke group. there was no significant difference among groups in motor activity, too.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Oxidative stress factors cause a harmful effect on memory, because of high stress in HIIT and stroke.

Keywords : spatial memory; stroke; high intensity interval training

Count: 37

Abstract ID: 192

subject: Cognition: Learning and Memory

Presentation Type: Poster

THE MODULATORY EFFECT OF CA1 GABA_b RECEPTORS ON KETAMINE-INDUCED SPATIAL AND NON-SPATIAL NOVELTY DETECTION DEFICITS

Submission Author: Arash Khanegheini

Arash Khanegheini¹, mohammad nasehi², mohammad reza ZARRINDAST³

1. Sadra Center for cognitive Studies, Tehran, Iran
2. Cognitive and Neuroscience Research Center (CNRC)
3. Department of Pharmacology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Glutamate and c-aminobutyric acid (GABA) are among the most abundant neurotransmitters in the central nervous system. Ketamine and other noncompetitive N-methyl-D-aspartate (NMDA) receptor antagonists are known to induce deficits in learning and the performance of cognitive tasks. The present study was designed to assess the effects of dorsal hippocampal (CA1) GABA_b receptors on ketamine-induced spatial and non-spatial memory deficits

Methods : Subjects were male NMRI mice weighing 25–30 g, bred at the Institute for Cognitive Science Studies (ICSS), Tehran, Iran. Mice were kept in the animal house under controlled temperature (22±2 —————C) and the experiments were performed during the light phase of a 12-h dark/light cycle with lights on at 7 A.M. Animals were housed in groups of seven, in Plexiglas cages having free access to rodent food (standard laboratory rodent chow) and water except for the limited periods during the experiments. Spatial and non-spatial novelty detection of male NMRI mice were investigated in a circular open-field apparatus.

Results : According to our results, the intraperitoneal injection of ketamine at its higher dose (0.1 mg/kg) impaired both spatial and non-spatial novelty detection. Moreover, the intra-CA1 injection of baclofen (a GABA_b receptor agonist) at higher doses (0.02 and 0.2 lg/mouse) impaired the spatial but not non-spatial novelty detection. In addition, phaclofen (a GABA_b receptor antagonist at 0.2 lg/mouse) impaired both spatial and non-spatial novelty detection. Baclofen restored and

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

induced a modulatory effect on ketamine-induced responses in the spatial and non-spatial novelty detection task, respectively. On the contrary, phaclofen restored and induced a modulatory effect on ketamine-induced responses in the non-spatial and spatial novelty detection task, respectively.

Conclusion : Such findings suggest that the ketamine-induced impairment of memory consolidation may occur through GABA_B receptors of the CA1 neurons. Moreover, baclofen and phaclofen were shown to possibly exert their effects on the ketamine-induced spatial novelty detection deficits through Ca²⁺ channels.

Keywords : ketamine, GABA_B, CA1, spatial memory.

Count: 38

Abstract ID: 293

subject: Cognition: Learning and Memory

Presentation Type: Poster

Chrysin ameliorates cognitive deficits in a rat model of cerebral Ischemia/Reperfusion

Submission Author: Maryam Khombi Shooshtari

Maryam Khombi Shooshtari¹, Alireza Sarkaki², Yaghoub Farbod³, Seyed Mohammad Taghi Mansouri⁴

1. PhD. student of neurophysiology, Physiology Research Center, Ahvaz Jundishapur University of Medical Science, Ahvaz-Iran. shooshtari91@gmail.com
2. Prof. of neurophysiology, Physiology Research Center, Ahvaz Jundishapur University of Medical Science, Ahvaz-Iran. sarkaki_a@ajums.ac.ir
3. Assistant Prof., Department of Physiology, Medicine Faculty, Physiology Research Center, Ahvaz Jundishapur University of Medical Science, Ahvaz-Iran
4. Assistant Prof., Department of Pharmacology, Medicine Faculty, Physiology Research Center, Ahvaz Jundishapur University of Medical Science, Ahvaz-Iran

Background and Aim : Chrysin (5,7-dihydroxyflavone) is an important member of the flavonoid family which is found in propolis, honey, mushroom and flowers, such as the blue passion flower (*Passiflora caerulea*). Inflammation and oxidative stress play an important role in the pathogenesis of cerebral ischemia/reperfusion (I/R) injury, resulting in neuronal death. Chrysin has also been found to have neuroprotective effects, preventing neurons from oxidative insults and apoptosis. The aim of this study is to investigate the neuroprotective effects of chrysin on cognitive deficit following global cerebral ischemia and reperfusion in a Wistar male rats model.

Methods : A total of 28 rats were equally divided into four groups: (1) sham-operated (SH = control), (2) global cerebral I/R (I/R) and (3,4) chrysin (10, 30 mg/kg) + I/R. In the I/R group, rats were pretreated with vehicle (DMSO 5%, by gavage) for 21 days and then bilateral carotid arteries were clipped for 20 min. In the chrysin + I/R groups rats were also pretreated with chrysin (10, 30 mg/kg, by gavage) once a day for 21 days and then bilateral carotid arteries were clipped for 20 min. Learning and memory function were evaluated by Morris water maze and shuttle box test. At 3days after I/R, step thorough latency by shuttle box and 7 days after I/R, spatial memory by morris water maze were evaluated.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Chronic pretreatment with chrysin (10 and 30 mg/kg) attenuated cognitive deficits induced by cerebral I/R as dose-dependently significantly ($P>0.05$).

Conclusion : Our current work showed that pretreatment with chrysin can positively affect the neural system of ischemic rats and it can be used for the treatment of global cerebral I/R. It should be noted that histological, inflammatory, and oxidative stress studies are under way to investigate the mechanism of chrysin effect in our lab.

Keywords : Chrysin, Cognitive, rat

Count: 39

Abstract ID: 235

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effects of buprenorphine on the memory and learning deficit induced by methamphetamine administration in male rats

Submission Author: Hamidreza Komaki

Hamidreza Komaki¹, Farshid Etaee², Alireza Komaki³

1. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
2. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
3. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran

Background and Aim : There is little information about the interaction between the effects of methamphetamine (Meth) and buprenorphine(Bup) on memory and learning in rats. The purpose of this study was to investigate the effect of Meth on memory and learning and the action of Bup on Meth-induced changes in these phenomena in rats.

Methods : The data were obtained for 40 male Wistar rats, weighing 250 to 300 g. In this experiment, the rats were separated into four groups: Sham, Meth, Bup, Meth+Bup. In all groups, related substances were administrated for one week. Spatial learning and memory, avoidance learning, and locomotion were assessed using the Morris water maze (MWM), passive avoidance(PA), and open field (OF) tests, respectively.

Results : Meth and Bup had no effects on locomotor activity in the OF test. Co-administration of Bup+Meth increased the time spent in the target quadrant in comparison with Meth alone in the MWM. Furthermore, our analysis revealed that co-administration of Bup+Meth significantly increased the step-through latency and decreased the time spent in the dark compartment in comparison with the Meth group in PA.

Conclusion : Meth administration impairs spatial and aversive memory and learning in rats; its co-administration with Bup attenuates this effect. The interaction between these two drugs can affect learning and memory via changes in activity in one (or more) of the dopamine, catecholamine, or glutamate neurotransmitter systems. Therefore, since Bup causes fewer side

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

effects than other opioid drugs, its use may be preferable in the treatment of memory deficits in patients with Meth addiction.

Keywords : Methamphetamine; Buprenorphine; Learning; Memory; Interaction; Rat

Count: 40

Abstract ID: 827

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effects of the magnesium oxide nanoparticle on scavenge amyloid plaques in the region of CA1 in the model induced by peptide amyloid beta in mal wistar rats

Submission Author: Donya Korehbandi

Donya Korehbandi¹, Shahrbanoo Oryan², Delaram Eslimi³, Mahnaz Azarnia⁴, Adel Salari^{*5}

1. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
2. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
3. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
4. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
5. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran

Background and Aim : Alzheimer's disease initially attacks synapses. The beta-amyloid peptide inhibits the exchange of synaptic currents and disrupts synaptic plasticity, glutamate receptor induction and endocytosis. In this study, the effects of magnesium oxide nanoparticles on the beta-amyloid peptide plaques purification have been investigated.

Methods : In this study, 48 male Wistar rats weighing between 200 and 250 grams were divided into 6 groups including control, sham group, beta-amyloid uptake in ventricle and magnesium oxide nanoparticle received in doses of 2.5, 5 and 10 (mg / kg) were taken peritoneally, 6 days before and 20 days after Alzheimer's induction. Congo red staining detects amyloid deposits in the region of CA1 hippocampal in the experimental groups.

Results : The Magnesium oxide nanoparticles caused a dose-dependently clearance of amyloid plaques in the region of CA1 hippocampal tissue.

Conclusion : Due to the passage of magnesium oxide nanoparticles from the blood-brain barrier and the role of this nanoparticle in the memory pathways, it seems that this compound prevented the mechanisms of amnesia caused by Alzheimer's disease.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Magnesium oxide nanoparticle, amyloid beta peptide, Congo red, memory and learning

Count: 41

Abstract ID: 115

subject: Cognition: Learning and Memory

Presentation Type: Poster

The effect of intrahippocampal injection of Insulin-like Growth Factor-1 on morphine-induced amnesia

Submission Author: Somayeh Kouhestani

Somayeh Kouhestani¹, Somayeh Kouhestani(Msc)², Kurosh Mojtabavi(MD Stu)³, Parvin babaei(PhD)⁴

1. -
2. Cellular and Molecular Research Center, Faculty of Medicine, Guilan University of Medical Sciences, Rasht, Iran
3. Cellular and Molecular Research Center, Faculty of Medicine, Guilan University of Medical Sciences, Rasht, Iran
4. Cellular and Molecular Research Center, Faculty of Medicine, Guilan University of Medical Sciences, Rasht, Iran

Background and Aim : Insulin-like Growth Factor-1 (IGF-1) is a neurotrophic factor, which is involved in the production and activity of brain neurons, memory and cognitive functions. In addition, IGF-1 is important in the growth of neuronal cells, differentiation and synthesis and release of neurotransmitters. In this study, the effect was investigated IGF-1 on morphine-induced amnesia.

Methods : Twenty-four rats were divided into three groups including: saline+saline, morphine+saline, morphine+IGF-1. Animals were cannulated in hippocampus using stereotaxic apparatus. Intraperitoneal administration of morphine (10 mg/kg) was used to induce amnesia. IGF-1(5 µg/ 1µl/ rat) was injected intrahippocampally 30 minutes before morphine treatment, then rats were trained in Step-Through passive avoidance task. First Latency time (FLT) to enter to dark compartment and total time spent (TTS) in that compartment, 1.5 and 24 h after the training in three minutes were measured as passive avoidance learning and memory indices.

Results : Intraperitoneal injection of 10 mg/kg morphine significantly decreased FLT, 24 h after the training(p=0.001), also significantly increased TTS, 1.5 and 24 h after the training compared with saline group(p=0.011, p=0.001). There was no significant difference in FLT between

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

morphine+saline and morphine+IGF-1 groups, 1.5 h after the training ($p= 0.064$), whereas intrahippocampal injection of IGF-1, 24 h after the training, significantly increased FLT ($p=0.001$). In addition, TTS 1.5 and 24 h after the training, in morphine+IGF-1 group compared with morphine+saline group significantly decreased ($p=0.013$, $p=0.001$).

Conclusion : Our results showed that injection of morphine leads to induction of amnesia and pre-treatment with IGF-1 in the hippocampus improves, attenuates morphine-induced amnesia.

Keywords : Morphine; Amnesia; Insulin-like Growth Factor-1; Learning and Memory; Step-Through

Count: 42

Abstract ID: 656

subject: Cognition: Learning and Memory

Presentation Type: Poster

Modafinil and nicotine effects on ecstasy's neurotoxicity in hippocampal neurons of male and female rats

Submission Author: Golshad Kowsari

Golshad Kowsari¹, kazem mousavizadeh², sara soeimani asl³, Mehdi Mehdizadeh -
Corresponding author⁵

1. Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran
2. Cellular and Molecular Research Center, Faculty of Advanced Technologies in Medicine, Department of Anatomy, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : Since ecstasy as a psychoactive drug has deleterious effects on the nervous system, especially the hippocampus and cerebellum, and these areas of the brain are important in the process of recognition, learning and memory, Here in we are studying protective effects of Modafinil and nicotine on MDMA induced neurotoxicity, spatial memory impairment and cell death in hippocampus of male and female rats.

Methods : For the behavioral tests of this project, the morris water maze and shuttle box methods for spatial memory checking and avoidance learning, for tissue and molecular tests, immunohistochemistry (neurogenesis), nissl (live cell count), western blotting (neurotrophic factor), Apoptosis factor (apoptotic factor), antioxidant capacity, tunnel (apoptosis count) and epigenetic study using methylation kit in 10 groups including control group, sham groups, MDMA treated group, acute And chronic groups treatment treated with MDMA and nicotine, acute and chronic groups treated with MDMA and modafinil and treated with acute and chronic groups With MDMA, Nicotine and Modafinil (IP injections).

Results : MDMA Caused impairment in spatial memory and it is expected that nicotine and modafinile improve spatial memory and inactive avoidance memory in both males and females rats. The behavioral tests of this project are underway.

Conclusion : The use of nicotine and modafinil in an acute and chronic manner in the hippocampus of treated rat with MDMA, is expected to increase neurogenesis also reducing apoptosis of the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

neuron in both males and females. and Changes in methylation in the hippocampus of males and females treated with ecstasy may vary.

Keywords : neurotoxicity ; 3, 4 methylenedioxymethamphetamine; hippocampus; neurogenesis

Count: 43

Abstract ID: 636

subject: Cognition: Learning and Memory

Presentation Type: Poster

Study of the effects of maternal immobilization stress on spatial learning and memory evaluated by Barnes maze and hippocampal BDNF concentration in female NMRI mice

Submission Author: Elham Mahmoodi

Elham Mahmoodi¹, Nastaran Aliabadi²

1. 1Department of Biology, Islamic Azad University, North Tehran branch, Tehran, Iran.
2. 1Department of Biology, Islamic Azad University, North Tehran branch, Tehran, Iran.

Background and Aim : In this study, the effect of immobilization stress during pregnancy on the spatial memory and the changes of concentration for hippocamp BDNF in the female F1 generation in female NMRI mice were investigated.

Methods : Twenty female pregnant mice were divided in to stress and control groups (n=10/group). Stress group received stress using a restraint cylinder (2.5 cm ID, 25 cm L) 60 min/day until the 15th pregnancy day. Control group did not receive stress. Female F1 offspring were nursing by their mothers until reaching 25+_3 g which was tested for spatial memory using Barnes Maze, anxiety-like behavior using the elevated plus-maze, and depression forced swimming test. A group of animals were sacrificed and their brains were homogenized in cold buffer phosphate and then centrifuged at 3000 rpm for 20 minutes, for BDNF concentration determination.

Results : The time and distance the animals reach the target hole in Barnes maze was significantly increased in the stressed group. Also, the number of errors in the stress group was more profound. In addition the random strategy mostly happened in the stress group mice and the direct strategy mostly happened in the control group mice. At last, our data showed that the concentration of brain BDNF was higher in the control group, which was statistically significant.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : : This study indicated that stress during pregnancy can affect the nervous system of the developing fetus, and produces a defect in its natural growth and development. This effect is associated with a defect in brain BDNF production.

Keywords : : Barnes maze; BDNF; Spatial memory; F1 Generation; Stress

Count: 44

Abstract ID: 3

subject: Cognition: Learning and Memory

Presentation Type: Oral

Study of the effects of short- term REM sleep deprivation on neurogenesis and spatial memory of adult male rats

Submission Author: Somaye Mesgar

Somaye Mesgar¹, Seyed Behnamedin Jameie ², Naseri A ³

1. Neuroscience Lab, Biology and Anatomical Sciences Department, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Neuroscience Research Center (NRC), Iran University of Medical Sciences, Tehran, Iran 3Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Department of Health Psychology, Faculty of Psychology, Karaj Branch, Islamic Azad University, Karaj, Iran

Background and Aim : Sleep is a universal circadian biological rhythm which is seen among all vertebrate and has two separate steps including REM and Non-REM. Total or partial sleep deprivation lead to cognitive dysfunction. It seems that the cognitive dysfunction following sleep deprivation is result from cellular changes in certain area involved in this phenomenon. Regarding the role of hippocampus in cognitive dysfunction and behavior and also the continuation of neurogenesis in this area, the present research designed to study the effects of short-term sleep deprivation on neurogenesis in hippocampus and memory of adult male rats.

Methods : Twenty four Wistar adult male rats were used in this study. The animals randomly divided into three groups of trials and control. Flower pot technique was used for REM-SD. To study spatial memory Morris Water Maze was used. In order to evaluate neurogenesis Brdu immunohistochemistry was used. Data analyzed by SPSS and the results presented in the form of Mean± SD, the $P_v < 0.05$ considered significant.

Results : Short -term REM-SD lead to significant decrease of neurogenesis in hippocampus of trial groups comparing control group. It is also showed that REM-SD significantly affected some certain parameters of memory in REM-SD.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Based on our findings it could be concluded that any cognitive dysfunction following REM-SD might be related to cellular changes of brain certain area that indirectly involve in sleep control and regulation

Keywords : Neurogenesis, Hippocampus, Memory, REM-SD

Count: 45

Abstract ID: 789

subject: Cognition: Learning and Memory

Presentation Type: Oral

Cognitive functions, Environmental enrichment and Addiction

Submission Author: Hossein Miladi gorji

Hossein Miladi gorji¹, Hossein Miladi-gorji²

1. -
2. Laboratory of Animal Addiction Models, Research Center and Department of Physiology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran.

Background and Aim : Recent evidence indicates that abused drugs can hijack synaptic machinery that are dedicated to plastic changes in the excitability of principal hippocampus circuits and structures important for spatial learning and memory that enables an animal to recognize its position in the charted world. Previously findings indicated that chronic exposure to morphine, methamphetamine (METH) and their spontaneous withdrawal produce cognitive deficits, obsessive-compulsive disorder (OCD) as cognitive-affective disorder deficits in humans and experimental animals. This in turns activates a cycle of cognitive, affective, and psychophysiological mechanisms, which leads to behavioral sensitization, compulsive drug wanting, drug seeking, and drug taking.

Methods : The reversal or prevention of morphine or METH-induced behavioral and cognitive disorders could be a useful method for the treatment of relapse. We previously found that environmental enrichment (EE) diminished the severity of withdrawal symptoms and anxiety and depressive-like behaviors and the voluntary consumption of drug during spontaneous withdrawal from morphine or METH in rats.

Results : The main finding of this study is that chronic exposure to morphine or METH did not impair spatial learning ability, but impaired retention of spatial long-term memory in the Morris water maze task. Also, we found that the EE ameliorates morphine or METH-induced spatial memory deficits and obsessive-compulsive behaviors.

Conclusion : Thus, environmental enrichment may be a potential therapeutic strategy for spatial memory and behavioral deficits in addict individuals.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Morphine and METH-dependent and withdrawn rats, Environmental enrichment, Cognitive deficits, Obsessive-compulsive disorder.

Count: 46

Abstract ID: 43

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effect of Creating and Presenting Concept Maps by Group Computer-Based Method on Creative and Analytical Thinking in Nursing Students

Submission Author: Amir hossein Mirgalooye bayat

Amir hossein Mirgalooye bayat¹, Amir-Hossein Mirgalooye Bayat², Hamid Reza Koohestani³, Ahmad Shafae-Zadeh⁴, Amin Haghgoo⁵, Atefe Mahdavi⁶

1. -
2. Department of neuroscience, Saveh University of Medical Sciences, Saveh, Iran
3. Department of Medical Education, Saveh University of Medical Sciences, Saveh, Iran
4. Social Determinant of Health Research Center, Saveh University of Medical Sciences, Saveh, Iran
5. Social Determinant of Health Research Center, Saveh University of Medical Sciences, Saveh, Iran
6. Department of neuroscience, Saveh University of Medical Sciences, Saveh, Iran

Background and Aim : using the creative thinking leads to innovation and novel approaches in different conditions of teaching & learning. So, the present study has been developed to determine the effect of group drawing and presentation of concept map on creative thinking in students of nursing.

Methods : this was a semi-experimental study. In this investigation thirteen students of nursing participated. The given intervention has been done in five sessions for ninety minutes using a computer software. The participants divided by 6 groups that there are five subjects in each group. The data were collected in pre- intervention, immediately after the intervention and one month after the intervention via the standard creative thinking questionnaire of Peter honey. Finally, the data were analyzed by descriptive and inferential statistics methods.

Results : the results were showed that there is a significant increase in creative thinking relative to analytic thinking immediately and one month after the intervention ($p < 0/0001$). Furthermore, repeated measure ANOVA showed a significant difference in the creative and analytic thinking in all of the times in an increasing and decreasing manner, respectively ($p < 0/0001$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : it appears that the group concept map could improve the creative thinking of student immediately and one month after the intervention. Thus, our findings demonstrate the necessity of attention to active and student-based methods to develop and educate the creativity in students

Keywords : Creative thinking, Concept map, Creativity, Student of Nursing

Count: 47

Abstract ID: 197

subject: Cognition: Learning and Memory

Presentation Type: Poster

Association of neurexin 1 gene with autism spectrum disorder

Submission Author: Nahid Mirmohammadsadeghi

Nahid Mirmohammadsadeghi¹, Modjtaba Emadi-Baygi², Parvaneh Nikpour³, Maryam Malek⁴

1. Department of Genetics, Faculty of Basic Sciences, Research Institute of Biotechnology, Shahrekord University, Shahrekord, Iran
2. Department of Genetics, Faculty of Basic Sciences, Research Institute of Biotechnology, Shahrekord University, Shahrekord, Iran
3. Department of Genetics and Molecular Biology, Faculty of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
4. Department of Physiology, Faculty of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

Background and Aim : Autism spectrum disorder (ASD) is a neurodevelopmental disability comprising a spectrum of clinical phenotypes that is diagnosed by three core symptoms including alteration in social behaviors, communications and performing stereotypic behaviors. Neurexin 1 (NRXN1) is a presynaptic transmembrane receptor in the central nervous system which binds postsynaptic endogenous ligands such as neuroligins and dystroglycan and is involved in synaptogenesis and synapse function. Recent studies have shown the association of neurexin 1 with autism in humans and mice. The aim of the current review is to comprehensively summarize previous studies conducted on the association of NRXN1 gene with autism spectrum disorder.

Methods : In order to compile this review article, several studies on human and mice that analyzed the association between ASD and neurexin 1 gene were included. Online databases including PubMed, OMIM and ScienceDirect were searched between the time duration of 2007 to 2017.

Results : According to recent researches, deletions in NRXN1 gene in human cause to autistic symptoms such as intellectual disability, speech delay and poor eye contact. Furthermore, NRXN1 genetic mutations have been reported in ASD patients. In addition, Nrnx-1 knockout mice show cognitive impairments and behavioral alterations that are related closely with autistic-like behaviors. These findings indicate that neurexin 1 is associated with autism spectrum disorder.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Due to the reduced penetrance in the NRXN1 gene, the causal role of the NRXN1 gene variations must be studied in details.

Keywords : ASD, NRXN1, Transmembrane receptor, Stereotypic behaviors

Count: 48

Abstract ID: 176

subject: Cognition: Learning and Memory

Presentation Type: Poster

Association between neuroligin 1 gene alterations and autism spectrum disorder

Submission Author: Farnaz Mohammadtaheri

Farnaz Mohammadtaheri¹, Modjtaba Emadi-Baygi², Parvaneh Nikpour³, Maryam Malek⁴

1. Department of Genetics, Faculty of Basic Sciences, Research Institute of Biotechnology, Shahrekord University, Shahrekord, Iran
2. Department of Genetics, Faculty of Basic Sciences, Research Institute of Biotechnology, Shahrekord University, Shahrekord, Iran
3. Department of Genetics and Molecular Biology, Faculty of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
4. Department of Physiology, Faculty of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

Background and Aim : Autism spectrum disorder (ASD) is a kind of cognitive disease which causes emergence of some symptoms including impairments in communication, social activities and stereotyped behaviors. Human neuroligin 1 (NLGN1) is one of the members of neuroligin family which is located in 3q26.31 and it is a cell-surface receptor for neurexin 1. NLGN1 is a main element in forming excitatory glutamatergic synapses in mammalian brain and changes in expression level of this receptor cause alterations in the expression of both presynaptic and postsynaptic proteins. Our aim in this review article is a profound survey on correlation between NLGN1 and ASD.

Methods : We performed a systematic-like search for NLGN1 and its role in ASD. For this purpose, articles from 2007 to 2017 were scrutinized. We scanned PubMed (<http://www.ncbi.nlm.nih.gov/pubmed>), OMIM (<https://www.omim.org>) and ScienceDirect (<http://www.sciencedirect.com>) databases with combinations of keywords such as “Autism”, “neuroligin 1”, “mutation”, “missense” and “deletion”.

Results : There are some evidences in rodent and human studies that have shown a relation among deletions and point mutations in NLGN1 with ASD. Beside, Sanger sequencing has proved that a NLGN1 variant was inherited from the mother, who was not an autistic patient but had shown

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

symptoms of obsessive compulsive disorder (OCD) and anxiety disorder. Subsequently, according to these studies patients with these mutations depict abnormal social behaviors.

Conclusion : Current studies support an association between neuroligin 1 gene with autism spectrum disorder. Further studies are needed to explore how neuroligin 1 exerts this functional role.

Keywords : autism, neuroligin 1, mutation, deletion, missense

Count: 49

Abstract ID: 154

subject: Cognition: Learning and Memory

Presentation Type: Poster

Brain tissues oxidative damage as a possible mechanism of deleterious effects of propylthiouracil- induced hypothyroidism on learning and memory in neonatal and juvenile growth in rats

Submission Author: Reza Mohebbati

Reza Mohebbati¹

1. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : The role of brain tissues oxidative damage in learning and memory impairments has been well documented. It is also well known that thyroid hormones have a critical role for the brain functions. This study was done to investigate the role of brain tissues oxidative damage as a possible mechanism of deleterious effects of propylthiouracil (PTU)-induced hypothyroidism on learning and memory in neonatal and juvenile growth in rats

Methods : Fourteen pregnant female Wistar rats were kept in separate cages. After delivery, they were randomly divided into two groups including control and PTU. Rats in the control group received normal drinking water, whereas the second group received drinking water supplemented with 0.02% PTU from the first day after delivery through the first two months of the life of offspring. After 60 days, nine male offspring of each group were randomly selected and tested in the Morris water maze (MWM). Finally, the brains were removed and total thiol groups and malondialdehyde(MDA) concentrations were determined.

Results : In MWM, the escape latency and traveled path in the PTU group were significantly higher than that in the control group ($P<0.001$). In PTU group, the total thiol concentrations in both cortical and hippocampal tissues were significantly lower and MDA concentrations were higher than control group ($P<0.001$).

Conclusion : It seems that deleterious effect of hypothyroidism during neonatal and juvenile growth on learning and memory is at least in part due to brain tissues oxidative damage.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Hypothyroidism, PTU, juvenile growth, Learning, Memory, Oxidative stress

Count: 50

Abstract ID: 348

subject: Cognition: Learning and Memory

Presentation Type: Oral

Effects of spirulina microalgae, voluntary exercise and environmental enrichment on juvenile stress-induced inhibitory avoidance memory deficit and BDNF level alteration in adult female rats

Submission Author: Nasroallah Moradi kor

Nasroallah Moradi kor¹, Nasroallah Moradi-kor², Ali Ghanbari³, Ahmad Reza Bandegi⁴, Ali Rashidy-Pour⁵

1. -
2. Laboratory of Learning and Memory, Research Center and Department of Physiology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran
3. Laboratory of Learning and Memory, Research Center and Department of Physiology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran
4. Department of Biochemistry, Faculty of Medicine, Semnan University of Medical Sciences, Semnan, Iran
5. Laboratory of Learning and Memory, Research Center and Department of Physiology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran

Background and Aim : Chronic exposure to stress, even though it occurs during the pre-pubertal period (juvenile) has an impact on brain structures involved in cognition and mental health. The present study investigated the combined effects of spirulina microalgae, voluntary exercise and environmental enrichment on inhibitory avoidance memory deficit and BDNF levels induced by exposure to juvenile stress in adult female rats.

Methods : Rats were randomly distributed into 12 groups each of which contains 10 rats (control and stress groups). The stress groups were restrained 2 h/day (from 10:00 to 12:00) for 10 days in well-ventilated Plexiglas tubes (20 cm length, 6.5 cm diameter) without access to food and water. After the restraint period, the animals were subjected to treatment with Spirulina microalgae (SPM, 200 mg/kg/day, 15 days), voluntary exercise (EX, Running wheel, 15 days), environmental enrichment (EE, 15 days) individually and the combined treatments (SPM+EX/SPM+EE) followed by behavioral and biochemical assessments. Inhibitory avoidance (IA) task was performed to evaluate memory consolidation. For habituation to apparatus, at first each rat was placed in the illuminated compartment and the guillotine door was raised 5s later. After entering

to the dark compartment, animals were transferred into the home cage and the trial was repeated 30 min later. 30 minutes after second session, rats were trained in IA task (one trial, 0.5 mA, 3s foot shock). Memory retention was tested 24 h later during which the latency to re-enter to the dark compartment was recorded. To detection BDNF levels, immediately after behavioral tests, the rats were decapitated and the prefrontal cortex (PFC), amygdala and the right hippocampus were dissected and frozen at -70 oC until used for preparation of homogenates. The BDNF protein levels were assessed using Rat BDNF ELISA kits.

Results : The results indicated that juvenile stress leads to impaired avoidance memory in adult period. The memory retention deficit induced by juvenile stress was evident in the decreased latency to enter the dark compartment. Treatment with spirulina microalgae, voluntary exercise and environmental enrichment blocked the ability of chronic stress to impair memory retention. Memory retention was significantly enhanced in the EE+SPM group compared to control and stress groups. On the other hand, the results of this study showed that stress has negative effects in brain BDND levels; the BDNF levels was significantly reduced in stress groups when compared to control groups. In stress groups, treatment with spirulina microalgae, voluntary exercise and environmental enrichment significantly increased the BDNF concentration in prefrontal cortex, amygdala and hippocampus.

Conclusion : Findings of the present study demonstrated that spirulina microalgae, voluntary exercise and environmental enrichment could alleviate the negative effects of stress on memory and BDNF levels. Therefore, treatment with spirulina microalgae, voluntary exercise and environmental enrichment particularly the combined therapy as non-pharmacological treatment can improve stress-related memory defect.

Keywords : BDNF, Exercise, Female rat, Stress, Memory, Spirulina microalgae

Count: 51

Abstract ID: 716

subject: Cognition: Learning and Memory

Presentation Type: Poster

fEPSP-PS association is affected by passive avoidance learning

Submission Author: Farshad Moradpour

Farshad Moradpour¹

1. department of physiology, medical school, kermanshah university of medical sciences

Background and Aim : After decades of Long Term Potentiation discovery, it have been become the most reliable cellular mechanism of learning however there is some evidences that suggest contradictory suggestion. so the current study investigated the effect of learning on invitri fEPSP and PS-LTP as well as fEPSP-PS relationship.

Methods : acute healthy acute hippocampal slices were prepared and recovered in aerated aCSF by CO₂ 5% and O₂ 95% (carbogen), then slices transfered to a recording chamber and fEPSP and PS elicited by shaffer collateral pathway and recorded through two recording electods. An I/O curve responces was recorded by stepwise increases on intensity of electrical stimulus (IES), a IES which elicited half of maximum of donward deflection slope of fEPSP was determined and used as test pulse during expriment. LTP was indused by a train of stimulus in 100 Hz for 1 s.

Results : the result showed that there is no significant differences between fEPSP-LTPs recorded from trained and un trained groups. But PS-LTP of untrained group was higher than trained group. However fEPSP-PS association of trained group was significantly steeper and LC50 was lower than what we saw in untrained group. the r

Conclusion : The result suggest that passive avoidance learning caused a higher PS in response of a fixed fEPSP, it means fEPSP-PS association improved by a learning process.

Keywords : learning, synaptic plastisty, EPSP-PS association

Count: 52

Abstract ID: 254

subject: Cognition: Learning and Memory

Presentation Type: Poster

THE EFFECTS OF ACUTE ADMINISTRATION OF DIFFERENT DOSES OF RITALIN AND MARIJUANA ON SPATIAL LEARNING AND MEMORY IN WISTAR ADULT MALE RATS

Submission Author: Sina Motamedy

Sina Motamedy¹, Gholamreza Sepehri², Vahid Sheibani³, Khadijeh Esmailpour⁴, Mohammad Amin Rajizadeh⁵

1. a. Neuroscience research center of kerman university of medical sciences b. Department of physiology and pharmacology of medicine school, kerman university of medical sciences.
2. b. Department of physiology and pharmacology of medicine school, kerman university of medical sciences
3. a. Neuroscience research center of kerman university of medical sciences b. Department of physiology and pharmacology of medicine school, kerman university of medical sciences.
4. a. Neuroscience research center of kerman university of medical sciences
5. a. Neuroscience research center of kerman university of medical sciences b. Department of physiology and pharmacology of medicine school, kerman university of medical sciences.

Background and Aim : Learning is the acquisition of skill or knowledge, while memory is the expression of what you've acquired. Ritalin(methylphenidate) is a central nervous system stimulant. It affects chemicals in the brain and nerves that contribute to hyperactivity and impulse control. Ritalin is used to treat attention deficit disorder(ADD), attention deficit hyperactivity disorder(ADHD), and narcolepsy. It is abused by teens for its stimulant effects. Cannabis, also known as marijuana among other names, is a psychoactive drug from the Cannabis plant intended for medical or recreational use. The main psychoactive part of cannabis is tetrahydrocannabinol (THC). Marijuana can cause problems with memory, learning, and behavior.

Methods : 84 male wistar rats were used in the present study. We injected 4 doses of marijuana : 5,10,20,40 mg/kg and 5 doses of Ritalin: 0.5, 1 , 2.5 ,5, 10. Spatial learning and memory were evaluated by Morris Water Maze. one way ANOVA were used to analyze the data and $p<0.05$ was considered statistically significant.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Throughout the investigation, in all doses of Ritalin, learning is occurred but it was not significant. Also we didn't observe significant changes in memory status. Ritalin in doses of 0.5, 1 and 10 mg/kg induced a significant effect on velocity. Our results showed that marijuana in dose of 40 mg/kg induced a significant impairment in learning, although marijuana, in all doses, had no effect on memory. Also our data revealed that marijuana in all doses, had no effect on velocity.

Conclusion : Our conclusion showed that acute administration of Ritalin had no effect on spatial learning and memory. Marijuana impaired the spatial learning only in dose of 40 mg/kg but it had no effect on memory in any doses.

Keywords : learning & memory, Ritalin, marijuana, Morris Water Maze, male rat.

Count: 53

Abstract ID: 781

subject: Cognition: Learning and Memory

Presentation Type: Poster

Comparison of Donepezil and Riluzole in improving spatial memory of male Wistar rats

Submission Author: Faezeh Mozafari

Faezeh Mozafari¹, Sina Andalib MD.², Reza Hosseini³, Mahdieh Anoush⁴

1. Department of pharmacology, School of pharmacy, Zanjan university of medical sciences
2. Department of pharmacology, School of pharmacy, Zanjan university of medical sciences
3. Department of pharmacology, School of pharmacy, Zanjan university of medical sciences
4. Department of pharmacology, School of pharmacy, Zanjan university of medical sciences

Background and Aim : Regarding the importance of Alzheimer's disease (AD) and mental disorders incidence, in elderly patients during recent years, we decided to demonstrate the neurodegeneration role of AD and neuroprotective effect of riluzole on animal model of AD.

Methods : Scopolamine injection for 14 consecutive days induced memory impairment. Riluzole effect on this impaired memory evaluated by Morris water maze protocols; accusation phase, probe trial test. Wistar male rats weighed between 250-300 gr, were trained for 4 consecutive days, 24 hour after last scopolamine injection. Spatial memory and learning index (%) were measured for each rat group; which depend on time taken to find platform and the time spent in target quadrant (Q2). The time/distance measured by computer.

Results : The results obtained from this study demonstrated that riluzole was effective in treatment of memory impairment of scopolamine-injected group. Riluzole-treated group, on test day, showed better spatial memory rather than scopolamine-treated-group. Besides, learning index (%) improvement was significantly higher in the riluzole-treated group, rather than scopolamine-injected group.

Conclusion : According to the results, it can be concluded that riluzole administration, at the same time with scopolamine injection or after it, causes marked improvements in learning index during training days and the spatial memory on the test day. Therefore, this study strengthens the hypothesis that chronic riluzole treatment is capable of treatment of diseases related with memory

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

impairment such as Alzheimer's disease. Therefore this study strengthens the hypothesis that riluzole administration is capable of treating diseases associate with memory loss such as AD.

Keywords : Riluzole;Donepezil;Spatial memory;learning impairment;learning index

Count: 54

Abstract ID: 815

subject: Cognition: Learning and Memory

Presentation Type: Poster

Neuroprotective effect of minocycline on cognitive impairments induced by transient cerebral ischemia/reperfusion through its anti-inflammatory and antioxidant properties in male rat

Submission Author: Yazdan Naderi

Yazdan Naderi¹, Masoumeh Sabetkasaei², Siavash Parvardeh³

1. Department of Pharmacology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Pharmacology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Department of Pharmacology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Memory deficit is the most visible symptom of cerebral ischemia that is associated with loss of pyramidal cells in CA1 region of the hippocampus. Oxidative stress and inflammation may be involved in the pathogenesis of ischemia/reperfusion (I/R) damage. Minocycline has anti-inflammatory and antioxidant properties. We evaluated the neuroprotective effect of minocycline on memory deficit induced by cerebral I/R in rat

Methods : I/R was induced by occlusion of common carotid arteries for 20 min. Minocycline (40mg/kg, i.p.) was administered once daily for 7 days after I/R. Learning and memory were assessed using the Morris water maze test. Nissl staining was used to evaluate the viability of CA1 pyramidal cells. The effects of minocycline on the microglial activation was also investigated by Iba1 (Ionized calcium binding adapter molecule 1) immunostaining. The content of malondialdehyde (MDA) and pro-inflammatory cytokines (IL-1 β and TNF- α) in the hippocampus were measured by thiobarbituric acid reaction substances method and ELISA, respectively

Results : Minocycline reduced the increase in escape latency time and in swimming path length induced by cerebral I/R. Furthermore, the ischemia-induced reduction in time spent in the target quadrant during the probe trial was increased by treatment with minocycline. Histopathological results indicated that minocycline prevented pyramidal cells death and microglial activation

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

induced by I/R in the CA1 region. Minocycline also reduced the levels of MDA and pro-inflammatory cytokines (IL-1 β and TNF- α) in the hippocampus in rats subjected to I/R

Conclusion : Minocycline has neuroprotective effects on memory deficit induced by cerebral I/R in rat, probably via its anti-inflammatory and antioxidant properties.

Keywords : Minocycline; Cerebral ischemia; Memory; Inflammation; Oxidative stress

Count: 55

Abstract ID: 805

subject: Cognition: Learning and Memory

Presentation Type: Poster

The role of neuregulin signaling in learning and memory

Submission Author: Atiyeh Nejadebrahim

Atiyeh Nejadebrahim¹, fariba Karimzadeh²

1. animal biology department, shahed university
2. *Cellular and Molecular Research Center, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : Learning and memory describe the acquisition and retention of novel information or knowledge, respectively. The hippocampus is critical area of brain as a main location for memory storage. Hippocampal dysfunction has been linked to neuropsychiatric diseases such as Alzheimer's disease, dementia, temporal lobe epilepsy and schizophrenia. Neuregulin1 (NRG1), a trophic factor containing an epidermal growth factor (EGF)-like domain, acts via the ErbB family of receptor tyrosine kinases (ErbB2–4), of which, ErbB4 is the only autonomous NRG1-specific activated tyrosine kinase. The footprint of NRG1/ErbB4 pathway has been indicated in the memory deficits. The present study reviewed the role of hippocampal pathway of NRG1/ErbB4 signaling in the learning and memory

Methods : Articles with keywords Neuregulin, Nrg/ErbB signaling, long term potentiation, learning and memory have been searched in google scholars, PubMed and Springer within years 2001 until now. These keywords exist in the title and whole sections of article's texts

Results : Whole-brain transgenic manipulation has been used to identify memory deficits in various strains of NRG1/ErbB4 transgenic mice, including NRG1-overexpressing mice, NRG1 heterozygotes, and ErbB4 knockouts. It has been shown that long-term potentiation (LTP) at Schaffer collateral (SC)-CA1 synapses was inhibited by NRG1 application and enhanced by the inhibition and/or deletion of ErbB4. Hippocampal NRG1 and ErbB4 expression was reduced after spatial learning and inactivation of hippocampal NRG1/ErbB4 signaling enhanced spatial learning, spatial working memory, and recognition memory. In addition, learning and memory were impaired by direct application of NRG1. In particular, the specific ablation of ErbB4 in Parvalbumin interneurons enhanced learning and memory. These findings are consistent with the cognitive deficits identified in NRG1-overexpressing mice. Moreover, it has been reported that the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

treatment of hippocampal slices with NRG1 rapidly suppresses LTP induction at SC-CA1 synapses. The effect was abolished by genetic deletion of ErbB4. down-regulation of hippocampal NRG1/ErbB4 signaling enhanced spatial reference memory in the MWM test, spatial working memory in the spontaneous alternation Y-maze, and recognition memory in the novel object recognition test. In addition, it is found that the down-regulation of hippocampal NRG1/ErbB4 signaling enhanced both learning and memory. Moreover, neutralization of both endogenous Nrg1 and ErbB4 enhanced hippocampal LTP, indicating that synaptic plasticity is regulated by Nrg1 in the vivo.

Conclusion : These evidences suggested the potentially novel target for the treatment of Alzheimer's disease, which is characterized by a progressive decline in cognitive function, with a particular focus on learning and memory function.

Keywords : NRG1, ErbB4, Hippocampus, learning, memory

Count: 56

Abstract ID: 367

subject: Cognition: Learning and Memory

Presentation Type: Poster

The effect of flaxseed (*Linum usitatissimum*) oil on lead acetate-induced spatial memory deficit in rats

Submission Author: Fatemeh Norouzi

masumeh asl rusta¹, fatemeh norouzi²

1. assistant professor of azad university of Zanjan
2. master student

Background and Aim : Lead is one of the most widely used metals. Therefore, with the advancement of industry, environmental pollution by lead has increased and caused a lot of damage to biological systems. One of the results of lead entry into the body is memory impairment. *Linum usitatissimum* has anti-diabetic, anti-oxidant, anti-inflammatory, anti-apoptotic and nerve-protecting properties. The objective of this study was to evaluate the effect of *Linum usitatissimum* on spatial learning and memory in rats receiving lead acetate.

Methods : 40 adult male Wistar rats were divided into 4 groups: 1) control (intact), 2) *Linum usitatissimum*, 3) lead, and 4) lead- *Linum usitatissimum*. Animals group 2 and 4 received daily 4 ml of *Linum usitatissimum* and animals in groups 3 and 4 received lead acetate (100 mg / kg BW) for 30 consecutive days in gavage. Morris water maze test was used to study the learning and spatial memory of animals. Animals were trained on days 29th-26th and the probe test was done on the day 30th

Results : The results showed that lead acetate consumption weakened learning and spatial memory of animals. The time and distance spent to reach the hidden platform on the 4th day of training in the lead- *Linum usitatissimum* group significantly decreased compared with the lead group ($p < 0.05$). Also, in the probe test, the mice of lead- *Linum usitatissimum* swam more time in target quadrant compared with the lead group ($p < 0.05$).

Conclusion : It is concluded that *Linum usitatissimum* improves the learning and spatial memory of animals that consumed lead acetate, which may be due to its rich antioxidants.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Linum usitatissimum, memory, lead, rat.

Count: 57

Abstract ID: 382

subject: Cognition: Learning and Memory

Presentation Type: Poster

Concomitant abuse of methadone and methamphetamine could impair spatial learning and memory in rats

Submission Author: Fatemeh Nouri

Fatemeh Nouri¹, Mohammad Reza Afarinesh Khaki², Vahid Sheibani³

1. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
2. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
3. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran

Background and Aim : Methadone maintenance therapy (MMT) has been considered as an effective medication for opioid dependence. However there are reports of methamphetamine abuse among MMT patients due to greater desired effects and less side effects than either substance alone. Little research has been done on the effects of methamphetamine abuse on cognitive behaviors during MMT. In the current study, we examined the effects of concomitant use of methadone and methamphetamine on spatial learning and memory of male rats.

Methods : The animals received administration of methadone (2.5 mg/Kg, sc, twice a day) and methamphetamine (0.5mg/Kg, sc, once a day), concomitantly or either alone for 21 days. Rats were trained in Radial arm maze (2 trials for 7days) to learn and remember the baited arms. To evaluation of spatial learning and memory, during each trial the number of entries into each arm was recorded and working and reference memory errors and percentage of correct responses were calculated.

Results : Our results showed spatial learning and memory deficits in methadone or methamphetamine or methadone-methamphetamine treated groups compare to the normal saline treated group as control. The data of this study also revealed that impairment of working and reference memory in methadone-methamphetamine treated animals, was more than methadone treated rats.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our findings suggest that exposure to methamphetamine during methadone maintenance therapy may lead to spatial learning and memory impairments.

Keywords : spatial learning and memory; methamphetamine; morphine; methadone

Count: 58

Abstract ID: 265

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effects of the q10 coenzyme on learning and memory in male diabetic rats

Submission Author: Ghazaleh Omid

Ghazaleh Omid¹

1. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran

Background and Aim : Diabetes (DM) can cause deficits in learning and memory through oxidative stress and increase Alzheimer disease risk. Q10 co-enzyme supplements possesses potent antioxidant properties. This study investigated the effects of the Q10 co-enzyme supplements on learning and memory in male diabetic rats.

Methods : Sixty Wistar rats (350–450 g) were randomly assigned to six groups: control, low dose q10 (20mg), high dose Q10 (120mg), Diabetic, Diabetic+ low dose q10 (20mg)and Diabetic+ high dose q10 (120 mg). Q10 supplement was administered by oral gavage. Animals were allowed free access to chow. The Morris water maze was used to assess learning and memory.

Results : In the Morris water maze test, time spent in the target quadrant in diabetic group was significantly lower than those of the control group, Diabetes+ Q10 100mg, Diabetes+Q10 300mg. therefore, there were significant difference between Diabetic group and other groups in latency and traveled distance. This indicates that either Diabetic or Q10 affected spatial memory.

Conclusion : Our results indicate that, while Diabetes leads to memory deficits, Q10 supplement exerted a positive effect on diabetes-induced memory deficits. We hypothesize that the observed effects of Q10 are likely due to its strong antioxidant properties.

Keywords : Oxidative stress, Morris water maze, , antioxidant, Diabetes

Count: 59

Abstract ID: 109

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effect of different timing of regular exercise on neurogenesis factor in hippocampus of male rats

Submission Author: Maryam Radahmadi

Maryam Radahmadi¹, Nasrin Hosseini², Hojjatallah Alaei³

1. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran.
2. Neuroscience Research Center, Iran University of Medical Sciences, Tehran, Iran.
3. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran.

Background and Aim : The positive effects of exercise on many physiological systems are well-established. Exercise alters levels of some biochemical factors such as neurogenesis factors in brain. But, effect of duration of regular exercise and exercise withdrawal on neurogenesis are unclear. The present study focuses on the hippocampal brain-derived neurotrophic factor (BDNF) levels in different timing of regular exercise in male rats.

Methods : Male Wistar rats were randomly divided into four groups of Control, 21 days-exercise, exercise withdrawal and 42 days-exercise groups. Rats were forced to run on a treadmill for 1h/day at a speed 20-21 m/min. At the end of the experiments, the hippocampi were homogenized and the supernatants were collected. The hippocampal BDNF levels were measured by the ELISA method. All data were analyzed by one-way analysis of variance (ANOVA) followed by Tukey's post-hoc test for multiple groups.

Results : In 21 and 42 days-exercise groups there were significant decreases ($P < 0.01$ and $P < 0.001$, respectively) in the hippocampal BDNF levels compared to the control group. Whereas, it did not show significant differences in exercise withdrawal group when compared to control group. Also, the BDNF levels significantly ($P < 0.05$ and $P < 0.01$, respectively) increased in 21 and 42 days-exercise groups with respect to exercise withdrawal group.

Conclusion : The findings of the current study demonstrated that regular exercise significantly increased hippocampal BDNF levels as neurogenesis factor that it had directed relation with exercise duration. Therefore, it seems that exercise directly influent neurogenesis factor (BDNF)

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

in hippocampus as main region of memory process. Whereas, exercise withdrawal deceased the BDNF level to base line level. Indeed, a 21-day withdrawal period after the exercise impaired the beneficial effects of exercise, indicating the reversibility of these exercise-related hippocampal changes.

Keywords : Exercise; BDNF, Hippocampus; Rat.

Count: 60

Abstract ID: 202

subject: Cognition: Learning and Memory

Presentation Type: Poster

Chronic treatment with carvacrol improves passive avoidance memory in a rat model of Parkinson's disease

Submission Author: Ziba Rajaei

Ziba Rajaei¹, Hossein Haddadi², Hojjatallah Alaei³

1. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
2. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
3. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

Background and Aim : Carvacrol is a phenolic monoterpene present in the essential oil of the family Lamiaceae, which possesses many pharmacological potential; including antioxidant and anticholinesterase activities. The present study investigated the effects of carvacrol on motor and memory deficits as well as hyperalgesia in the 6-OHDA-lesioned rat model of Parkinson's disease (PD).

Methods : The animals were randomly divided into 5 experimental groups; Sham group, lesioned group through unilateral microinjection of 6-OHDA into left medial forebrain bundle (MFB) and carvacrol-treated groups which received a daily intraperitoneal administration of carvacrol (25, 50 and 100 mg/kg) initiated 1 week before 6-OHDA microinjection until 6 weeks after surgery. Rats were tested for rotational behaviour, passive avoidance memory and pain threshold at the end of the experiment.

Results : 6-OHDA-lesioned rats showed contralateral rotations towards the lesion side at the end of 2nd and 6th week after surgery. The animals also showed learning and memory deficits in a passive avoidance test and a decrease in tail withdrawal latency in a tail flick test at the end of week 6. The results also revealed that chronic treatment with carvacrol at a dose of 25 mg/kg ameliorated memory deficits in the passive avoidance task, with no effect on rotations and hyperalgesia in 6-OHDA-lesioned rats.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The findings of the current study demonstrated that carvacrol improves short term memory impairment in rat with PD, therefore, it may serve as an adjunct therapy for the alleviation of memory deficits in patients with PD.

Keywords : Carvacrol, 6-Hydroxydopamine, Memory, Motor activity, Hyperalgesia, Parkinson's disease

Count: 61

Abstract ID: 85

subject: Cognition: Learning and Memory

Presentation Type: Poster

Improving Passive avoidance and Recognition learning and memory deficits due to sleep deprivation by voluntary exercise in intact female rats.

Submission Author: Mohammad amin Rajizadeh

Mohammad amin Rajizadeh¹, Vahid Sheibani², Khadijeh Esmaeilpour³, Yaser Masoumi Ardakani⁴, Mohammad Abbas Bejeshk⁵, Sina Motamedy⁶

1. Neuroscience Research Center, Kerman University of Medical Sciences, Kerman, Iran and Department of Physiology, School of Medicine, Kerman University of Medical Sciences, Kerman, Iran
2. Neuroscience Research Center, Kerman University of Medical Sciences, Kerman, Iran
3. Neuroscience Research Center, Kerman University of Medical Sciences, Kerman, Iran
4. Physiology Research Center, Kerman University of Medical Sciences, Kerman, Iran
5. Department of Physiology, School of Medicine, Kerman University of Medical Sciences, Kerman, Iran
6. Neuroscience Research Center, Kerman University of Medical Sciences, Kerman, Iran

Background and Aim : Sleep is a valuable property in humans. Sleep loss is a serious problem in machinery life in modern society that leads to pathological effects such as cognition disorders. Many investigations approved that exercise has beneficial effects on cognition functions and mental health. The objective of the current study was to investigate the effects of voluntary exercise on cognitive functions in female rats following 72h sleep deprivation.

Methods : Intact female wistar rats were used in the present study .The exercise protocol was 4 weeks of voluntary exercise by running wheel apparatus. The multiple platform method was applied for the induction of 72h sleep deprivation .The cognitive functions was evaluated using passive avoidance task via shuttle box and novel objective recognition test .

Results : Throughout the investigation, significant learning and memory impairments was observed in sleep-deprived rats compared to the control group .voluntary exercise alleviated the SD-induced learning and memory impairments. The results of our study confirmed the negative effects of sleep deprivation on hippocampal dependent (Novel Object Recognition test) and hippocampal independent (Passive Avoidance Task) level of learning and memory.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our conclusion was the positive effects of voluntary exercise on learning and memory impairments following by sleep deprivation in both of levels.

Keywords : Sleep deprivation, voluntary exercise, cognitive function, intact female rats

Count: 62

Abstract ID: 351

subject: Cognition: Learning and Memory

Presentation Type: Poster

Hydro-alcoholic extract of *Foeniculum vulgare* protects against social isolation-induced spatial memory impairment in rats

Submission Author: Shadi Raman

Shadi Raman¹, Masoumeh Asle-Rousta², Mehdi Rahnema³

1. Department of animal physiology, faculty of basic sciences, Zanjan Branch, Islamic Azad University, Zanjan, Iran.
2. Department of animal physiology, faculty of basic sciences, Zanjan Branch, Islamic Azad University, Zanjan, Iran.
3. Department of animal physiology, faculty of basic sciences, Zanjan Branch, Islamic Azad University, Zanjan, Iran.

Background and Aim : Social isolation is one of the stress models that results in memory impairment. *Foeniculum vulgare* has anti-diabetic, liver-protective, anti-inflammatory, analgesic and neuroprotective properties. The objective of this study was to investigate the effect of hydroalcoholic extract of *foeniculum vulgare* on spatial learning and memory in social isolated rats.

Methods : 40 adult male Wistar rats were divided into 4 groups: 1) Control (intact), 2) *foeniculum vulgare*, 3) isolation, and 4) stress-isolation. Rats in Groups 2 and 4 received daily *foeniculum vulgare* extract (150 mg / kg BW) for 30 consecutive days by gavage, and animals in groups 3 and 4 were also kept in separate cages (one rat in each cage without visual, smell, voice and etc. contact with other rats). spatial learning and memory of animals were assessed by Morris water maze test in days 26th -30th.

Results : The results showed that social isolation leads to learning and memory impairment in animals. The duration and distance moved to reach the hidden platform on the 4th day of training in the water maze in the isolation- *foeniculum vulgare* group decreased significantly compared with the isolation group ($p < 0.05$) and in the probe test, the time spent in the target quadrant was significantly increased compared with the isolation group ($p < 0.05$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : It is concluded that hydro-alcoholic extract of foeniculum vulgare can improve memory in stressed rats probably due to its rich antioxidants, and may be effective for preventing and treating neurodegenerative diseases.

Keywords : Foeniculum vulgare; social isolation; stress; memory; rat

Count: 63

Abstract ID: 601

subject: Cognition: Learning and Memory

Presentation Type: Oral

Effect of chronic cannabidiol treatment on memory functions in methamphetamine-addicted rats

Submission Author: Yasaman Razavi

Yasaman Razavi¹, Mehdi Mehdizadeh², Abbas Haghparast³, Ronak Shabani⁴

1. Cellular and Molecular Research Center, Iran University of Medical Sciences, Tehran, Iran
2. Cellular and Molecular Research Center, Iran University of Medical Sciences, Tehran, Iran
3. Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
4. Department of Anatomy, School of Medicine, Iran University of Medical Sciences, Tehran, Iran.

Background and Aim : Methamphetamine is a highly addictive drug of abuse, addiction to which has increased to epidemic proportions worldwide. It has been suggested that chronic use of methamphetamine causes long-term cognitive deficits. Furthermore, Cannabidiol has a large-spectrum therapeutic potential to treat many neuropsychiatric disorders, including addiction .Several studies have indicated that learning and memory, and particularly contextual memories, play a critical role in establishing conditioned responses in addiction. The aim of the present study was to investigate the effects of cannabidiol treatment

Methods : Meth-addicted animals on two hippocampal-dependent memory tasks: Novel Objective Recognition (NOR) as a non-spatial memory task and Y maze as a spatial memory task. In this study, male adult Wistar rats were addicted with METH (twice, 2 mg/kg, s.c.) after 10 days, rats from each access group were withdrawn from administration and underwent NOR, Y-maze and locomotor activity tests followed by 10-day extinction period or received ICV administration of CBD 10 µg/5 µl during this 10-day period

Results : We found METH-induced impairment in memory performance whereas CBD could improve the effect of Meth destruction

Conclusion : in conclusion CBD be considered an agent that Reinforce learning and memory system however, this requires more investigation

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Methamphetamine, Cannabidiol, Novel Objective Recognition, Addiction

Count: 64

Abstract ID: 261

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effects of the hydroalcoholic extract of *Rosa damascena* on learning and memory in male rats consuming a high-fat diet

Submission Author: Arezoo Rezvani Kamran

Arezoo Rezvani Kamran¹

1. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran

Background and Aim : High-fat diet (HFD) can cause deficits in learning and memory through oxidative stress and increase Alzheimer disease risk. *Rosa damascena* Mill. (Rosaceae) extract possesses potent antioxidant properties. This study investigated the effects of the hydroalcoholic extracts of petals of *R. damascena* on learning and memory in male rats consuming an HFD.

Methods : Forty male Wistar rats (200–250 g) were randomly assigned to four groups: control, *R. damascena* extract, HFD and HFD + extract. The extract (1 g/kg bw daily) was administered by oral gavage for 1 month. Animals were allowed free access to high-fat chow for 3 months. The Morris water maze and the passive avoidance learning tests were used to assess learning and memory.

Results : In the passive avoidance learning test, the step-through latencies in the retention test (STLr) of the extract (147.4 \pm 23.3) and HFD (150.3 \pm 25.2) groups were significantly lower than those of the control group (270.4 \pm 10.5) (respectively, p?

Conclusion : Our results indicate that, while HFD or *R. damascena* extract alone leads to memory deficits, *R. damascena* extract exerted a positive effect on HFD-induced memory deficits. We hypothesize that the observed effects of *R. damascena* extract are likely due to its strong antioxidant properties.

Keywords : Oxidative stress, passive avoidance, Morris water maze, antioxidant, flavonoid, lipid profile

Count: 65

Abstract ID: 541

subject: Cognition: Learning and Memory

Presentation Type: Poster

The orexin receptors of the basolateral amygdala are not involved in the short-term plasticity.

Submission Author: Motahareh Rouhi ardeshiri

Motahareh Rouhi ardeshiri¹, Narges Hosseinmardi², Esmail Akbari³

1. Department of Physiology, Medical School, Shahid Beheshti University of Medical Sciences, Tehran, Iran 2. Neurophysiology Research Center, Medical School, Shahid Beheshti University of Medical Sciences, Tehran, Iran
1. Department of Physiology, Medical School, Shahid Beheshti University of Medical Sciences, Tehran, Iran 2. Neurophysiology Research Center, Medical School, Shahid Beheshti University of Medical Sciences, Tehran, Iran
1. Immunogenetic Research Center, School of Medicine, Mazandaran University of Medical Sciences, Sari, Iran 2. Department of Physiology and pharmacology, School of Medicine, Mazandaran University of Medical Sciences, Sari, Iran

Background and Aim : Orexin neurotransmitter system along with the activation of the basolateral amygdala (BLA) might be involved in hippocampal synaptic plasticity.

Methods : Therefore, the rats were injected bilaterally into BLA, a selective orexin 1 receptor antagonist, SB-334867-A and an orexin 2 receptor antagonist, TCS-OX2-29, and then the paired-pulse responses were recorded.

Results : Our results indicate that blocking orexin 1 and 2 receptors in the BLA could not affect paired-pulse responses of the dentate gyrus

Conclusion : Orexinergic system of the BLA is not involved in short-term plasticity.

Keywords : Orexin receptors, Basolateral amygdala, Learning, Short-term plasticity

Count: 66

Abstract ID: 670

subject: Cognition: Learning and Memory

Presentation Type: Poster

Review on Cognitive Load Measurement Methods

Submission Author: Atefe Sadeghi

Atefe Sadeghi¹, Farzad Towhidkhan², Golnaz Baghdadi³

1. Amirkabir university of technology
2. Amirkabir university of technology
3. Amirkabir university of technology

Background and Aim : Cognitive Load Theory (CLT) is a theoretical framework according to human cognitive architecture including Working memory (WM) and Long term memory. During the act of processing information in WM, cognitive load (CL) will occur. Once overload of CL happens, WM's efficiency may decrease and an appropriate learning would not happen. Based on CLT, there are three main cognitive loads: Intrinsic Load (IL) (that is dependent on task difficulty and personal prior knowledge), Extraneous Load (EL) (occurs when unrelated information to learning goal have to be processed) and Germane Load (GL) (related to the information and mental activities in line with learning). The mentioned loads are additive and their combinations constitute total CL.

Methods : In this study we have reviewed current methods for cognitive load measurement. These methods generally can measure total CL, (and) not every individual load. They have been categorized into three main classes: subjective rating, physiological indices, and task-performance methods. Subjective rating methods are based on the amount of mental effort that every person feel during the task. The subjective rating scale by Paas (1992) and NASA-TLX measure by Hart and Staveland (1988) are most well-known gold standards for subjective learning scale. Besides some other disadvantages, this method cannot be used when real time change in CL monitoring is needed. For physiological indices we can name heart rate and brain activity measurements. Although they can measure CL as it occurs, they are intrusive measurements. However, a less intrusive physiological technique is eye tracking. Parameters like increase of pupil dilation and decrease of fixation duration are proven to be related to the mental effort. Finally, in task-performance methods, parameters like accuracy and reaction time is investigated. In different

studies, CL measurement have been used in different applications that have been briefly mentioned in the next part.

Results : Epps et al (2011), designed mental arithmetic task in five levels of difficulty to measure sensitivity and accuracy of four parameters extracted from three main methods. By applying Gaussian Mixture Model classifier on extracted features, they concluded that subjective rating method, provides best result for difficulty level classification accuracy. Wernart (2013), studied the ability of CL measurement methods to distinguish IL from EL load. He considered six parameters from three main methods and finally concluded that Paas subjective rating method provides the best answer for CL measurement. In another study Haji et al (2015) showed the effect of practicing and learning on the CL reduction. Despite the sensitivity of both subjective and task-performance methods to CL changing, more sensitivity has been reported for subjective method.

Conclusion : It seems that, we can use methods for measurement of CL, in order to quantify the CL level in our specific task. By applying machine learning methods in pre-test level, accuracy of classification can be measured and the best method (methods) can be selected for designing and evaluating the final task.

Keywords : Cognitive load measurement; eye tracking, subjective methods

Count: 67

Abstract ID: 825

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effects of juniperus excelsa hydroalcoholic extract on scavenge amyloid plaques in the region of CA1 in the model induced by peptide amyloid beta in mal wistar rats

Submission Author: Faride Sadeghi

Faride Sadeghi¹, Shahrbanoo Oryan², Delaram Eslimi³, Mahnaz Azarnia⁴, Adel Salari*⁵

1. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
2. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
3. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
4. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
5. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran

Background and Aim : One of the factors involved in developing Alzheimer's disease is the accumulation of beta-amyloid peptides and the formation of amyloid plaques in the brain. Reducing these plaques will improve Alzheimer's disease Research has shown that Juniper has a high amount of flavonoids compounds and antioxidant properties which has protective effects in diseases caused by the neuronal destruction. In this research the attention has been paid to check the effect of juniperus Hydro alcoholic extract on improved degraded spatial memory by beta amyloid in male Wistar rats.

Methods : In this study 48 male Wistar rats weighing 220-180 gr were divided into eight groups of six. The control, sham (receiving of saline), Alzheimer's (receiving of beta-amyloid), receiving the extract (without beta-amyloid) and four groups which received juniper extract. the extract was obtained at doses of (50 ,100, 200) mg / kg body weight in the from of gavage for a period of 6 days before and 20 days after intravenous injection of beta-amyloid orally and Congo red staining detects amyloid deposits in the region of CA1 hippocampal in experimental groups.

Results : The results showed that 50 mg of extract had no effect on plaques. A dose of 200 mg of the extract to some extent caused the destruction of plaques meanwhile, the 100 mg dose of the extract effectively cleanses the brain from amyloid plaques.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : : It is concluded that the dose-dependent extract results in the disappearance of plaques from the Alzheimer's Animal Brains.

Keywords : Amyloid beta peptide, Congo red, Memory and learning, plant juniperus

Count: 68

Abstract ID: 807

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effect of 5-HT_{1D} receptor agonist on reinstatement phase of condition place preference test and hippocampal long-term potentiation in methamphetamine-treated rats

Submission Author: Reihaneh Sadeghian

Reihaneh Sadeghian¹, Siamak Shahidi², Alireza Komaki³, Sara Soleimani Asl⁴

1. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
2. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
3. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
4. Anatomy Department, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran

Background and Aim : Drug seeking reinstatement is a process that related to learning and memory, which changes synaptic plasticity. Also, methamphetamine (METH) can affect on the level of serotonin and dopamine more than other neurotransmitters. Due to distribution of 5-HT_{1D} receptor in the reward and memory areas such as the hippocampus and there aren't any studies in the processes, present study evaluated effect of PNU142633, as 5-HT_{1D} receptor agonist, on reward behavior and long-term potentiation (LTP) with emphasize on reinstatement phase in treated-METH rats.

Methods : Therefore, rats received METH (5 mg/kg, i.p) during acquisition phase of condition place preference (CPP) paradigm. METH-treated rats received PNU (2 µg/5 µL; i.c.v) or vehicle injection into lateral ventricular in the conditioning compartment after tast. Then, conditional score measured in reinstatement phase of CPP. Following, EPSP (excitatory postsynaptic potential) and PS amplitude (population spike) were compared between groups.

Results : The results showed preference to conditioning chamber attenuated 12, 13-day extinction and after day was considered reinstatement day. Also priming METH (2.5 mg/kg) treatment conditioning scores significantly increased more than other groups and treatment with PNU could be significantly decreased drug-seeking behavior in 28-day. Furthermore, PS amplitude and EPSP slope in Saline+METH rats were more than saline group. Moreover, PS amplitude in PNU+METH group was lower than saline+METH group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Finally, the present data demonstrated that PNU can decrease synaptic transmission and its following drug-seeking behavior in METH-induced rat that it suggested activation of 5-HT1D serotonin receptor can be useful in treatment for reinstatement of METH.

Keywords : Serotonin receptor, reinstatement, Reward, Long-term potentiation, Methamphetamine

Count: 69

Abstract ID: 613

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effects of magnetic fields on learning and memory in an animal model of schizophrenia

Submission Author: Monavvar Saeedi goraghani

Monavvar Saeedi goraghani¹, Meysam Ahmadi², Masoumeh Nozari³

1. Payame Noor University, Department of Biology, Taft, Yazd, Iran
2. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
3. Kerman university of Medical sciences , Department of Physiology, Kerman, Iran

Background and Aim : As technology has progressed, levels of EMF (Electromagnetic Field) which resulted from high voltage transmission lines, undersea power cables, radars and telecommunication and transportation systems have increased in our environment. Magneto therapy seems to be one of the most promising complementary and alternative medicines, since side-effects cannot be ignored. Schizophrenia is arguably the most debilitating of psychiatric illnesses. Neuromodulation is a new frontier in the investigation of effective treatment options for schizophrenia. Among the different methods of neuromodulation, transcranial magnetic stimulation (TMS) is one that has been investigated over the past 15 years. TMS is a noninvasive neurostimulation technique that uses alternating magnetic fields to induce electrical current in the cortex of the brain. A single application of MK-801 during the neonatal period is enough to cause symptoms of acute psychosis, deficits in spatial memory, and impairment of synaptic plasticity in rats, representing schizophrenia. The purpose of this study was to investigate the effects of magnetic field on learning and memory in the animal model of schizophrenia (MK-801).

Methods : In this study we used Morris water maze test to study the effects of pulsed magnetic field (50 Hz-10mT) and static magnetic field (10 mT) on learning and memory in MK-801 animal model of schizophrenia in male Wistar rats. animals were divided into eight groups: (1)(CON) rats were housed in standard laboratory cages (40×20×15 cm),(2)(MK-801) rats were injected with MK-801(P6-P10),(3)(F) rats were exposed to the pulsed magnetic field for 2 h/day(P6-P10),(4)(S) Rats were exposed to the static magnetic field for 2 h/day(P6-P10),(5)(MK+F) rats were injected with MK-801 and were exposed to the pulsed magnetic field for 2 h/day(P6-P10),(6)(MK+S) rats

were injected with MK-801 and were exposed to the pulsed magnetic field for 2 h/day(P6-P10),(7)(MK/F)) rats were injected with MK-801 (P6-P10)and were exposed to the pulsed magnetic field for 2 h/day(P11-P15),(8)(MK/S)) rats were injected with MK-801 (P6-P10)and were exposed to the static magnetic field for 2 h/day(P11-P15).

Results : Morris water maze test showed an increase in both time and distance traveled to find the hidden platform at the end of training (in 3rd block) in all groups. In the recall probe to evaluate retention of acquired tasks, results showed that the percentage of time spent in the correct quadrant decreased in MK + S group compared to MK-801 group ($P < 0.001$). Also, this variable was decreased in MK / S group compared to MK-801 group ($P < 0.05$).

Conclusion : The results showed that exposure to static magnetic field with an intensity of 10mT simultaneously with MK-801 injection decreased memory performance in Morris water maze test in 2 months old age of rats.

Keywords : Schizophrenia; MK-801; Magnetic field; Learning; Memory

Count: 70

Abstract ID: 647

subject: Cognition: Learning and Memory

Presentation Type: Poster

The effect of mental practice on balance in 6-9 years old children

Submission Author: Fatemh Samiee

Fatemh Samiee¹, Mehdi Shahbazi²

1. Faculty of sport science, university of Tehran
2. Faculty of sport science, university of Tehran

Background and Aim : Mental practice has been shown to be an effective in enhancing motor performance, specifically in sports, dance and music. Mental practice is defined as the cognitive rehearsal of a physical skill in the absence of overt physical movements. Balance abilities are complicated functions derived from integration of the nervous and musculoskeletal systems that involve diverse functional factors such as integration of the stimuli emanating from the visual, hearing, and vestibular organs; proprioceptors and sensory receptors in the central nervous system; visual spatial cognitive ability; muscle tone that responds to environmental changes both quickly and accurately; muscular endurance; and joint flexibility. The purpose of this study was to investigate the effect of mental practice on balance in 6-9 years old children.

Methods : 30 children (mean age 7.3 ± 1.3) who participated in this study and were divided into two experimental and control groups. experimental groups have been examined for six session using mental training. However, the control group has not been assigned any specific training during this period. In present study, MABC-2, had been employed. Data were analyzed by MANCOVA test.

Results : The results showed that after intervention ability of balance has increased. And there is a significant difference between the experimental and control groups.

Conclusion : In general, it can be concluded that mental practice can improve balance in children. Theories that explain the mechanism of mental practice include Paivio's theory. Therefore, imagining the movements that are used to carry out a task reinforces the neurological pathways required to actually perform the movements, thereby improving one's ability to perform them.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Also, excitations was observed in the same brain regions during mental practice and physical training, especially the supplementary motor area of the brain during mental practice.

Keywords : Mental practice, balance, Children

Count: 71

Abstract ID: 826

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effects of the *Artemisia Vulgaris* hydroalcoholic extract on scavenge amyloid plaques in the region CA1 of hippocampal in the model induced by peptide amyloid beta in male wistar rats

Submission Author: Neda Shafeghat

Neda Shafeghat¹, Shahrbanoo Oryan², Delaram Eslimi³, Mahnaz Azarnia⁴, Adel Salari^{*5}

1. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
2. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
3. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
4. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
5. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran

Background and Aim : Antioxidants are polyphenolic compounds which are found abundantly in plants. Protective effects against chronic diseases such as Alzheimer's , to some extent related to the presence of natural antioxidants in plants. Hydroalcoholic extract of *Artemisia vulgaris* leaves has a high potential of natural antioxidant properties and can lead to scavenging of amyloid plaques.

Methods : In this study 48 male wistar rats weighing 180-220 gr were used. Animals were divided in to eight groups. The control (without injection), sham (injection of intra cerebra ventricular normal saline), beta –amyloid (injection of intra cerebra ventricular beta amyloid peptide), test (group which were given normal saline and hydroalcoholic extract of *Artemisia vulgaris* in three doses: 50-100-200 mg/kg, 6 days before Alzheimer's induction by beta-amyloid and 20 days after Alzheimer's induction in the form of gavage every day), and group which received the optimum dose of the extract. For histological studies , the congo red staining (for observation of amyloid plaques) and staining of Heamatoxylin and eosin (for examination of tissue changes) were used in hippocampus.

Results : The present results showed that extract of *Artemisia vulgaris* was dose dependently reduction of senile plaques in the hippocampal tissue in Alzheimer's models.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : In Alzheimer's group, tissue changes such as wrinkling of the cell, tissue necrosis, and loss of neuronal density in the hippocampal CA1 region are observed. It seem that the Hydro alcoholic extract of *Artemisia vulgaris* due to antioxidant compounds play an important role in the improvement of hippocampal tissue in male wistar rats.

Keywords : Alzheimer's disease, β amyloid peptide, *Artemisia vulgaris*

Count: 72

Abstract ID: 657

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effect of the Alumina nano particle extract on memory and learning and neuroal degradation the region CA1 hippocampal region in male wistar rats

Submission Author: Fatemeh Shahmoradi

Fatemeh Shahmoradi¹, Shahrbano Oryan², Delaram Eslimi³

1. University of Kharazmi
2. University of Kharazmi
3. University of Kharazmi

Background and Aim : Physiological memory in the brain is caused by the change in the sensitivity of the neuronal synaptic terminal due to previous neurological activity. functions Learning and memory are important functions of the nervous system. Despite much research, all aspects of memory formation have not yet been well known. Effective drugs on cholinergic system have positive effects on memory. In memory abnormalities, there is a significant reduction in cholinergic neurons. The pathology of memory disorders includes a combination of behavioral symptoms such as anxiety, indifference, irritability, and several chemical changes, such as changes in metabolism, oxidative stress, mitochondrial dysfunction. With the advent of nanotechnology, the prospects for using engineered nanomaterials with diameters <100 nm industrial applications, medical imaging disease diagnoses, drug delivery, cancer treatment gene therapy and other areas have progressed rapidly. The potential for nanoparticle (NPs) in these areas is infinite, with novel applications constantly being explored. The possible toxic health effects on these NPs associated with human exposure are unknown. Because of our lack of knowledge about the health effects associated with NP exposure, we have an ethical duty to take precautionary measures regarding their use

Methods : Materials and methods: This study was conducted in University Of Kharazmi. The research protocol was approved by Ethical Committee. The experiments were performed on 12 week -old adult male Wistar rats. The animals were housed in polypropylene cages put in an air conditioned room(temperature: 23±2°C, dark/light cycle: 13/11 h). The animals were allowed free

accesses to commercial rat food and water. The weight of the animals was between 180-250 gr. The rats were randomly assigned to 3 groups: A control group, A group injected with deionized water and group injected with Alumina nanoparticle. Each group consisted of 6 rats. The rats were intraperitoneally anaesthetised using ketamine and xylazine. A single dose of Alumina nanoparticle (Sigma, USA) (3.7×10^{-4} g/kg bw dissolved in deionized water) was injected into the two side of the CA1 sector of the hippocampus using a stereotaxic instrument. The position for injection into the CA1 sector of the hippocampus was determined from the skull surface, relative to the lambda and Bregma suture defined. Seven days after the treatment, the rats were subjected to avoidance memory. The rats were sacrificed by decapitation and the brains of all animals in each group were removed, in formalin used for histology, tunel and cellular (PCR, BOX & BCL2) analyses. Statistical analysis: The Student's t-test was used for comparisons between groups for data. The Mann-Whitney U and Anova test was used for comparisons of daily mean AA scores between the groups.

Results : Results: Behavioral test indicate delay in the arrival of animals in the dark room. Histological studies show tissue and neuronal damage. Molecular examination also confirms the increased expression of apoptotic genes.

Conclusion : Discussion: The results of this study show that Alumina nanoparticle have a destructive effect on memory and learning, and therefore preventive measures need to be taken to use Alumina nanoparticle.

Keywords : Hippocampus, Alumina nanoparticle, shuttle box

Count: 73

Abstract ID: 5

subject: Cognition: Learning and Memory

Presentation Type: Poster

Hippocampus dysfunction following acute kidney injury

Submission Author: Fatemeh Sharifi

Fatemeh Sharifi¹, Maryam Malek², Parham Reisi³

1. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
2. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
3. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

Background and Aim : Acute kidney injury (AKI) is a syndrome which characterizes by rapid loss of kidney function. This disorder can occur in different conditions, such as renal ischemia reperfusion. Renal ischemia reperfusion occurs in a variety of clinical conditions, such as renal surgeries and transplantation, and is accompanied with a high mortality rate. Most studies of acute kidney injury have been limited to its renal complications, but it has been shown that high mortality rates in patients with acute kidney injury are mainly due to its extra-renal complications following distant organ involvement. Damage to these organs, commonly referred to as multiple dysfunction syndromes that has more severe and persistent effects. Therefore, more studies and knowledge is necessary in this field. The brain and its structures including the hippocampus are the organs that can be affected by this damage. The objective of this review was to assess the complications of the hippocampus following acute kidney injury, with a focus on the mechanisms and the recognition of the links between these pathways.

Methods : The articles related to the effects of acute kidney injury on the hippocampus were included and searched in the PubMed, Science Direct, Scopus, Springer link libraries, and clinical trials and systematic reviews.

Results : Acute kidney injury can lead to numerous complications in the hippocampus, including inflammatory, structural and biochemical impairments, by altering the permeability of the blood-brain barrier and the release of multiple inflammatory mediators as well as changes in the expression of apoptotic genes.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The damage to the hippocampus that has a vital activity in learning and memory and is very sensitive to renal ischemic injury, can lead to cognitive and functional complications in patients with acute kidney injury.

Keywords : Acute kidney injury; Hippocampus; Learning and memory; Ischemia reperfusion

Count: 74

Abstract ID: 693

subject: Cognition: Learning and Memory

Presentation Type: Poster

Effect of Passionate Flower Extract on Condition Avoidance Learning and memory in Male Rats

Submission Author: Mohammad SOFIABADI

Mohammad Sofiabadi¹, Mohammad Hossein Esmaeili², Hashem Haghdooost Yazdi³, Mehdi Soheyli⁴

1. Department of Physiology, Faculty of Medicine, Qazvin University of Medical Sciences, Qazvin, Iran
2. Department of Physiology, Faculty of Medicine, Qazvin University of Medical Sciences, Qazvin, Iran
3. Department of Physiology, Faculty of Medicine, Qazvin University of Medical Sciences, Qazvin, Iran
4. Student of Research committee, Faculty of paramedicine, Qazvin University of Medical Sciences, Qazvin, Iran

Background and Aim : Learning and memory defects are commonly associated with neurological disorders. In this study, the effect of oral administration of Passionate Extract on memory and inactive passive learning in male rats was investigated.

Methods : In this experimental study, the animals were divided into control and 3 groups receiving Paschal (50, 100 and 200 mg / kg). From the week before the shock, until two weeks later, the drug was continued. Learning and memory were measured by inactivity avoidance test (shuttle box) in animals. Data were analyzed by SPSS software, one-way ANOVA and post-test LSD.

Results : Passionate flowering improved memory learning and memory in mice. In all three doses, the use of latency in entering the dark room increased significantly in the 1 week after the shock compared to control ($P < 0.05$).

Conclusion : Passion flower has beneficial effects on memory and its prescription is likely to be effective in improving cognitive impairment.

Keywords : Passion flower, Memory and learning, Rat

Count: 75

Abstract ID: 747

subject: Cognition: Learning and Memory

Presentation Type: Poster

Online oscillatory EEG changes during learning in children

Submission Author: Mojtaba Soltanlou

Mojtaba Soltanlou¹, Christina Artemenko², Thomas Dresler³, Ann-Christine Ehlis⁴, Andreas J. Fallgatter⁵, Hans-Christoph Nuerk⁶

1. University of Tuebingen, Germany
2. University of Tuebingen, Germany
3. University of Tuebingen, Germany
4. University Hospital of Tuebingen, Germany
5. University Hospital of Tuebingen, Germany
6. University of Tuebingen, Germany

Background and Aim : Understanding the neurophysiological changes related to arithmetic learning is helpful for developing educational and therapeutic interventions and assessing the outcomes of interventions. These changes have been indicated by increased power in theta and lower alpha bands after short-term arithmetic learning in adults. However, it is still unclear whether these findings can be generalized to children, who are closer to the age when we learn most of our mathematical knowledge.

Methods : To address this question, 24 typically developing children solved multiplication problems while ongoing electroencephalography (EEG) was recorded from 21 electrodes covering the whole brain. A set of multiplication problems were presented repeatedly, in the context of a challenge against a computer.

Results : The arithmetic training induced increased power of theta (4–7 Hz) and lower alpha (8–10 Hz) bands, which were more dominant in posterior sites. No significant effect was observed in the upper alpha band (10–13 Hz). Moreover, behavioral data revealed improved performance over the course of training.

Conclusion : The observed neurophysiological changes via arithmetic training in children were similar to results from previous arithmetic training studies in adults. The increased power of theta

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

and lower alpha subserve a shift from slow, procedural strategies to fast, compact procedural strategies and retrieval, which lead to more efficient performance after a short period of training in children. We suggest that increased theta power is associated with the domain-general cognitive demands of procedural and retrieval strategies used in arithmetic problem solving, and increased lower alpha power is associated with increased automaticity.

Keywords : children; arithmetic; multiplication; learning; development; oscillatory EEG

Count: 76

Abstract ID: 638

subject: Cognition: Learning and Memory

Presentation Type: Poster

Mild forced exercise and levothyroxine alleviate maternal hypothyroidism-induced deficits of cognitive in rat pups

Submission Author: Parnia Tarahomi

Parnia Tarahomi¹, S. Ali Seyedinia², Nahid Jashirenejad³, Ali Boustani⁴, Abbas Ali Vafaei⁵, Ali Rashidy-Pour⁶

1. Research Center and Department of Physiology, Student Research Committee, Semnan University of Medical Sciences, Iran
2. Research Center and Department of Physiology, Student Research Committee, Semnan University of Medical Sciences, Iran
3. Research Center and Department of Physiology, Student Research Committee, Semnan University of Medical Sciences, Iran
4. Research Center and Department of Physiology, Student Research Committee, Semnan University of Medical Sciences, Iran
5. Research Center and Department of Physiology, Semnan University of Medical Sciences, Iran
6. Research Center and Department of Physiology, Semnan University of Medical Sciences, Iran

Background and Aim : Lack of thyroid hormones during brain development is associated with both functional and structural brain alterations such as deficit of cognitive, especially impairments of learning and memory. The aim of this study was determine the combination effects of levothyroxine and mild treadmill exercise on spatial learning and memory in maternal hypothyroid rat' pups.

Methods : For the induction of hypothyroidism, 6-propyl-2-thiouracyl (PTU) was added to the drinking water (100 mg/L) of mothers, from the 6th prenatal day to the 21th postnatal day. Then, the rat pups (at the age of 30 days) which divided to control and treatment groups, received levothyroxine (30 µg/kg) and mild treadmill exercised for 14 days and then all animal was training in Morris water maze task and spatial learning and memory were tested.

Results : Results indicated that induction of hypothyroidism during the fetal and early postnatal periods were associated with impairment of cognitive function especially learning and memory

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

($P < 0.01$). Also combination of levothyroxine and treadmill exercise during the postnatal period were able to reverse these behavioral deficits in rat pups ($P < 0.05$).

Conclusion : Finding of this study demonstrates a marked reversibility of behavioral disorders induced by maternal hypothyroidism following combination of levothyroxine and mild exercise.

Keywords : Maternal hypothyroidism; Mild Forced exercise; Spatial Memory; levothyroxine; Rat

Count: 77

Abstract ID: 631

subject: Cognition: Learning and Memory

Presentation Type: Oral

Interaction of glucocorticoids and neurotransmitter systems on fear memory extinction

Submission Author: Abbas Ali Vafaei

Abbas Ali Vafaei¹, Masumeh Dadkhah², Shahla Nourizad³, Ali Rashidypour⁴

1. Research Center and Department of Physiology, Faculty of Medicine, Semnan University of Medical Sciences, Iran
2. Research Center and Department of Physiology, Faculty of Medicine, Semnan University of Medical Sciences, Iran
3. Research Center and Department of Physiology, Faculty of Medicine, Semnan University of Medical Sciences, Iran
4. Research Center and Department of Physiology, Faculty of Medicine, Semnan University of Medical Sciences, Iran

Background and Aim : Memory extinction is the process of previously consolidated memories being forgotten after recalled and actively consolidated. Previous studies indicated that suppression of conditioned fear responses following prolonged presentations of the conditioning stimulus without the un-conditioning stimulus lead to fear extinction memory.

Methods : Also studies have demonstrated that different pharmacological manipulations can facilitate or inhibit of extinction that may be associated with vulnerability to amnesic agents, like neurotransmitter system on memory extinction. Recent studies revealed that stress and its related hormones modulate the extinction of various memories, including of spatial and auditory fear conditioning. In this review, we discuss the interaction of glucocorticoids and neurotransmitter systems on extinction of fear memories.

Results : Also we review some behavioral, pharmacological and neurochemical studies from our laboratory on rodents, which might contribute to our understanding of the complex processes of memory extinction. More importantly, we discuss the pre-reactivation (memory extinction) effects of systemic as well as intra-amygdala, intra-hippocampus and intra-infralimbic of medial prefrontal cortex infusions of cannabinoids and dopaminergic systems on fear memory extinction.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our findings indicate that glucocorticoids modulate fear memory extinction through a variety of neurotransmitter systems.

Keywords : Glucocorticoids; Neurotransmitter systems; Fear memory extinction

Count: 78

Abstract ID: 138

subject: Cognition: Learning and Memory

Presentation Type: Poster

Hippocampal Neurogenesis and Forgetting

Submission Author: Neda Yazdanfar

Neda Yazdanfar¹

1. school of advanced medical science tbriz university of medical science

Background and Aim : Neurogenesis persists throughout life in the hippocampus, and there is a lot of interest in how the continuous addition of new neurons impacts hippocampal memory function. The hippocampus is thought to automatically encode all experience, yet the vast majority of our experiences are not remembered later

Methods : Behavioral studies have shown that artificially elevating hippocampal neurogenesis often facilitates new memory formation. However, since the integration of new neurons remodels existing hippocampal circuits, it has been hypothesized that hippocampal neurogenesis may also promote the degradation (or forgetting) of memories already stored in those circuits

Results : As newborn granule cells integrate into established hippocampal circuits, they form new input and output connections over the course of several weeks. Because successful memory retrieval relies on reinvoking patterns of activity that occurred at the time of encoding (pattern completion), neurogenesis-induced remodeling of hippocampal circuits incrementally reduces the likelihood that a given retrieval cue will reinvolve a previously stored pattern

Conclusion : This finding changes the way we think about how hippocampal neurogenesis contributes to memory function, suggesting that it regulates a balance between encoding new memories and clearing out old memories

Keywords : neurogenesis, memory degradation, forgotten

Count: 79

Abstract ID: 207

subject: Cognition: Learning and Memory

Presentation Type: Poster

The effect of docosahexaenoic acid on the spatial learning in Alzheimer's model rats

Submission Author: Nastaran Zamani

Nastaran Zamani¹, Moazedi AA², Afarinesh Khaki MR³, Pourmehdi Boroujeni M⁴

1. Dept. of Biology, Faculty of Science, Shahid Chamran University of Ahvaz, Ahvaz, Iran.
2. Dept. of Biology, Faculty of Science, Shahid Chamran University of Ahvaz, Ahvaz, Iran
3. 2Kerman Cognitive Research Center and KermanNeuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences Sciences, Kerman, Iran.
4. Dept. of Food Hygiene, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran

Background and Aim : Background: Docosahexaenoic acid (DHA) is the major polyunsaturated fatty acid (PUFA) in the brain and a structural component of neuronal membranes. DHA has been implicated in restoration and enhancement of memory-related functions. Changes in DHA content of neuronal membranes lead to functional changes in the activity of receptors and other proteins which might be associated with synaptic function. In this study, we evaluated effects of treatment with DHA on learning process.

Methods : Material and methods: Thirty-five male rats were randomly allocated into five groups: Control group, Lesion group that received bilaterally lesion of Nucleus Basalis Magnocellularis (NBM) with electrically-induced: 0.5mA, 3s to create Alzheimer's model, Sham group that entering the electrode in the NBM without lesion, DHA group (lesion NBM + 5 mg/kg DHA) and Vehicle group (lesion NBM + 0.2 ml Sesame Oil). DHA and Sesame Oil were injected intraperitoneally (i.p.) 30 min after the lesion of NBM. One week after, the rats were training with Y-maze task within five days.

Results : Results: One way ANOVA test showed that time, group and the mutual effect of time and group had a significant effect on learning ($P<0.001$). the results showed that there was a significant difference between the Control and Lesion groups ($P<0.001$), Also comparison between control and sham groups indicated that there were no significant differences ($P>0.05$) between these groups that suggested different stages of surgery including anesthesia and entering

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

electrode without inducing any current, had no effect on spatial learning. Also comparison between Lesion and Sesame Oil groups indicated that there were no significant differences ($P>0.05$) between these groups that suggested Sesame Oil had no effect on spatial learning. Also comparison between Lesion and DHA groups ($P<0.01$) suggesting that the injection of DHA (5mg/kg) increased the spatial learning.

Conclusion : Conclusion: present findings showed that the mutual lesion of NBM has reduced the spatial learning and Docosahexaenoic acid improves spatial learning defects in electrical lesions model of NBM of Alzheimer's disease in dose dependent manner.

Keywords : Docosahexaenoic acid; Spatial learning; Nucleus basalis of magnocellularis; Alzheimer's disease

Count: 80

Abstract ID: 73

subject: Cognition: Working Memory

Presentation Type: Poster

Comparison of cognitive rehabilitation, neurofeedback and cognitive - behavioral play therapy on working memory in primary school students with specific learning disability

Submission Author: Amir Azizi

Amir Azizi¹, Fazlollah Mir Drikvand², Mohamad Ali Sepahvani³

1. PhD student in psychology, Lorestan University, Khoram Abad, Iran
2. Assistant Professor, Department of Psychology, University of Lorestan, Khoram
3. Assistant Professor, Department of Psychology, University of Lorestan, Khoram Abad, Iran

Background and Aim : Working memory is one of the most effective factors in learning math, reading and learning of students. Cognitive rehabilitation, and cognitive - behavioral play therapy, neurofeedback intervention training common in people with learning disability is special. The aim of this study was to compare the effect of cognitive rehabilitation, neurofeedback and cognitive - behavioral play therapy on working memory in primary school students with specific learning disability.

Methods : This study was quasi-experimental with pretest-posttest control group. The study population consisted of all elementary school students, who with diagnosis of learning disabilities in learning centers in Tabriz 2016-2017 had received the interventions were necessary. A sample of the target population purposive sampling, 60 students were selected and using randomly into three experimental groups and one control group (n = 15 per group) were replaced. In all four groups of N-back as pre-completion and after 20 sessions of cognitive rehabilitation, 20 neurofeedback sessions and 8 sessions of cognitive - behavioral play therapy re-test was performed for each of the four groups. Data were analyzed using mean, standard deviation and multivariate covariance analysis in software SPSS.20.

Results : The results of the multivariate covariance analysis showed that cognitive rehabilitation training, neurofeedback and cognitive - behavioral play therapy on working memory in elementary students with specific learning disorder, do not affect ($P < 0.001$). Also, there was no significant

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

difference between the effect of cognitive rehabilitation training, neurofeedback and cognitive - behavioral play therapy on working memory in elementary students with specific learning disorder ($P < 0.001$).

Conclusion : Therefore, cognitive rehabilitation training, neurofeedback and cognitive - behavioral play therapy can not be used to improve the working memory of primary school students with specific learning disabilities

Keywords : Cognitive rehabilitation, Neurofeedback, cognitive - behavioral play therapy, Working memory, Specific learning disorders

Count: 81

Abstract ID: 448

subject: Cognition: Working Memory

Presentation Type: Oral

The effectiveness of Autobiographical Memory Specificity Training on improvement of working memory capacity and decision-making in depressive students

Submission Author: Mozghan Iranmanesh

Mozghan Iranmanesh¹, Hamidtaher Neshatdoost², Mahgol Tavakoli³

1. University of Isfahan
2. University of Isfahan
3. University of Isfahan

Background and Aim : The purpose of this study was to examine the impact of Autobiographical Memory Specificity Training on improvement of working memory capacity and decision-making in depressive students.

Methods : The study was semi-experimentally designed using the pre-test and post-test for both experimental and control groups. So 24 depressive student were randomly assigned to two matched groups, including an experimental group (n=12) and a control group (n=12) and Using the Beck Depression Inventory, a test of working memory Danymen and Carpenter and the Tower of London test were studied. An experimental group who underwent Autobiographical Memory Specificity training trained for 5 sessions, one hour received and a control group with no intervention. Data were analyzed using the analysis of covariance. The results showed that autobiographical memory specificity training improves depression in the experimental group in post-test and follow up.

Results : The results showed that the intervention of the working memory scores in post-test experimental group had no significant effect, but in the follow-up (29%) have had significant effect. The results of this study suggest that Autobiographical Memory Specificity training of ability to make decisions experimental group in post-test scores (33%) and follow up (56%) improved.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : In conclusion, in addition to drug therapy for many patients, initial treatment is to control symptoms and cognitive-behavioral therapy autobiographical memory specificity training as well as cognitive interventions used to reduce the severity of depression.

Keywords : Autobiographical Memory Specificity Training, Depression, Working memory, Decision-making

Count: 82

Abstract ID: 270

subject: Cognition: Working Memory

Presentation Type: Oral

Improving Visual Working Memory in a N-back Task by Auditory Stimulation

Submission Author: Amirreza Karimi

Kowsar Mojtabae¹, Amirreza Karimi², Tirdad Seifi Ala³, Mohammad Ali Ahmadi-Pajouh⁴

1. Department of Biomedical Engineering, Amirkabir University, Tehran, Iran
2. Department of Biomedical Engineering, Amirkabir University, Tehran, Iran
3. Department of Biomedical Engineering, Amirkabir University, Tehran, Iran
4. Department of Biomedical Engineering, Amirkabir University, Tehran, Iran

Background and Aim : The ability to store and utilize information in a few seconds in brain cognitive system is called working memory. Depending on the material, working memory sub-systems can be both verbal and visual. There are some theoretical models that explain multi-item storage in working memory depends on brain theta oscillation (Sauseng, 2010). Therefore increasing the theta band in the brain may lead to better functioning of working memory. One way to increase a specific frequency in the brain is through the auditory system and binaural beats. Binaural beats is a term applied for a stimulation in which two tones of different frequency are presented separately to each ear. The difference between the two tones is perceived as the third frequency in the brain which can entrain it (Oster, 1973). Using binaural beats to improve verbal working memory has already been proved in a previous study (Fernandez, 2008), and hence the aim of this study is to observe the effects of this stimulation in a visual working memory task.

Methods : Twenty-two healthy subjects from Amirkabir University of Technology participated in the study (mean age of 20 ± 1.8) and all of them were provided written consents. For the evaluation of working memory process, subjects participated in a standard 2-back test. All subjects went through a set of training to make sure they understand the game completely. Then, for the control condition, they answered to a set of 65 trials, and their scores were calculated in percentages. During this stage, a tone of 200 Hz was presented to both of their ears (which has no effects of stimulation on the brain (Hommel, 2016)). After finishing the task, they were asked to close their eyes for 4 minutes and in the meantime, binaural beats were presented to their ears (L = 200 Hz, R = 206 Hz). Upon reaching the 4 minutes mark they were informed to open their eyes and

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

complete the same task once more, in which their results were considered as stimulation condition. The results of two groups were evaluated using paired t-test statistical analysis.

Results : The paired t-test results of the designed protocol showed significant increase in the score percentages of 2-back test in binaural beats group ($m = 80.67 \pm 6.16$) compared to control group ($m = 77.50 \pm 9.10$); $t(21) = 2.115$, $p = 0.047$.

Conclusion : The assessment of statistical analysis indicates that by induction of 6 Hz binaural beats, visual working memory can be improved efficiently. The reason for this outcome is assumed to be due to the applied frequency which lies within theta frequency band. One important parameter in the current protocol was applying the stimulation 4 minutes before the task, which allows for effective alteration of the brain (Kennerly, 1994). The results of the current study can be used in clinical applications for better performance of working memory.

Keywords : Binaural Beats; Working Memory; Theta Band; N-Back.

Count: 83

Abstract ID: 634

subject: Cognition: Working Memory

Presentation Type: Poster

Invalid Retro-Cues Can Eliminate the Retro-Cue Benefit

Submission Author: Saeede Khosravi

Saeede Khosravi¹, emad azar², imanollah bigdeli³

1. ferdowsi university of mashhad
2. ferdowsi university of mashhad
3. ferdowsi university of mashhad

Background and Aim : Visual working memory (VWM) has a limited capacity and require frequent updating. The retrospective cueing (retro-cueing) paradigm clarifies how directing internal attention among VWM items boosts VWM performance. In this paradigm a cue appears prior to retrieval, but after encoding and maintenance. The retro-cue effect (RCE) refers to superior VWM after valid versus neutral retro-cues. Here we investigated the effect of the invalid retro-cues inclusion on VWM performance.

Methods : In this quasi-experimental study, with a series of repeated measurements, 30 individual (15 for each test) from graduate students of Ferdowsi University of Mashhad were selected by convenience sampling and were tested. Data analysis of variance with repeated measurements. And Lsd post hoc test. We desined 2 pairs of experiments, changing both probe type (recognition and recall) as well as presence and absence of invalid retro-cue trials. In the first set of experiments, probing VWM using recognition indicated that the RCE remained consistent in magnitude with or without invalid retro-cue trials. In the second set of experiments, VWM was probed with recall.

Results : The result showed that the performance of the visual working memory in both experiments dropped and decreased during both the reaction time and the percentage of the correct response when providing the invalid retro-cues.

Conclusion : We conclude that the RCE was eliminated when invalid retro-cues were included.

Keywords : Retro_Cue benefit, Invalid Retro_Cue, Visual Working Memory.

Count: 84

Abstract ID: 806

subject: Cognition: Working Memory

Presentation Type: Oral

Concurrent influence of top-down and bottom-up inputs on correlated activity of extrastriate neurons

Submission Author: Yaser Merrikhi

Yaser Merrikhi¹, Behrad Noudoost²

1. School of Cognitive Sciences; Institute for Research in Fundamental Sciences (IPM); Tehran, Niavaran, P.O. Box 19395-5746, Iran.
2. Department of Ophthalmology and Visual Sciences; University of Utah; Salt Lake city, UT, 84132, US.

Background and Aim : Correlations between neurons can profoundly impact the information encoding capacity of a neural population. Previous studies of the effect of top-down signals, such as attention, on correlations in visual cortex have all examined changes in visually evoked responses. To obtain a fuller understanding of how top-down input modulates correlated activity in extrastriate visual cortex, we investigated the changes in correlated activity produced by a top-down working memory signal both in isolation and in combination with bottom-up visual input.

Methods : We simultaneously recorded the responses of multiple neurons in the middle temporal (MT) area of two macaque monkeys using 16-channel linear array electrodes during the memory guided saccade (MGS) task. In this task the animal had to remember the location of a target and maintain fixation throughout a variable (1-2.5 sec) delay period, then saccade to that location at the end of the trial. In each trial the target was presented either in the same or opposite hemifield relative to the recorded neuron's RF. In almost half of the recording sessions we presented brief (200 ms) visual probes during the memory period, while in other sessions no visual probe was presented. The spatial sensitivity of the neurons was also quantified by measuring their response to probes presented in a 7x7 grid centered around their estimated receptive field (RF) while the animal was fixating.

Results : The presence or absence of a visual signal proved crucial for determining the effect of the top-down signal on correlated activity. An isolated top-down spatial signal increases correlations between neurons with similar RFs, but in the presence of a visual probes the top-down spatial signal causes decorrelation, consistent with the results of attention studies. We also found

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

that the top-down spatial signal in isolation decreases the correlated variability of neurons with dissimilar RFs, but in the presence of a visual stimulus this top-down signal increases the noise correlation between dissimilar neurons. We present a descriptive network model to explain how the top-down and bottom-up signals interact to generate the observed patterns of correlated variability among extrastriate cortical neurons.

Conclusion : These patterns of correlated activity offer constraints on circuit-level models of top-down feedback and visual processing.

Keywords : rhesus macaque's extrastriate cortex; visual attention and working memory; noise correlation

Count: 85

Abstract ID: 811

subject: Cognition: Working Memory

Presentation Type: Poster

Spatial working memory changes the efficacy of input to visual cortex

Submission Author: Yaser Merrikhi

Yaser Merrikhi¹, Behrad Noudoost²

1. School of Cognitive Sciences; Institute for Research in Fundamental Sciences (IPM); Tehran, Niavaran, P.O. Box 19395-5746, Iran
2. Department of Ophthalmology and Visual Sciences; University of Utah; Salt Lake city, UT, 84132, US

Background and Aim : Prefrontal cortex modulates sensory signals in extrastriate visual cortex, in part via its direct projections from the frontal eye field (FEF), an area involved in selective attention.

Methods : Using 16-channel linear array electrodes, responses of neurons in FEF, the middle temporal area (MT) and V4 were recorded during a memory-guided saccade (MGS) task. In this task the animal had to remember the location of a target and maintain fixation throughout a variable (1-2.5 sec) delay period, then saccade to that location at the end of the trial. In each trial the target was presented either in the same or opposite hemifield relative to the recorded neuron's RF. In almost half of the recording sessions we presented brief (200 ms) visual probes during the memory period, while in other sessions no visual probe was presented. The probe-evoked visual responses and receptive fields (RFs) were compared during the fixation and spatial working memory periods.

Results : Upon examining the nature of the FEF signal sent to visual cortex, we found that persistent, working-memory related activity is the predominant feature of FEF neurons projecting to extrastriate cortex. This signal was not sufficient to drive spiking activity in extrastriate areas V4 and MT. however, we found that during memory maintenance visually driven responses in both these areas were modulated by the content of spatial working memory. The RFs of MT neurons expanded and shifted toward the remembered location. The net effect of these changes was to increase the number of neurons responding to a probe stimulus near the remembered location, improving their ability to represent the stimulus.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The results provide insight into the neural mechanisms by which PFC alters visual representations according to information held in WM, and identifies persistent activity as a source of visual cortical modulation and as a basis for the interdependence of spatial WM and spatial attention.

Keywords : spatial working memory, Attention, Extrastriate cortex, Prefrontal cortex

Count: 86

Abstract ID: 700

subject: Cognition: Working Memory

Presentation Type: Poster

The Effect of Using the Chunking Strategy in Memorizing Digits

Submission Author: Sajad Mowlaei

Sajad Mowlaei¹, Hadi Moradi², Majid Nili³, Javad Hatami⁴

1. university of Tehran
2. university of Tehran
3. university of Tehran
4. university of Tehran

Background and Aim : Typically, brain cannot store high volume of information unless the information is organized or broken into certain form. The process of braking information into smaller pieces, suitable for memorization, is called chunking although the study of memory capacity and strategies of memorizing has been started over 60 years ago, however, our understanding of chunking is not yet complete. In this research, the effects of the use of chunking strategy in memorizing a sequence of digits are measured on the performance of individuals through a computerized assignment.

Methods : The computer assignment is designed in two modes. In the first mode, subjects are allowed to use their own chunking strategy in memorizing sequences of digits. In the second mode, the subjects are guided to use a specific chunking strategy by grouping the digits on the screen. For example, for a sequence of 8 digits, single, dual, and quadruple set of digits are shown and the subjects were asked to memorize the string as requested and repeat them.

Results : The test was comprised of 35 students between 17 female and 18 male. By processing the obtained information, there was a significant difference between the performances of individuals in using different chunking strategies. This finding suggests that the optimal chunking strategy varies from one person to another. For example, there are subjects would have learned better if they kept the numbers one by one, and others would have had performed better using chunks of two digits each. Finally, there are subjects who performed better using chunks of four.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The performance of subjects were measured based on their best performance using different chunking strategies. Also, it was compared to the individual's performance when using their own chunking approach. The result suggests that people generally achieve lower performance in using their own chunking approach and teaching the best chunking strategy may improve performance.

Keywords : Memory strategy; chunking; Working Memory

Count: 87

Abstract ID: 305

subject: Cognition: Working Memory

Presentation Type: Poster

Postnatal MK-801 treatment of female rats impairs acquisition of working memory, but not reference memory in an eight-arm radial maze; no beneficial effects of enriched environment

Submission Author: Masoumeh Nozari

Masoumeh Nozari¹, Farshad Alizadeh Mansouri², Mohammad Shabani³, Hojat Nozari⁴, Nafiseh Atapour⁵

1. Kerman University of Medical Sciences, Department of Physiology, Kerman, Iran
2. Department of Physiology, Monash University, Clayton, VIC 3800, Australia
3. Neuroscience Research Center, Neuropharmacology Institute, Kerman University of Medical Sciences, Kerman, Iran
4. Department of Computer Engineering, Islamic Azad University, Kerman, Iran
5. Department of Medicine (Royal Melbourne Hospital), Melbourne Brain Centre, University of Melbourne, Parkville, VIC 3050, Australia

Background and Aim : Memory impairment has been documented in MK-801 (NMDA receptor antagonist) model of schizophrenia, but less is known on the rescue and/or differential effects of MK-801 on short- and long-term memories. We determined the effects of MK-801 treatment and/or enriched environment (EE) on acquisition of reference and working memory in developing rats

Methods : Female Wistar rats were injected with MK-801 (1 mg/kg) from postnatal days (P) 6–10. Task acquisition, working memory error (WME), and reference memory error (RME) were assessed in an eight-arm radial maze task. Behavioral performance of rats was also tested in an open field test before (P35–P40) and after (P65–P70) radial maze training to assess anxiety and locomotion. EE was applied from birth up to the end of experiments.

Results : MK-801 treatment did not influence task acquisition in the radial maze; however, by the end of training, MK 801-treated rats made significantly more WME, but not RME, compared to control rats. Ratio of WME to total error was also significantly higher in MK-801 group. EE prevented MK-801-associated behaviors in the open field but did not exert beneficial effects on

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

working memory deficit in the radial maze task. EE per se affected behavioral performance of rats only in the open field test.

Conclusion : Our results suggest that postnatal MK-801 treatment differentially affects working and reference memory in a young brain. Anxiety and hyperactivity associated with MK- 801 are observed more severely in adulthood. Dissociation of the positive effects of EE may suggest selective modification of distinct pathways

Keywords : Enriched environment . MK-801 . Eight-arm radialmaze . Openfieldtest . Schizophrenia . NMDAreceptor blockade

Count: 88

Abstract ID: 282

subject: Cognition: Working Memory

Presentation Type: Oral

Increased plasma adiponectin level and insulin resistance in patients with Alzheimer's disease

Submission Author: Soroush Sharifimoghadam

Soroush Sharifimoghadam¹, Ehsan Sharifipour², Kambiz Rohampour³, Navid Hassanzadeh⁴, Negin Ghasemian Mojarad⁵, Seyyed Amir Hejazi⁶

1. Neurology and Neuroscience Research Center, Qom University of Medical Sciences, Qom, Iran
2. Neurology and Neuroscience Research Center, Qom University of Medical Sciences, Qom, Iran
3. Neuroscience Research Center, School of Medicine, Guilan University of Medical Sciences, Rasht, Iran
4. Neurology and Neuroscience Research Center, Qom University of Medical Sciences, Qom, Iran
5. Neurology and Neuroscience Research Center, Qom University of Medical Sciences, Qom, Iran
6. Neurology and Neuroscience Research Center, Qom University of Medical Sciences, Qom, Iran

Background and Aim : Sporadic Alzheimer's disease (sAD) is characterized by progressive memory loss and cognitive decline in the elderly. Insulin dysfunction in the brain is reported to be involved in pathophysiology of sAD. Adiponectin (ADN), an adipocytokine with anti-inflammatory and neuroprotective properties, is believed to have beneficial effects on insulin signaling and the management of type 2 diabetes mellitus. The aim of this study was to assess the possible relationship between ADN, insulin resistance and sAD.

Methods : Sixty participants were enrolled in this study; 34 patients with Alzheimer's disease (AD) and 26 healthy subjects. All subjects underwent comprehensive evaluations including Mini-mental score exam (MMSE) for the diagnosis of dementia. Subjects with MMSE score <24 were added to the AD group, while healthy subjects should have a MMSE score >27. Fasting blood sugar (FBS), ADN and insulin levels were measured by enzyme-linked immunosorbent assay (ELISA).

Results : The results indicate a significant elevation in FBS from 103 ± 3.0 to 147 ± 7.6 in AD patients ($p < 0.001$). Also, 71% of AD patients developed insulin resistance, as the homeostatic model assessment (HOMA-IR) index increased from 2.93 ± 0.6 in healthy subjects to 5.11 ± 0.7 in AD patients ($p < 0.05$). Body mass index (BMI) and serum insulin level did not show a dramatic

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

change, but serum adiponectin levels were significantly ($p < 0.05$) higher in AD group (127 ± 8.5 ng/ml) in comparison to control group (96.6 ± 13.6 ng/ml).

Conclusion : It is concluded that ADN elevation could serve as a predictor of insulin resistance and risk factor for sAD.

Keywords : Alzheimer; Adiponectin; Insulin resistance; dementia

Count: 89

Abstract ID: 661

subject: Cognition: Working Memory

Presentation Type: Poster

The Effectiveness of Computer-based Working Memory Training on Selective Attention and Dart Throwing Performance

Submission Author: Mahla Tabasi

Mahla Tabasi¹, Hamidreza Aghamohammadian², Mojgan Mahmoudi³

1. M.S student of Cognitive science, Isfahan university
2. Professor of Psychology, Ferdowsi University of Mashhad
3. Graduated from clinical psychology, Ferdowsi University of Mashhad

Background and Aim : One of the exercises that require a high level of mental processes, such as precision, concentration, and attention, in addition to having a motor preparation, is dart. Working memory is fundamental to understand the cognitive processes of human in everyday life. Also, attention is to consider and focus on the target's stimulus through a bunch of input triggers and to ignore and eliminate irrelevant and intruder triggers (Sternberg, 2010). Recent empirical evidences show a reciprocal relationship between the content of working memory and attention. Since the successful launch of the darts require a high level of attention and concentration, promoting this cognitive component is very necessary. On the other hand, recognizing the nature of human memory to understand the storage and retrieval of motor skills, retrieving past information and imposing it on the current situation is vital. This study is looking for this question whether an increase in the working memory capacity improves the amount of attention and, consequently, the impact of this attention on the good performance of throwing the dart is positive or not. The purpose of this study is to investigate the effectiveness of computer-based working memory training on the selective attention and dart throwing performance.

Methods : For this purpose, 30 women aged 15 to 25 years were selected through available and voluntary sampling in two control group (15 subjects) and experimental group (15 subjects). This research, in terms of its purpose and method, was quasi-experimental by pre-test and post-test with control group. In order to measure the working memory capacity and the selective attention, the position error test and Simon effect and spatial cueing tests were used respectively. N-back software was used for computer-based working memory training. Descriptive statistics and one-variable covariance analysis were used to analyze the results.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The findings of the study showed that computer-based working memory training significantly increase the working memory capacity in the experimental group compared to the control group. Also computer-based working memory training led to a significant difference in the increased selective attention scores in the Simon effect test in the experimental group compared to the control group, but this difference was not significant in the spatial cueing test. Also, computer-based working memory training significantly increase the successful performance of dart throwing in the experimental group compared to the control group.

Conclusion : According to the findings of the research, it can be concluded that computer-based working memory training increases the successful performance of dart throwing and may have a positive effect on the increase of selective attention.

Keywords : Keywords: working memory, selective attention, dual cognitive processing

Count: 90

Abstract ID: 416

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

The effect of electrical stimulation of the right inferior frontal gyrus on with and without delay inhibition tasks

Submission Author: Akram Abdorahimi

Akram Abdorahimi¹, ahmad sohrabi², Ali Younesi³

1. university of kurdistan
2. university of kurdistan
3. university of tehran

Background and Aim : Response inhibition is an executive function. This executive function is an important mental process necessary for behavior regulation and avoidance. The role of the right inferior frontal gyrus in the frontal lobe has been highlighted in recent studies on this function.

Methods : In this research we investigated the role of right inferior frontal gyrus in two types of the response inhibition tasks with the use of a non-invasive electric stimulation. For this purpose, we used a between subjects design where 84 students were assigned randomly into Experimental and Control groups, Anodal and Sham each. They performed stop-signal and Go/NoGo tasks at two conditions, a few minutes after the start of the stimulus or simultaneously.

Results : The results of ANOVA in this study showed a significant effect of the electrical stimulation of the right inferior frontal gyros in terms of a decrease in reaction times in signal-stop task. But, there wasn't significant difference in the Go/NoGo inhibition measures.

Conclusion : The findings of the current study increase our understanding of the involvement of the right inferior frontal in inhibition responses. More specifically, when people have more time for action inhibition, the electrical stimulation of this area has a facilitator effect. But to generalize and use these results, more research is needed.

Keywords : tDCS, control, stop-signal task, rIFG

Count: 91

Abstract ID: 410

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

Comparison of brain waves activation in delayed and fast inhibition tasks using EEG

Submission Author: Akram Abdorahimi

Akram Abdorahimi¹, ahmad sohrabi², Ali Younesi³

1. university of kurdistan
2. university of kurdistan
3. university of tehran

Background and Aim : Response Inhibition is one of the most important executive functions and is essential to regulate behavior and refrain from doing inappropriate actions. Research on the underlying processes of this function is ever growing, though research is still in early stages. Inhibition comes in different forms and understanding its involving aspects can add to the knowledge in this field. Here, we focus on the differences in activation of brain waves in fast and delayed inhibition tasks, not been previously compared.

Methods : In the present study a between-group design was employed. The brain waves of the 25 participants were recorded during performing stop-signal and Go/NoGo tasks.

Results : The difference between the brain waves in the right, middle, and forward sides of the brain was significant in the two tasks ($p < 0.05$). However, there was no significant difference in the left side of the brain in the two tasks.

Conclusion : The results show that the activation of brain waves in the rapid inhibition tasks is more than delayed inhibition. Also, the right and middle areas of the right brain have the most activation related to inhibition, in particular, rapid inhibition.

Keywords : EEG, response inhibition, brain waves

Count: 92

Abstract ID: 205

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

Cognitive Rehabilitation of Working Memory in Patients with Stroke and its effect on Executive Functions

Submission Author: Parya Abravani

Parya Abravani¹, Mohammad Taghi Saeedi², Mohammad Ali Nazari³, Mehdi Farhoudi⁴

1. Parya Abravani, MA in psychology, Tabriz University
2. Mohammad Taghi Saeedi, PhD in cognitive neuroscience, division of Cognitive Neuroscience, Tabriz University
3. Mohammad Ali Nazari, Associate Professor, neuroscience, division of Cognitive Neuroscience, Tabriz University
4. Mehdi Farhoudi, Professor, Neurology, Tabriz University of Medical Sciences

Background and Aim : Stroke or cerebrovascular accident is the sudden onset of a neurological disorder that can be attributed to a focal vascular cause. The vascular diseases of the brain include some of the most common disorders, therefore ischemic stroke and hemorrhagic stroke. Executive functions are a set of different but related abilities that allow individuals to act effectively in problem-solving and target-oriented processes through informed processing, and adapt to complicated life situations. The Diamond's growth model of executive functions includes three central executive functions: inhibitory, working memory and flexibility. Working memory is the core of executive functions, and has a close relationship with inhibitory control. Defective working memory makes it difficult for a person to perform a variety of activities, such as paying attention, planning, maintaining and organizing information. Defective working memory is one of the most commonly occurring phenomena after brain damage. Cognitive Rehabilitation is a cognitive and neuropsychological intervention program designed to rehabilitate and resolve cognitive deficiencies.

Methods : This study was carried out in a pre and posttest design with 20 patients in both experimental and control groups. All patients in experimental group underwent computerized working memory rehabilitation, 30 to 40 minutes a day, 5 days a week, for 5 weeks. Patient's executive functions were tested by Wisconsin card sorting test.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Descriptive statistics showed that the mean and standard deviation of scores (Wisconsin card sorting test) in the experimental group was greater than the control group. Analysis of Univariate covariance showed that cognitive rehabilitation does not affect the performance of patients in comparison with control group. The calculated F (3.97) is statistically not significant.

Conclusion : Prerequisite of the Wisconsin Card Sorting Test is the planning, sequencing, and flexible use of information and achieving the goal. Also, according to the hierarchical system of the Stas and Benson model, the overlapping and co-operation of different regions of the brain is essential for executive functions. It seems that these areas in the brain of patient with stroke were damaged and behavior aspect of it is not changing the wrong answer in the Wisconsin Card Sorting Test. However, it needs to be studied further.

Keywords : Cognitive Rehabilitation, Stroke, Executive functions

Count: 93

Abstract ID: 755

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

Study of Confidence by ERP Components in a Visual Perceptual Decision Making Task

Submission Author: Zahra Azizi

Zahra Azizi¹, Jamal Esmaily², Shirin Vafaei³, Reza Ebrahimpour⁴

1. Institute for Cognitive Science Studies, Tehran, Iran
2. Cognitive Science Research lab., Department of Computer Engineering, Shahid Rajaei Teacher Training University, Tehran, Iran
3. Cognitive Science Research lab., Department of Computer Engineering, Shahid Rajaei Teacher Training University, Tehran, Iran
4. Cognitive Science Research lab., Department of Computer Engineering, Shahid Rajaei Teacher Training University, Tehran, Iran - School of Cognitive Sciences, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran

Background and Aim : The decisions we make are generally supplemented by a feeling of being wrong or right. This confidence estimation and its neuronal implementation have not yet broadly become a focus in decision making studies. This research has mainly concentrated on confidence in perceptual decision making by establishment of a visual discrimination task. To inspect the concept, behavioral and EEG data have been analyzed.

Methods : Using behavioral and electroencephalography (EEG) measures we discussed the influence of confidence in perceptual decision making. In order to investigate this concept, we applied an experiment using Random Dot Motions (RDM) paradigm. Participants had to indicate the predominant direction of motion of a cloud of moving dots (up or down) by saccadic eye movement to the choice target as soon as possible. Each gradient rectangle target was a scale of uncertain to certain (left to right; red to green). Both direction and strength of the motion changed trial by trial. The coherency of moving dots in one direction stated the stimulus strength. Motion coherence was randomly selected from these following values: 0%, 3.2%, 6.4%, 12.8%, 25.6%, and 51.2%. The difficulty of the task was rest on these coherencies. Healthy adult subjects were tested and meanwhile we used a 32-channel amplifier for the EEG signal recording. The recorded data were taken to Matlab software and ERPs (Event-related potential) were measured. Here, we

search for characterization the ERPs signatures of human choice certainty in perceptual decision making.

Results : Results from behavioral and ERPs have shown that participants develop diverse behavior in different level of certainly. Performance measures reflect the dependency of confidence on task difficulty. Moreover, when participant had lower confidence their reaction time increased. Furthermore, the grand-average ERPs results showed the first prominent deflection after stimulus onset at about 135 ms conformed to common visual N100 effects, the second near 215 ms to P200 effects. A further peak observed at around 450 ms after the stimulus onset was identified to represent a classical P300 effect. Although the pattern of ERPs were almost the same, peaks amplitude significantly increased with choice certainty. The more confidence participant admitted having the larger amplitude peaks observed. To investigate more accurately, we tested ERPs of different levels of task difficulties separately and observe the ERP components of low and high confidence in minor coherencies (harder trials) had more significant difference. In addition, the discrimination of low and high confidence could observe over whole brain but the best discrimination could be acquired in Centro parietal and occipital electrodes including C4, P3, P4, O1, O2, Cz, Pz, CP1, CP2, CP6.

Conclusion : To summarize, we showed EEG correlation of choice certainty. It seems that ERPs component could have a similar pattern during a perceptual decision making task (RDM) but the level of certainly can have influence over this pattern. Furthermore, ERPs from Centro parietal and occipital electrodes can represent this correlation best.

Keywords : Perceptual Decision making, ERP, Confidence

Count: 94

Abstract ID: 820

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Oral

Analytical vs. Intuitive thought_A comparative and neuropsychological review

Submission Author: Mohsen Dadjoo

Mohsen Dadjoo¹

1. Institute for Cognitive & Brain Sciences, Shahid Beheshti University

Background and Aim : Research has shown that people can render their judgment via two distinct systems. Namely the 'Implicit' and the 'explicit ' systems. while we use a mixture of both these two systems in everyday life, this study aims to more closely dissect the efficacy of the aforementioned systems in real life situations, in order to give us an estimate to use in choosing between 'intuitive' and 'analytic' approaches.

Methods : In order to answer this question we tried to comparatively analyze the functions and informational processing differences of these two systems. Furthermore the research had been done on the same subject matter were reviewed with the hope of effectively summarizing the body of theoretical knowledge and evidence on the subject matter ,and hence reach to a relatively reliable estimate of the efficacies of two systems.

Results : Responses from the implicit system could easily lead to biases. In the explicit system, based on analytical approach, on the other hand individuals could either lack the proper knowledge of the “right method” or make errors in executing it. In order to have declarative knowledge of their respective responses in different situation, these two systems need to be duly evaluated(scaled).In this evaluation(scaling),the probability of errors ,like mistakes, in the explicit system is regarded as a function of the “analytical complexity” of the task ,as conceived by the individual. Therefore biases in the implicit system need to be weighed against the “analytical complexity” in the explicit approach to the same task.

Conclusion : In conclusion it is worth mentioning that, while the main focus has been so far mostly on aiding individual to execute the task more analytically, it is also necessary to give due attention

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

to the importance of enhancing the implicit decision making capabilities in individuals, for both systems are required for making a decision.

Keywords : analytic thinking, intuitive thinking, tacit system, deliberate system, Dual process theory

Count: 95

Abstract ID: 318

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

Comparison of executive functions in bilingual and monolingual relapsing remitting multiple sclerosis) RRMS) patients in Ahvaz

Submission Author: Seyedeh fatemeh Emami dehcheshmeh

Seyedeh fatemeh Emami dehcheshmeh¹, majid soltani², negin moradi³, Alireza Hajiyakhchali⁴, Nastaran Majdinasab⁵, Seyed Mahmood Latifi⁶

1. MSc Student in Speech Therapy
2. Assistant Professor in Speech Therapy
3. Assistant Professor in Speech Therapy
4. 3Assistant Professor in Department of Psychology
5. Associate Professor in Department of Neurology
6. PhD by research

Background and Aim : Executive functions generally refer to cognitive functions involved in the control and regulation of goal-directed behavior also enable the formation of mental representations. Several factors such as age, complexity of task and bilingualism affect executive functions. There are opposing effects for the role of bilingualism on executive functions. The purpose of this study was comparing executive functions in bilingual patient with relapsing-remitting multiple sclerosis (RRMS) and matched monolingual individual.

Methods : In this cross-sectional study were evaluated 13 bilingual patients with RRMS are compared with 13 monolingual peers. Research instrument included progressive matrices raven test, mini-mental state examination (MMSE) and clinical tests of executive functions (continuous performance test, Wechsler memory test and verbal fluency test). Mann-Whitney test was used for statistical analysis.

Results : The results indicated statistically significant difference between two groups in components of correct response, error of omission and commission error. But there was no difference in digit span test. Moreover monolinguals in Persian language were better than bilinguals all verbal fluency tasks.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Bilingualism promotes cognitive ability and executive functions in nonverbal task, ironically it seems the only recorded negative consequences of bilingualism are on verbal knowledge and skill.

Keywords : executive function, multiple sclerosis, bilingualism

Count: 96

Abstract ID: 251

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Oral

The Effects of Binaural Beats on Reaction Time

Submission Author: Farnaz Eslamjamal

Farnaz Eslamjamal¹, Tirdad Seifi Ala², Mohammad Ali Ahmadi-Pajouh³

1. Department of Biomedical Engineering, Amirkabir University, Tehran, Iran
2. Department of Biomedical Engineering, Amirkabir University, Tehran, Iran
3. Department of Biomedical Engineering, Amirkabir University, Tehran, Iran

Background and Aim : Binaural beats is an auditory stimulation that is perceived when two sinusoidal tones of slightly different frequency are presented separately to each ear. The difference of the two frequencies is perceived as the third tone in the brain and causes neurons to oscillate at that frequency (Oster, 1973). This phenomenon can be used to alter the reaction time of the brain which is necessary for better cognition. Several neurofeedback methods could have already increased processing speed through induction of alpha oscillation in the brain (Angelakis, 2013), and thus binaural beats stimulation in alpha band may have the similar positive effects.

Methods : Eighteen right-handed subjects participated in this study (mean age of 19) and they were provided written consent. The designed game included a 10x8 table on the screen of the PC. As soon as one block in the table flashed in the screen, the subjects had to click on it. If they delayed more than 1 second or if they hit it incorrectly, the score for that trial was ruled out. Overall, 60 trials were repeated in the task. The protocol consisted of three parts. In the first part, the subjects had to play the game while listening to 300 Hz tone in their both ears (as control condition (Colzato, 2017)). After completing the game and in the second part, they were asked to close their eyes for 2 minutes and listen to pink noise. After that period, they played the game one more time while pink noise was continuously presenting to them. In the third part, they were again asked to close their eyes for 3 minutes and meanwhile binaural beats, containing two different tones (L = 300 Hz, R = 310 Hz) were presented to them. Then, they completed the task one more time while still listening to binaural beats. The correct answers in each group were compared with each other using paired t-test.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The mean correct answers in the designed game increased significantly in binaural beats group ($m = 46.33 \pm 10.71$) compared to both control group ($m = 41.66 \pm 11.07$); $t(17) = 2.479$, $p = 0.024$, and pink noise group ($m = 41.50 \pm 11.66$); $t(17) = 2.434$, $p = 0.026$. Meanwhile the results for control and pink noise groups didn't show any significant difference; $t(17) = 0.100$, $p = 0.922$.

Conclusion : The increase in binaural beats group compared to control group indicates that presenting binaural beats in alpha band to normal subjects can indeed increase the processing speed of the brain. Also, the increase in binaural beats group compared to pink noise group (and for that matter lack of increase in pink noise compared to control group) shows that pink noise can't be as efficient as binaural beats, and neither the effects observed in this study are caused by placebo effects. The results of this study can have clinical applications to shorten the reaction time of the brain.

Keywords : Binaural beats; Reaction time; Alpha band; Pink noise

Count: 97

Abstract ID: 763

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

The Relationship Between Reaction Time and Confidence in Perceptual Decision Making: an EEG Study

Submission Author: Jamal Esmaily

Jamal Esmaily¹, shirin vafaei², zahra azizi³, Reza ebrahimpour⁴

1. Cognitive Science Research lab., Department of Computer Engineering, Shahid Rajaei Teacher Training University, Tehran, Iran
2. Cognitive Science Research lab., Department of Computer Engineering, Shahid Rajaei Teacher Training University, Tehran, Iran
3. Institute for Cognitive Science Studies, Tehran, Iran
4. Cognitive Science Research lab., Department of Computer Engineering, Shahid Rajaei Teacher Training University, Tehran, Iran

Background and Aim : The relationship between reaction time and confidence has been addressed in many studies. Their reverse relationship has been established and confirmed in decision making literature. This paper has brought an EEG study to analyse the mentioned association. The signals belong to different time quantiles could be separated by their confidence categories. The behavioral data also has been utilized for further analysis. The portion of the trials landed in each time quintiles and confidence categories has demonstrated the spoken reverse correlation. The gathered signals are also able to separate the level of the confidence in one coherency and one quintile of time as well.

Methods : For evaluation of the relationship between reaction time and confidence in perceptual decision making, the Random Dot Motion (RDM) has been exploited. The RT (reaction time) version of this paradigm has been employed in this work. Subjects had normal or corrected to normal vision. They reported their decision and confidence by doing an eye saccade to the provided target bars. For capturing the eye movement, the SR Research EyeLink 1000 Plus has been used. EEG signals were recorded using eWave, a 32-channel 1000-sample per the second amplifier designed by ScienceBeam. The signals have been preprocessed with MATLAB's EEGLAB toolbox. The raw data has passed to a band passed filter ranging from 0.1 to 35 Hz. For artifact rejection, the Adjust have been used. The outlier signals have been removed by EEGLAB data

rejection. The outlier trials related to the subject reaction time have been eliminated as well. The ERP analysis has been employed for representation of the signals behaviors.

Results : The behavioral results have shown the reverse relationship between the reaction time and confidence. By considering the number of the trials in every time quintile and analyzing their confidence category, the mentioned association could be revealed properly. We also analyze the EEG signals, in every time quintiles. They have shown significant discrimination. For further analysis, we also outcast the effect of the coherency (task difficulty) of the stimulus and reaction time of the subjects to see whether the signals could be significantly representing the level of the confidence. The results have illustrated the signals discrimination between different level of the confidence is neither related to the reaction time nor the coherency. The covariance of reaction time and confidence which represented properly in the behavioral data is downplayed by EEG signals analysis.

Conclusion : This paper has represented the reverse relationship between confidence and reaction time in a perceptual decision making experiment. By capturing the EEG signals we also have been able to categorize the level of the confidence when the effect of the coherency and reaction time have been illuminated entirely. In this way, EEG signals propose that reaction time could not cause the signals of the confidence levels to be discriminant. This finding suggests additional involved features in the brain for coding the confidence.

Keywords : Perceptual Decision Making, Confidence, Reaction Time

Count: 98

Abstract ID: 585

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

Noise pollution may induces depressive like behaviors and deficiency on executive functions

Submission Author: Zeinab Fahimi

Zeinab Fahimi¹, Talie sadat Esmaeili², Arvin Haghightafard³

1. Department of biology, science and research branch, Islamic Azad university, Tehran, Iran
2. Department of biology, science and research branch, Islamic Azad university, Tehran, Iran
3. Department of biology, Tehran North branch, Islamic Azad university, Tehran, Iran

Background and Aim : Noise pollution is the disturbing sound with effects on somatic and psychological functions of human or animal life. Effects of noise pollution on cognitive and executive functions of brain is not completely clarified. Present study aimed to evaluate the effects of noise pollution on brain abilities in rat model.

Methods : Two groups of wistar rats (each group was including 3 male and 3 female) were selected. Test group rats were experiencing two months of noise pollution in Brickworks and control group rats were stayed in noise free laboratory situation. After two month period, forced swimming test, shuttle box and Oasis maze were obtained from both groups.

Results : Findings declared that noise polluted rats stayed significantly higher seconds in floating mode ($p=0.003$) in forced swimming test in compare with control group. In addition shuttle box test showed significant memory deficiency ($p=0.005$) in noise polluted rats versus control group. Also in Oasis maze, noise polluted rats showed significant latency to find the correct way ($p=0.008$) in compare with noise free rats.

Conclusion : Results showed chronic effects of noise pollution could alter the behavior and executive function abilities of rats. Depressive behaviors, memory deficiency and latency in problem solving have been observed in rat model. It may increase the concerns about harmful effects of noise pollution on psychological health of individuals who take the noise pollution, daily and for along period.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : noise pollution, behavioral tests, memory deficiency, problem solving

Count: 99

Abstract ID: 40

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

Study of cognitive functions in students with stuttering

Submission Author: Zahra Ilkhani

Akram Hsanzadeh noqani¹, kambiz kamkari², Morteza Farazi³, Zahra Ilkhani⁴

1. Islamic Azad University, Science and Research Branch, Tehran
2. Islamic Azad University, Science and Research Branch, Tehran
3. Assistant professor of Speech Therapy Department University of Social Welfare and Rehabilitation Sciences, Tehran. Iran.
4. Master student.on faculty of rehabilitation Sciences , Isfahan university of medical Sciences, Isfahan, Iran

Background and Aim : Purpose: stuttering is one of the most common speech disorders that includes very complexities in children and adults which its hidden layers aren't still completely known. The purpose of current study was to investigate cognitive functions of student with stuttering.

Methods : Method: In this descriptive study, 30 students with stuttering from all educational levels including 8 female students and 22 male students who have ramshackle are selected and assessed by using Tehran-Stanford Binet intelligence scale. Experimental average scores that acquired from one sample run test were compared, reviewed and analyzed with the theoretical mean that obtained from standardization process of the one sample T-test.

Results : Findings: Results had been shown that the general IQ and verbal IQ of the students with stuttering, were above the average (expected level) .their nonverbal IQ was average and also the fluid reasoning IQ, knowledge IQ, quantitative Reasoning IQ and visual and spatial processing IQ of these student were above the average and regarding active memory IQ, it was average. There was no significant difference ($\alpha=0/05$) between theoretical average and empirical average in working memory.

Conclusion : Conclusion: Finding of this study showed that active memory IQ of students with ramshackle was weaker than the 4 other IQs of intelligence producer agents. It was given that

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

general IQ of the students who have stuttering, was above the average, they had a good background for teaching and Learning.

Keywords : stuttering, Tehran-Stanford Binet intelligence scale, IQ, Cognitive functions

Count: 100

Abstract ID: 735

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

Examining the mediator role of cognition dysfunction and emotion dysregulation in relationship between duration of methamphetamine use and risky decision making

Submission Author: Hashem Jebraeili

Hashem Jebraeili¹, Alireza Moradi², Mojtaba Habibi³

1. PhD of Health Psychology, Kharazmi University, Tehran, Iran
2. Professor, PhD of Clinical Psychology, Kharazmi University, Tehran, Iran
3. Assistant Professor, PhD of Health Psychology, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : Given the importance of identifying the factors influencing risky decision-making in at-risk populations in order to formulate programs and interventions to prevention and treatment, present study aimed to investigate the mediator role of cognition dysfunction and emotion dysregulation in relationship between duration of methamphetamine use and risky decision making.

Methods : The present research belongs to fundamental designs in terms of goal and to correlational designs in terms of collecting and analyzing data. The statistical population consisted of all methamphetamine users men who were settled in addiction treatment camps of Tehran city. From this population, according to various criteria such as the number of variables in the research and the statistical methods used to analyze data, a sample included of 300 individuals was selected. To collect data, difficulty in emotion regulation questionnaire and trial-making, rapid information processing, and information sampling tasks were used. Data were analyzed using path analysis method by Lisrel software.

Results : The findings showed that continuous attention ($\beta=-0.27, t=-5.19, P<0.01$), impulsivity ($\beta=0.48, t=9.90, P<0.01$), and emotional dysregulation ($\beta=0.12, t=2.54, P<0.05$) on risky decision-making, and duration of methamphetamine use on executive control ($\beta=0.19, t=3.33, P<0.01$), impulsivity ($\beta=0.14, t=2.44, P<0.05$), and emotional dysregulation ($\beta=0.13, t=2.15, P<0.05$) had direct significant effect. The model designed to investigate the mediator role of emotion

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

dysregulation and cognition dysfunction in relationship between duration of methamphetamine use and risky decision making had excellent fitness with data (RMSEA=0.001, RMR=0.03, NFI =0.98, CFI=1, GFI =1, $\chi^2 = 2.94$, $\chi^2/df = 0/59$) and 33 percent of the total variance of risky decision-making were explained by a combination of variables of this model.

Conclusion : According to the findings of this study we can say that emotional components help cognitive abilities in decision making; and risky decision-making is the result of simultaneously dysfunction in emotional and cognitive processing. Therefore, in formulating interventions to reduce risky decision making in at-risk populations both emotional and cognitive components should be considered.

Keywords : Continuous attention, Decision making, Impulsivity, Emotion regulation, Executive control

Count: 101

Abstract ID: 212

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

Study Effects of Intuition on Accuracy, Timing, and Confidence of Decisions in Males and Females

Submission Author: Tahereh Karami Shoar

Tahereh Karami Shoar¹, Reza Rostami², Javad Hatami³, Ali MoghadamZadeh⁴

1. Tahereh Karami Shoar Master student of Clinical Psychology, Department of Clinical Psychology, Faculty of Psychology, University of Tehran. Email: taherehkarami@ut.ac.ir
2. Psychiatrist, Professor, Department of Clinical Psychology, Faculty of Psychology, University of Tehran. Email: rrostami@ut.ac.ir
3. Associate Professor, Department of Clinical Psychology, Faculty of Psychology, University of Tehran. Email: hatamijm@ut.ac.ir
4. Assistant Professor, Department of Group practices and training programs, Faculty of Psychology, University of Tehran. Email: amoghadamzadeh@ut.ac.ir

Background and Aim : Decision making has a vital role in human beings life, which has been investigated for several decades. The effect of intuition on human decisions is one of the area which is attracted the researchers' attention. A group of researchers in University of Sydney have provided an experimental condition to study the effect of intuition on decision making, which has defined as rapid unrelated unconscious emotional information. Objective: This study aimed to provide the above mentioned experimental condition, in which we could study the probable effects of intuition on accuracy, reaction time and decision confidence in male and female subjects.

Methods : The study design was quasi-experimental. Thirty subjects participated in this study, which were assigned to two groups; 15 males, 15 females. The Subjects attended a Random Dot Motion test in which moving-dot stimuli were presented concurrently with emotional and unemotional images rendered non conscious using continuous flash suppression. The accuracy, reaction time, and decision confidence were recorded. The data was analyzed using multivariate analysis of variance (MANOVA) in order to compare the outcome between two groups.

Results : Four (16%) subjects were excluded from analyses because their data did not show a monotonic increase in accuracy in the RDM task as a function of motion coherence. The mean±SD

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

age of the subjects was 26.2 years and 12 (48%) were female and 14 (52%) were male. Results showed no significant difference in dependent variables accuracy, reaction time and decision confidence between two experimental conditions. But the result showed significant difference between male and female groups in reaction time and decision confidence, while they showed no significant difference in accuracy.

Conclusion : Based on the finding of this study, presenting rapid unrelated unconscious emotional information, which has defined as intuition, has no significant effects on accuracy, reaction time and decision confidence. Also based on the finding it could be said that women and men have no difference in decision accuracy, but women are less confident towards their choices and need more time to make decisions.

Keywords : Intuition; unconscious emotional information; decision accuracy; decision time; decision confidence

Count: 102

Abstract ID: 229

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

Impact of cognitive impairment on fall risk of older patients with chronic psychiatric disease admitted on Razi Educational & therapeutic psychiatric center

Submission Author: Afsaneh Mahootian

Afsaneh Mahootian¹

1. et all

Background and Aim : Older patients with chronic psychiatric disorders are at higher risk of falling and more susceptible to fall-related injury compared to their healthy peers .In recent years, cognitive impairments, especially impairment of executive function and attention, have been considered as factors related to gait disturbances and falling at any age groups. Several studies have confirmed the role of these cognitive factors in fall risk between chronic mental illnesses specially dementia. Regarding the high prevalence of cognitive impairment in elderly with chronic psychiatric patients and the importance of recognizing and controlling the causes of falling in these patients, we decided to evaluate the role of executive function impairment on gait impairment and the falling of these patients.

Methods : This study is a cross-sectional descriptive research. A total of 120 older patients who admitted in Razi psychiatric hospital were screened for gait abnormalities using MACH10 and Tinetti tests. 40 patients were at risk of gait impairment and they were entered in this study. We used Wiskansin card sorting test to evaluate executive function. Then, the relationship between gait impairment and executive function variables was analyzed by SPSS software and Logic regression test. Probability values less than 0.05 were considered statistically significant.

Results : In this study the mean and standard deviation of the age of patients were 72.35 and 9.53, respectively. 20% of the patients were male and 80% were female. The majority of patients (70%) had executive dysfunction. The results showed no significant difference between demographic variables (age, sex, marital status, psychiatric diagnosis) and a high risk of falling in chronic psychiatric patients ($p > 0.05$). Also, our findings showed no significant difference between

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

executive dysfunction & an increased fall risk in patients with chronic psychiatric disorders ($p > 0.05$).

Conclusion : The present study showed no relationship between executive dysfunction and fall risk in chronic psychiatric patients. These results indicate that the impact of cognitive impairment on falling risk of old psychiatric patients are less than presumed before ,especially in comparison to some diseases such as Alzheimer's dementia. It may be probably due to longer disease course, different pattern of cognitive impairment and different medication and long consumption of drugs with major extrapyramidal side effects in chronic psychiatric disease. On the other hand, in these old age group patients and the role of age-related musculoskeletal and systemic factors influencing gait & balance is more impressive on fall risk than cognitive impairment.

Keywords : Chronic psychiatric disease, Executive dysfunction, Fall risk

Count: 103

Abstract ID: 713

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

The role of cognitive flexibility and selective attention in theory of mind

Submission Author: Fereidoun Malaei

Fereidoun Malaei¹, Ahmad Sohrabi²

1. University of Kurdistan
2. University of Kurdistan

Background and Aim : Human social interactions fundamentally depend on Theory of mind (ToM), which is defined as the ability to attribute mental states to oneself and others. The present study aimed to investigate the cognitive mechanisms underlying ToM by examining whether selective attention and cognitive flexibility, as the components of executive functions (EFs), are associated with ToM.

Methods : Seventy three healthy participants (Male = 38; Female = 35; Mean age = 22.7) were instructed to perform the computer-based measures of ToM (“Reading the Mind in the Eyes” test (RMET)), cognitive flexibility (Wisconsin Card Sorting Test) and selective attention (Stroop and Flanker tasks). The order of the tasks was the same arrange across participants.

Results : Our results showed that selective attention is positively associated with RMET score in both female and male participants. In addition, cognitive flexibility was related to RMET performance in female but not in males.

Conclusion : The current study revealed the role of externally oriented attention in ToM, and highlighted the cognitive mechanisms that may cause sex differences in the association of cognitive flexibility and RMET performance.

Keywords : Theory of mind, selective attention, cognitive flexibility

Count: 104

Abstract ID: 663

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

Investigating of the differences in executive functions in Methamphetamine users and non-users of drugs, a cross-sectional study

Submission Author: Bijan Pirnia

Bijan Pirnia¹, Monir Cheraghi², Roghaiye Jamali³

1. PhD Student of Clinical Psychology, Department of Psychology, Faculty of Humanities, University of Science and Culture, Tehran, Iran. Email: b.pirnia@usc.ac.ir
2. M.A in Clinical Psychology, Department of Psychology, Islamic Azad University of Saveh, Tehran, Iran.
3. M.A in Psychology, Islamic Azad University of Science and Research, Ardebil, Iran

Background and Aim : The purpose of this study was to investigate the difference between executive functions in two groups of male users of methamphetamine and normal people.

Methods : In a descriptive study and in the form of a comparative study, 30 eligible men were selected through targeted sampling and allocated to two groups of methamphetamine users and control group. The executive functions of the two groups were evaluated using the Wisconsin Card Sorting Test (WCST). Also, the rate of used methamphetamine was evaluated using immunochromatography with a threshold of 300 ng per ml. Data were analyzed using multivariate analysis of variance, single variable, Benfrouney test and Pearson correlation through SPSS software.

Results : The preliminary results showed that the executive functions in methamphetamine users in comparison with the control group showed a significant decrease ($p < 0.01$). The secondary results of this study showed that there was a positive significant correlation between the amount of consumption and the index of decreasing in executive functions ($p < 0.05$).

Conclusion : The results of this study indicate a significant difference in the executive functions of methamphetamine users compared to normal people. Executive functions can act as a mediator factor in the relapse of using, so it is desirable to be the center of clinical attention in the treatment of methamphetamine users.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Methamphetamine, Executive functions, Wisconsin Card Sorting Test

Count: 105

Abstract ID: 604

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

The role of Executive functions on Decision-Making Competence at the organizational setting

Submission Author: Salehe Piryaee

Salehe Piryaee¹, Molly Khademi Ashkzari²

1. PhD candidate of educational psychology, Alzahra University, Tehran, Iran
2. Department of educational psychology, Alzahra University, Tehran, Iran

Background and Aim : Decision making is a complex structure of high-level process, involving option generation, evaluation of risks and consequences, and range of a program of action in line with personal preferences and may require a high degree of cognitive control. In this vein a close link between frontal/executive functions and decision-making processes has been suggested by literature review. So to investigate three cognitive control processes (shifting, updating, & inhibitory control) that are assumed to play a role in decision making, this study aims to understand which control processes are associated with two different decision-making tasks include Decision Rules (ADR) and Consistency in Risk Perception (CRP) in the organizational settings.

Methods : 80 managers at an industrial company in Isfahan, Iran, participated in this study (mean age=35.45). Data were collected in two part: (1) A-DMC session, (2) executive functioning session. The tasks were presented in separate sessions in order to avoid fatigue effects, and each participant completed both sessions within 8–12 days. In the A-DMC sessions, participants completed the A-DMC tasks (including ADR and CRP) and executive functioning tasks (Stroop, number–letter, n-back). Data Analysis were conducted using Amos-22 software package.

Results : The three-component correlated model showed a good fit on all the indices. The fit of this model was fully acceptable. The structural coefficients of executive functioning measures were all significant ($p<0.001$), as well as the updating-inhibition inter-factor correlation. The shifting-updating correlation was not significant. However, the correlation between shifting and inhibition was statistically significant ($p<0.01$).

Basic and Clinical 6th NEUROSCIENCE Congress 2017

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Different decision-making tasks (including ADR and CRP) were separately related to executive functions specifically at managerial framework. Shifting related to the ability to provide consistent judgements on risky events, while inhibition seems to play an important role in the accurate implementation of decision rules. Thus our study indicates which control processes are most operative in successful performance of managers on two different decision tasks. If different executive functions are mainly needed for the successful accomplishment of some decision-making task, training these functions in organization may improve some facets of decision-making performance. Thus it could be helpful to examine the consequences of training and rehabilitation of executive functions specifically for managers.

Keywords : decision-making, executive functions, organizational setting

Count: 106

Abstract ID: 181

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Oral

FARPOU, a novel intervention model can enhance cognitive development in preschool children.

Submission Author: ATA POURABBASI

ATA POURABBASI¹, JALAL FARZAMI²

1. Endocrinology and Metabolism Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran
2. Foundation for research and education in Educational Medicine

Background and Aim : The preschool years is very important in terms of the child's cognitive development and its effects on learning of normal behaviors in future life periods. So far, different interventions have been designed and implemented to help children develop their cognitive abilities in this age group. But it is difficult to generalize these models because of some cultural differences among societies. The authors designed and implemented a new model of cognitive intervention for preschool children and tried to evaluate its effectiveness on children's' cognitive development.

Methods : some 80 preschool children with the range of 5-6 years were included to this study and divided into 2 case and control groups. Authors considered cognitive goals for their interventions according to national Preschool education document issued by the I.R. Iran Ministry of Education. Six intervention modules including "Storytelling", "let's talk ", "let's play ", "let's draw ", "if you say", "let's ask parents", "let's do" were designed. Four trained coaches drafted educational contents for these modules according to cognitive goals and implemented them for 8 months. Authors used direct observation technique for evaluating the effectiveness of these interventions. For this purpose, 6 trained observers interacted with children in 3 observational fields including hand craft, direct talk and play and tried to rate their observations. Observers quantified observations objectively or by Visual Analogue Scale (VAS) tools. At the end of observations, the sum of scores which each child earned from each observation field was considered as final score. Authors served 40 children in the same age range who were educated by other intervention models in preschool centers as control group. They were invited for cognitive evaluation with direct observational technique.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : totally 14 cognitive goals were extracted for intervention. Children were participated in approximately 150 forty five-minute sessions using FARPOU modules interventional model. On average, each module received about 25 sessions during the 8 months of intervention. In evaluation phase, the total time spent for each child was 120 minutes. 4 cognitive goals was observed using hand craft, 2 goals using play and 8 goals using direct talk. At the end, the average score of children in case group was statistically higher in compare with controls.

Conclusion : FARPOU 6 module intervention is the effective model for cognitive development in preschool children. This model involves important children's potentials such as drawing, playing, talking, and imagination and tries to make parents participate in their children's development. FARPOU is also compatible with the domestic cultural considerations. Of course, some limitations should also be considered for the possibility of generalizing this model. From them, the physical space needed for implementing interventions, as well as having trained coaches who able to manage these interventions are the main limitations. On the other hand, the direct observation tool designed for cognitive development evaluation is the notable Achievement. Because this technique provided only a direct observation of the child's cognitive development and can diminish some biases in this regard.

Keywords : cognitive, development, preschool, intervention

Count: 107

Abstract ID: 93

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

A computer game design for set shifting enhancement in children with autism

Submission Author: Sima Saniee

Sima Saniee¹, Hamid Reza pouretemad²

1. MA in clinical child and adolescent psychology
2. PhD in neuropsychology, Professor, Institute for Cognitive & Brain Sciences, Shahid Beheshti

Background and Aim : Autism is a neurodevelopmental disorder characterized by impaired communication, social interaction and restricted and repetitive interests or behaviors. Set-shifting as a cognitive problem in children with autism causes persistent, inflexibility and inability to transition from one task to another task. The consequence of this cognitive failure is lack of cognitive and behavioral flexibility. The aim of this study is designing a computer game in order to enhance set-shifting ability and study the possible effects of this game on cognitive flexibility.

Methods : This study was conducted in two stages. In the first stage in order to improving set-shifting, a computer puzzle game (Tatka) is designed. In second part, by a quasi-experimental design, the effects of these tasks were studied on 13 children aged 5 to 7 with high functioning autism. At first children were assessed by Wisconsin Card Sorting Test, Bender-Gestalt Test, Gars and Autism Treatment Evaluation Checklist, then the intervention was implemented for 2 month. To investigate the stability of the changes, a month after the intervention, children were evaluated again.

Results : After the intervention, significant changes with great effect size were observed in cognitive flexibility (perseveration error in the Bender-Gestalt, 0.84 and perseveration error in Wisconsin, 0.87). The changes in repetitive and stereotyped behaviors with average effect size were occurred as well.

Conclusion : this is the first study which focuses on developing a set-shifting training task for children with autism. After the 2 month training, the improvement in cognitive flexibility was

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

occurred in children with autism who have participated in this study. Moreover the repetitive and stereotyped behaviors in children as a part of autism symptoms were reduced after the intervention.

Keywords : Autism; Cognitive flexibility; Computer game; Set-Shifting

Count: 108

Abstract ID: 39

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

A review of executive dysfunction in Mild Cognitive Impairment

Submission Author: Fateme Satarian

Fateme Satarian¹

1. Tehran university of medical sciences

Background and Aim : Mild cognitive impairment(MCI) is characterized by cognitive deficient is a condition between healthy people and Alzheimer population also it is considered as early Alzheimer People with MCI have different problems such as memory deficits, executive dysfunction, language impairment, attention deficits but they show no problem in activities of daily living(ADLs) Majority of studies have focused on memory deficient in these patients and less attention on language deficits and executive dysfunction According to high prevalence of executive dysfunction in neurological disorders such as Dementia and MCI , In this review we intend to describe the executive dysfunction in MCI

Methods : In this literature review we report on papers indexed in Pubmed ,Googlescholar and Springer using keywords executive function and MCI.

Results : Executive dysfunction is reflected in problems with planning, organizing, abstraction, and making decision about priorities along with impaired verbal fluency. People with MCI show function in all details of executive function

Conclusion : Regarding to results we conclude that individuals with MCI show impairment in executive function such as, problems in social interaction, working memory deficient ,TOM deficit and lack of emotion, insight and inhibition. however , more studies are needed.

Keywords : Mild Cognitive Impairment, MCI, Executive dysfunction, Dementia

Count: 109

Abstract ID: 772

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

An EEG Study on Decision and Confidence in a Random Dot Motion Decision Making Task

Submission Author: Shirin Vafaei shooshtari

Shirin Vafaei shooshtari¹, zahra azizi², jamal esmaily³, Reza Ebrahimpour⁴

1. Cognitive Science Research lab., Department of Computer Engineering, Shahid Rajae Teacher Training University, Tehran, Iran
2. Institute for Cognitive Science Studies, Tehran, Iran
3. Cognitive Science Research lab., Department of Computer Engineering, Shahid Rajae Teacher Training University, Tehran, Iran
4. Cognitive Science Research lab., Department of Computer Engineering, Shahid Rajae Teacher Training University, Tehran, Iran

Background and Aim : We often make decisions based on sensory evidence which is noisy and ambiguous to determine the environment. The Centro-parietal area of the brain is arguably connected to the information accumulation of the evidence. In this way, in a famous perceptual decision making task like Random Dot Motion (RDM) the stimulus strength could be related to the amplitude and buildup rate of the EEG signals in the mentioned area of the brain. In this study, we compared the dynamic of the EEG signals related to the confidence and decision. The results have demonstrated the equivalent dynamic of signals for confidence and decision

Methods : For studying the relationship between confidence and decision, we designed a RDM experiment. This experiment has been utilized in many perceptual decision making researches. In our design, subjects must report their decision and related confidence when they are ready with a single ballistic eye movement on the target bars. For extracting the eye movement profile we have used the SR Research EyeLink 1000 Plus. The participants by maintaining the gaze at the fixation point in the beginning of the trials, initiates the stimulus. By fixation on the target bars, the subjects are able to simultaneously report their decision and confidence about the current decision. The EEG signals of the brain have been gathered by a device containing 31 channels with 1000 Hz sampling rate. Our main interest was the Centro-parietal area of the brain. We have employed EEGLAB – a toolbox in Matlab- as the major software for processing the collected EEG signals.

A notch filter with the band of 45 to 55 Hz has been used as the first filter. Furthermore, a band pass filter in a range of 0.1 to 35 has been used for pruning the signals. All of the signals have been evaluated by the automatic data rejection in the EEGLAB. For representation of the signal dynamic, the Event Related Potential (ERP) analysis has been employed.

Results : Our collected EEG data indicated the correlation of the task difficulty and slope of the signal in a specific time in the Centro-parietal area. We have additionally demonstrated this effect is evident in the confidence as well. In this manner, we claim by measuring the slope of the Centro-parietal signals, the levels of confidence could be extracted. Since the dynamic of the task difficulty and confidence were highly equivalent, the brought results in this paper could reassure the similarity of these two decision making concepts once again.

Conclusion : The EEG signals in the Centro-parietal area of the brain is related to build up rate of the evidence accumulation. In the other word, the fitted line at the specific time in the EEG signal could be correlated to the levels of the stimulus difficulty. In this paper, we identified the difficulty levels of the stimulus by the amplitude and slop of the signal. We also have been able to determine the confidence levels of decision by the same interpretation of the stimulus difficulty.

Keywords : Decision making, Confidence, Centro-parietal

Count: 110

Abstract ID: 754

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

Executive function in patients with Obsessive–compulsive disorder

Submission Author: Saeid Yazdiravandi

Saeid Yazdiravandi¹, Saeid Yazdi-Ravandi², Mohammad Ahmadpanah³, Ali Ghaleiha⁴

1. -
2. Behavioral Disorders and Substance Abuse Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
3. Behavioral Disorders and Substance Abuse Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
4. Behavioral Disorders and Substance Abuse Research Center, Hamadan University of Medical Sciences, Hamadan, Iran

Background and Aim : Obsessive–compulsive disorder (OCD) is associated with executive dysfunction. The purpose of the present study was to investigate the Executive function in patients with Obsessive–compulsive disorder.

Methods : This study was a cross-sectional descriptive-analytic, performed on fifty four patients meeting DSM-5 criteria for OCD and 54 healthy subjects. Executive functions were assessed by Yale-Brown Obsessive-Compulsive Scale (Y-BOCS), Stroop test, Wisconsin Card Sorting Test (WCST) and Paced Auditory Serial Addition Test (PASAT). Data were analyzed with Chi-Square, T-test And Mann-Whitney U Test by the SPSS-16.

Results : Mean±standard age of participant were 34.07±10.12 in the OCD group and 33.09±9.50 in the healthy group. The result showed that the performance of the OCD group was significantly worse than the healthy group in comparison with the all subscale of Stroop test, WCST (P<0.05). Also, difference in information processing among two groups was statistically significant for PASAT3" (P=0.001), PASAT2" (P=0.003).

Conclusion : Our results conclusion that individuals with OCD suffer from a difficulties in various aspects of executive function, and that they perform more poorly than individuals without OCD. To fully explore the executive dysfunction in OCD patients, further studies are recommended.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Obsessive compulsive disorder, Executive function, Dysfunction

Count: 111

Abstract ID: 280

subject: Cognition: Executive Function (Decision Making, Reasoning, Problem Solving)

Presentation Type: Poster

Cognitive factors in road accidents: comparative study

Submission Author: Nasrin Zamani foroushani

Nasrin Zamani foroushani¹, Mahgol tavakoli², Ramtin Kajbafzadeh³

1. Shahid Chamran University
2. University Of Isfahan
3. Islamic Azad University of Najafabad

Background and Aim : The road accidents are established as a major cause of death and physical disability in developing countries. The driving task performance is an activity with high levels of cognitive complexity. The aim of this study was to investigate the cognitive factors were predictors of road accidents

Methods : The study is a descriptive and causal-comparative research. The population includes all people who have been found guilty in traffic accidents and to refer the judicial branch of Isfahan province. The sample consisted of two groups. One group had at least an accident (n = 40) and selected through convenience sampling, who referred to the judicial branch of Isfahan province in the spring of 1395. Another group who did not have accident (n = 40) matched in terms of age and gender and education with accident group. Assessment of cognitive function including executive function and visual-spatial ability in participants were done through Neuropsychiatry Unit Cognitive Assessment Tool” (NUCOG) conducted with examiner

Results : The MANOVA results showed that cognitive characteristics (executive function, and visual-spatial ability) of people who had are significantly different from who did not have accident. There are many factors in high-risk behaviors in driving and traffic accidents.

Conclusion : According to the results of this study, cognitive factors are part of influential factors in accidents, so pay attention to the deficiencies and trying to correct them and prevent more damages seems essential.

Keywords : road accidents, executive function, visual-spatial ability

Count: 112

Abstract ID: 106

subject: Cognition: Cognitive Aging

Presentation Type: Oral

Utilization of Transcranial Sonography for Diagnosis of Degenerative Dementia

Submission Author: Mostafa Almasi

Mostafa Almasi¹, Babak Zamani², Mohammad Rohani³, Atefeh Imani⁴, Shabnam Nadjafi⁵

1. Department of Neurology, Faculty of Medicine, Iran University of Medical Sciences, Iran
2. Department of Neurology, Faculty of Medicine, Iran University of Medical Sciences, Iran
3. Department of Neurology, Faculty of Medicine, Iran University of Medical Sciences, Iran
4. Faculty of Medicine, Islamic Azad University Mashhad Medical Branch, Iran
5. Gastrointestinal and Liver Diseases Research Center, Iran University of Medical Sciences

Background and Aim : Diagnosis of dementia subtypes is most often complex and it requires laboratory and imaging methods which are frequently expensive and unavailable. Transcranial sonography (TCS) is the technique by which observation of deep brain structures and neurodegenerative diseases diagnosis are feasible and going to be increased. Measurement of the cerebral third ventricle width and the midbrain area and circumference is possible by TCS with high accuracy, and it is mentioned to be related with cognitive disorders in few studies. In this study we assessed the size of cerebral third ventricle and the midbrain in four types of dementia and normal cognitive disorder-free individuals.

Methods : A cross-sectional study was designed to measure the size of cerebral third ventricle and the midbrain by TCS method in 59 patients diagnosed with Alzheimer disease (AD) (20), dementia with Lewy bodies (DLB) (9), frontotemporal dementia (FTD) (23) and vascular dementia (VaD) (7) also 22 normal cognitive disorder-free individuals referring to Rasoul-Akram hospital in Tehran during 2014. The dementing patients were divided into two groups: cortical dementia (including AD and FTD patients) and cortical-subcortical dementia (including DLB and VaD patients). The measurement of the third ventricle width was performed by trans-thalamic plane, and trans-mesencephalic plane was used for midbrain area and circumference assessment. Data was analyzed by Chi square, one-way ANOVA test, independent-sample T-test and paired sample T-test, and p-value <0.05 was considered statistically significant.

Results : The mean size of third ventricle was 0.84 ± 0.03 cm and 0.66 ± 0.04 cm in dementia patients and control, respectively ($p < 0.01$). The average of midbrain area and circumference were 4.3 ± 0.95 cm² and 9.96 ± 1.17 cm in dementia patients, and 4.85 ± 0.98 cm² and 10.79 ± 1.00 cm in control group ($p < 0.05$ and $p < 0.01$). Among four types of dementia there were not significant statistical difference in size of third ventricle and midbrain area and circumference ($p > 0.05$). There were significant statistical differences in comparison of third ventricle size ($p < 0.01$), midbrain area ($p < 0.05$), and midbrain circumference ($p < 0.01$) with Mini-Mental State Examination (MMSE) scoring. The size of the third ventricle width in cortical dementia patients was more than normal individuals ($p < 0.01$); and midbrain circumference in cortical-subcortical dementia patients were less than normal control ($p < 0.01$).

Conclusion : Measurement of the third ventricle width and the midbrain area and circumference by TCS is useful in diagnosis of dementia patients also in differentiation of the types of cortical dementia from cortical-subcortical dementia. Furthermore, these measurements, due to their relation with MMSE scoring, can be used as the standards for follow-up the patients and comparison of their cognitive decline over time.

Keywords : Transcranial sonography, third ventricle, midbrain, Alzheimer disease, Levi body dementia, frontotemporal dementia, vascular dementia.

Count: 113

Abstract ID: 551

subject: Cognition: Cognitive Aging

Presentation Type: Poster

Protective effects of carvacrol and thymol against β -amyloid induced cytotoxicity in vivo and in vitro.

Submission Author: Zahra Azizi

Zahra Azizi¹, Samira Choopani², Mona Salimi³, Nasser Naghdi⁴

1. Department of Physiology & Pharmacology, Pasteur Institute of Iran
2. Department of Physiology & Pharmacology, Pasteur Institute of Iran
3. Department of Physiology & Pharmacology, Pasteur Institute of Iran
4. Department of Physiology & Pharmacology, Pasteur Institute of Iran

Background and Aim : The neuropathologic features of Alzheimer include the extracellular accumulation of β -amyloid protein ($A\beta$), the intracellular formation of neurofibrillary tangles, and area specific neuronal loss and synaptic changes in the brain. Although considerable progress has been made in understanding the pathogenesis of Alzheimer's disease (AD), the current therapeutic approaches provide only modest symptomatic relief, intended for the treatment of cognitive symptoms. Recently, many medicinal plants and their constituents have been tested for their potential to reduce symptoms of AD. In this study, the effect of carvacrol and thymol in a rat model of Alzheimer's disease and on $A\beta$ induced neurotoxicity in rat pheochromocytoma (PC12) cells was investigated.

Methods : Rats received bilateral intrahippocampal injections of Ab(25–35) and the effect of different doses of thymol or carvacrol on cognitive function was determined. The activity of cells was measured by methyl thiazolyl tetrazolium (MTT) method. Fluorespectrophotometer was employed to observe intracellular reactive oxygen species (ROS) production.

Results : In vivo study showed increases in escape latency in $A\beta$. These impairments were reversed by pretraining administration of either thymol or carvacrol. In vitro study showed that after incubation with $A\beta$ 25-35, the cell viability was decreased; in contrast, the level of ROS was increased in PC12 cells. Co-incubation of carvacrol or thymol prevented the cytotoxicity induced by $A\beta$ 25-35 in cells and attenuated intracellular ROS.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : These findings provide positive evidence for the effectiveness thymol and carvacrol in alleviating cognitive impairments caused by increased $A\beta$ levels. Also, carvacrol and thymol significantly protect the PC12 cell from $A\beta$ -induced injury through the mitochondria dysfunction and oxidative damage. It seems that antioxidant activity of carvacrol and thymol might contribute to its beneficial effects in this model. Our findings suggest that carvacrol and thymol may be a potentially valuable source of natural therapeutic agents for the treatment of AD. However, further investigations are necessary to establish its efficacy and potential toxicity in clinical trials.

Keywords : Alzheimer's disease, Carvacrol, Thymol, Morris water maze, PC12 cell, cytotoxicity.

Count: 114

Abstract ID: 680

subject: Cognition: Cognitive Aging

Presentation Type: Poster

Comparison of the Effectiveness of Cognitive – behavior Therapy, Feloxetine Therapy, and the Combination Method on improve premature ejaculation disorder in addicts

Submission Author: Mohammad Reza Ghaffarzadeh Razaghi

Mohammad Reza Ghaffarzadeh Razaghi¹

1. Director of Department of Mental Health and Addiction, Shahid Beheshti University of Medical Sciences

Background and Aim : This research was considered aiming the comparison on the effects of cognitive behavioral therapy, fluoxetine therapy and a combined approach on recovery of premature ejaculation disorder on addicts. Among addicts to narcotics who attended the Tehran addiction therapy clinics, this experiment was carried out on 60 people in 4 groups for the above – mentioned therapies through judging the samples

Methods : The statistics research was a covariance analysis . The findings of the research showed a meaningful difference among the witness and the experimental cognitive – behavioral group. The difference between the average score of drug therapy group and the witness one is meaningless

Results : It is to be noted that the difference in marks between the combined approach and the witness one in 0.01 level is meaningful . Only between the cognitive – behavioral treatment group and the drug therapy experiments , is there a meaningful while no difference is witnessed between cognitive – behavioral group with combined one and the drug therapy and the combined one .

Conclusion : It is to be noted that the difference in marks between the combined approach and the witness one in 0.01 level is meaningful . Only between the cognitive – behavioral treatment group and the drug therapy experiments , is there a meaningful while no difference is witnessed between cognitive – behavioral group with combined one and the drug therapy and the combined one .

Keywords : Cognitive – behavioral therapy , fluoxetine treatment , premature ejaculation , addicted

Count: 115

Abstract ID: 784

subject: Cognition: Cognitive Aging

Presentation Type: Poster

Cognitive status of acute gout elderly patients with Colchicine medication

Submission Author: Hamidreza Memarian

Hamidreza Memarian¹, Assiyeh Hamidipour²

1. Department of Medicine, Medical University of Vienna, Vienna, Austria
2. Department of Plant Sciences, School of Biology, University of Tehran, Tehran, Iran

Background and Aim : Colchicine, which is a toxic natural product and secondary metabolite, initially extracted from plants of the genus *Colchicum*. It was utilized originally to treat rheumatic and inflammatory complaints and used in the treatment of acute gout arthritis. Gout is on the increase worldwide and is the most common form of inflammatory arthritis affecting men. However, studies in animal models have reported ill effects of colchicine on the central nervous system, including cognitive function. The main goal of the current study was to assess the cognitive status of elderly acute gout patients on long-term colchicine treatment.

Methods : The study was based on a group of patients ($n = 35$, 32 males, 3 females and mean age of 54 ± 5 years) who recruited from hospital wards and rheumatology outpatient clinics throughout Tehran and receiving colchicine treatment for 25.1 ± 8.9 years. Patients were selected at the time of an acute flare (baseline visit) and then reviewed at a follow-up visit after the flare had resolved 6-8 weeks later. The Mini-Mental State Examination was used for cognitive assessment. Patients' scores were associated with accepted age- and education-adjusted cutoff scores, population-based norms, and scores of a matched control group of 56 subjects.

Results : Results show that all colchicine-treated acute gout patients scored well above the age- and education-corrected cutoff scores. Overall, there was a large difference, 6.5 ± 0.9 , from the expected cutoff points, in favor of the study group scores ($P < 0.001$). The individual scores of the control group were also above the cutoff points, however with a lower but still statistically significant difference (4.67 ± 1.07 points, $P < 0.001$). Compared to population-based norms adjusted by age and education, the study group had significantly higher mean MMSE scores (29.7

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

± 2.5 vs. 27.1 ± 1.8 , $P < 0.001$). The control group's scores were also slightly higher than expected, but not significantly.

Conclusion : The findings do not support the view that prolonged colchicine treatment may be associated with cognitive impairment. On the contrary, the current study demonstrates, it is possible that long-term colchicine treatment may even discuss protection against cognitive reduction in patients with acute gout patients.

Keywords : Colchicine, acute gout arthritis, Cognitive impairment, elderly patients

Count: 116

Abstract ID: 570

subject: Cognition: Attention

Presentation Type: Oral

Effects of Strategy Training in Attention Cognitive Games: A Case Study

Submission Author: Elaheh Abolhassani Shahreza

Elaheh Abolhassani Shahreza¹, Majid Nili Ahmadabadi², Hadi Moradi³

1. University of Tehran
2. University of Tehran
3. University of Tehran

Background and Aim : In recent years, many groups started developing computer cognitive games with the purpose of improving cognitive abilities like attention, memory, and problem solving. The theory behind such games is that the better performance in a game means better cognitive abilities. Thus, there are two questions to be addressed: First is "Does the difference between people's performance is due to using different strategies or personal characteristics". And the second question is "Is it possible to teach strategies to improve performance?" In this study, we tried to answer these questions. We showed that, in short term, self-awareness of used strategy is more important than learning new strategies.

Methods : To answer the first question we performed two steps. In the first step, game strategies were collected. In the second step, most effective strategies were determine. A test was designed using a game named "Clouds" which was developed by Maghzineh group to empower "divided attention". The game consists of several rainy clouds among other could which gradually become similar to the other clouds. game player should track and remember all rainy clouds at the same time. In this test people were asked to play the game and report their strategies using a questionnaire. This test were continued until no new strategy were reported. In order to extract strategies from questionnaires, Content Analysis methods were used. Statistical methods were used to calculate each strategy's importance. At last strategies were grouped into three main categories and we showed that one of these categories is more effective. Then for answering the second question, two issues were considered. The first one was the relation between strategy learning and subject's improvement and the latter was the relation between strategy learning and subject's learning model; which can be model-free or model-based. In order to answer these questions a

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

three step test was designed. In the first step subject's learning model is determined, in the second step subject played "clouds" game, then the most effective strategy was instructed to him verbally and he were asked to play the game again. Strategy is also instructed by using a guide in the game. At last the subject was asked to report his strategy usage. There were also two control groups. One played the game and reported strategies but no new strategy were instructed to them. The other only played the game.

Results : The results show that there were no correlation between subjects' learning model and his strategy use. The subjects' performance who only reported their strategy were significantly better than the group who learned a new strategy.

Conclusion : We concluded that self-awareness of strategies, in short time, is more effective than learning new strategies in attention tasks. In the future, we have to allow longer period of time to learn strategies and compare the results.

Keywords : Strategy, Cognitive game, Attention, Divided Attention, Model-based

Count: 117

Abstract ID: 244

subject: Cognition: Attention

Presentation Type: Oral

Enhancing Divided Attention by Sweeping Binaural Beats

Submission Author: Sajedeh Aghababaei

Ali Davoodi Moghadam¹, Sajedeh Aghababaei², Tirdad Seifi Ala³, Mohammad Ali Ahmadi-Pajouh⁴

1. Department of Biomedical Engineering, Amirkabir University, Tehran, Iran
2. Department of Biomedical Engineering, Amirkabir University, Tehran, Iran
3. Department of Biomedical Engineering, Amirkabir University, Tehran, Iran
4. Department of Biomedical Engineering, Amirkabir University, Tehran, Iran

Background and Aim : Based on the theory that high-frequency oscillations promote alertness and attentional concentration (Vernon, 2009), stimulating the brain in the beta range can enhance the performance of attention. There are various methods for stimulating the brain and one of them is binaural beats which is an auditory stimulation. In binaural beats two sinusoidal tones of different frequency are presented separately to each ear. The difference of the two tones is then created in the brain and is perceived as the third frequency (Chaieb, 2015). Binaural beats have been widely used in clinical applications for numerous aims, but the innovation of this study is to try to observe the impact of binaural beats with a sweeping frequency in the beta range. It means the difference between the two tones are not fixed throughout the stimulation and it is constantly changing as the time progresses. Because the beta range is considered to contain a vast range of frequencies (between 13 – 30 Hz), the idea of sweeping frequency sounds adequate for this brain waveform.

Methods : Twenty-four subjects (11 female, 13 male; mean age of 18 years old) participated voluntarily in this study. Written informed consent was obtained from all the subjects. In the designed game, subjects were shown a series of pictures of hand. They needed to decide whether those pictures belong to a left or a right hand. There were two types of pictures; some were shown normally while the others were presented in reverse (like a mirror). Responses were made by pressing the “right arrow” or “left arrow” of the QWERTY computer keyboard. After the participants practiced the game in the learning section, they were asked to close their eyes for 3 minutes. During this period a voice was presented to them through an in-ear headphone. For

control group (12 subjects) the voice consisted of a single 260 Hz tone (L = 260 Hz, R = 260 Hz), and for stimulation group (12 subjects) the voice consisted of binaural beats (L = 260 Hz, R = 275 – 290 Hz). After 3 minutes of listening to the voice with closed eyes, the participants were informed to play the game, while the voice was still on. The accuracy of their answers was calculated as the outcome of the game. Independent t-test method was conducted for statistical analyzing of the data.

Results : The results of independent t-test revealed significant increase in the accuracy of the participants in the divided attention task in binaural beats group ($m = 84.83$; $SD = 18.31$) compared to control group ($m = 65.76$; $SD = 25.18$); $t(23) = 2.148$ $p = 0.042$.

Conclusion : By taking a glance at previous studies, the same conclusion had been observed that beta-frequency associate with increased concentration and attention (Egner, 2004). Based on the results of this study, it can be declared that exposure of binaural beats in beta range is indeed capable of enhancing divided attention of the brain. This achievement can be used for clinical treatments and help patients who have problems with concentration and attention.

Keywords : Binaural Beats; Divided Attention; Beta Band

Count: 118

Abstract ID: 393

subject: Cognition: Attention

Presentation Type: Oral

The efficacy of neurocognitive rehabilitation for patients after coronary artery bypass graft (CABG) surgery

Submission Author: Simin Sadat Ajtahed

Simin Sadat Ajtahed¹, Hamed Ekhtiari², Soraya Etemadi³, Mojtaba Habibi⁴, Tara Rezapour⁵

1. Department of psychology and Education , Faculty of Management, Farabi Campus, University of Tehran Iran
2. Iran University of Medical Sciences, Iran
3. Department of psychology and Education , Faculty of Management, Farabi Campus, University of Tehran Iran
4. School of Behavioral Sciences & mental health, Iran Institute of Psychiatry, Iran
5. Institute for Cognitive Science Studies, Iran

Background and Aim : CABG surgery is a common and generally successful method of treatment of coronary artery disease. Cognitive deficit such as deterioration in memory, attention, and visuo-spatial ability occurs in 53% of patients after CABG surgery. In fact, memory and attention deficits are frequent after the CABG surgery. Cognitive rehabilitation is used to rehabilitate thinking skills (e.g., attention, memory) impaired. This is the first study in Iran that has been conducted with the aim of cognitive rehabilitation by a computerized training in patients after CABG surgery.

Methods : In this experimental study, a randomized controlled trial with pre-test and post-test assessments in experimental and control (no intervention) groups were conducted. In this clinical trial, 50 patients aged 40-80 years after CABG surgery were selected by convenience sampling among patients who underwent post CABG rehabilitation at the Tehran Heart Center. They were randomly assigned to experimental (n=25) and control (n=25) groups. All participants completed assessments including the test of Continuous Performance, the test of Flanker, the test of Useful Field Of view, and the test of Digit Span at two time points: pre and post intervention. Experimental group participants received Maghzineh® Attention computerized training for neurocognitive rehabilitation and control group did not receive any cognitive computerized training program. The data were analyzed by one-way analysis of covariance (ANCOVA).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : ANCOVA revealed that the selective, focused and divided attention and working memory of experimental group patients after cognitive computerized training in comparison to control group significantly increased (respectively, $F=11.18$ $P<0.01$; $F=2.59$ $P<0.01$; $F=12.74$ $P<0.01$; $F=16.05$ $P<0.01$).

Conclusion : The results show that attention and working memory computerized training leads to significant improvement in the cognitive domain that was trained. In other word, patients after CABG surgery can benefit from a computerized training to increase cognitive function.

Keywords : neurocognitive rehabilitation; coronary artery bypass graft surgery; attention; working memory

Count: 119

Abstract ID: 770

subject: Cognition: Attention

Presentation Type: Oral

Cross frequency coupling measures for feature extraction in a color discrimination task

Submission Author: Saeideh Davoodi

Saeideh Davoodi¹, Mohammad Reza Daliri²

1. master of science
2. associated professor

Background and Aim : Visual attention refers to an ability to selectively process the relevant events in the visual surrounding and ignore irrelevant events. In a visual discrimination task, it is required to omit specific features of an object to recognize it [1]. A method that is extensively mentioned in recent decades for information encoding is cross frequency coupling (CFC) which implies to the interaction between frequency components of signals [2]. Different types of CFC have been defined and reported in cognitive tasks but the role of CFC in encoding of information in visual attention tasks was poorly investigated. In this study, we extracted CFC measures, amplitude-amplitude coupling (AAC), phase-phase coupling (PPC) and phase-amplitude coupling (PAC) from Electroencephalography (EEG) signals in a color discrimination task. The machine learning algorithm, support vector machine (SVM), were used to find out whether these CFC measures can distinguish two different color in the mentioned task or not.

Methods : In the first step, We collected 24-channel scalp Electroencephalography (EEG) signals from 15 healthy volunteers (5 female and 10 male, age range 24-30, mean age:27±2.1 SD), while performing a color discrimination task. The raw data were recorded with sampling rate of 250 Hz. The signals were decomposed into different frequency bands in order to extract instantaneous amplitude and phase and calculate the CFC measures as inputs for support vector machine (SVM) classifier. The proper features were selected using test criterion. Then SVM method used to classify two different states in color task from selected feature vectors.

Results : The results show that amplitude-amplitude coupling can provide more information in color discrimination compared to phase-amplitude and phase-phase coupling, by classification

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

performance of 86.76% against 75.55% and 72.5% for phase–amplitude and phase–phase coupling, respectively.

Conclusion : We can conclude that cross frequency coupling measures contain useful information about visual attention tasks and can use in decoding these tasks.

Keywords : color discrimination task, cross frequency coupling, support vector machine

Count: 120

Abstract ID: 157

subject: Cognition: Attention

Presentation Type: Oral

Study of Balance Exercises on Balance Performance and Attention in the Children with Hearing Deficits

Submission Author: Mohammad Hedayatjoo

Mohammad Hedayatjoo¹, Mehdi Rezaee², Mehdi alizadeh zarei³, Navid Mirzakhani⁴, Amad Reza Nazeri⁵, Alireza Akbarzadeh Baghban⁶

1. Phd student of Cognitive Neuroscience. Institute for Cognitive Science Studies. Thran.Iran
2. Phd, Assistant professor in occupational therapy, School of Rehabilitation, Shahid Beheshti University of Medical Science, Tehran, Iran
3. faculty member of School of Rehabilitation Science, Iran University of Medical Sciences, Tehran, Iran
4. Navid Mirzakhani. School of Rehabilitation, Shahid Beheshti University of Medical Science, Tehran, Iran
5. Dr Ahmad Reza Nazeri Assistant professor of Audiology, Audiology Department, School of Rehabilitation Sciences, Shahid Beheshti Medical University
6. Phd, Professor of Biostatistics, Proteomics Research Centure, School of Rehabilitation, Shahid Beheshti University of Medical Science, Tehran, Iran

Background and Aim : Studies indicated that balance disorder and weak postural control were likely in the children with severe to profound hearing deficits. Deaf children also indicate the behavioral problems related to impulse control, distraction, and disability to maintain attention in visual modality. This study, therefore, aims to investigate the effect of balance exercises on balance performance and attention in the children with hearing deficits.

Methods : In this experimental interventional study, 36 children aged 7 to 12 years with severe to profound hearing deficits were randomly assigned to two control and experimental groups. The experimental group performed a 12-session balance and vestibular sensory, motor exercise program. Assessments were performed as pretest and posttest by balance substest of Bruininks-oseretsky Test of Motor Proficiency and Continuous Performance Test, and mean obtained scores were compared between pretest and posttest phases and also between control and experimental groups by SPSS 23 Software.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results indicated that there was a significant difference between control and experimental groups in difference of posttest and pretest scores in balance subtest of Bruininks Ozeretski Test ($p < 0.001$) and Continuous Performance Test ($p < 0.05$) in the deaf children.

Conclusion : Subsequently, it can be concluded that balance vestibular sensory, motor exercise program can simultaneously affect balance performance and attention in the deaf children.

Keywords : Hearing Deficite; Balance; Attention

Count: 121

Abstract ID: 260

subject: Cognition: Attention

Presentation Type: Oral

EEG oscillations during visual processing task are different in expert and non-expert subjects

Submission Author: Davoud Nouri

Davoud Nouri¹, Mohamad Naseh Talebi²

1. Shahid Beheshti University
2. Institute for Cognitive Science Studies

Background and Aim : Systems and cognitive neuroscience aim at understanding the neurophysiological mechanisms that underlie cognition and behavior. One way of understanding these mechanisms is to study brain signals. There is mounting evidence that cortical fluctuations in specific frequency bands reflect specific functional states of neural networks. Cortical activities responding to visual stimuli in occipital lobe play a major role in visual perception and awareness. In occipital lobe, amplitude suppressions in the alpha and beta frequency bands both contributed to attention and perceptual improvement.

Methods : EEG signals were obtained with 64 channels to study the brain frequency modulations while expert (logo designer) and non-expert subjects were viewing the logo of the electronic devices including Apple, Sony, Xvision, Huawei and LG appearing on the screen. To measure the cortical activity and behavioral response time, twenty healthy subjects (25-56 years old, 10 subjects for each) participated in our experiment.

Results : In the expert subjects, the early modulations of mean power in occipital lobe began around 100 ms at the initial recordings of representing logo stimuli that show an increased power spectrum at low-frequency oscillations (theta and alpha bands (4-12 Hz), $p < 0.01$). A significant relationship was found between the expert response time and the suppression of the alpha and beta frequencies. Our results also demonstrated that the amplitude of mean power had a negative correlation between occipital and frontal lobes during 50 to 500 ms of stimuli, which importantly was different in experts than non-experts ($r_s = -0.91$ and $r_s = -0.82$; $p < 0.05$, respectively, Spearman's correlation).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : We conclude from our primary results that expert and non-expert subjects are differently processing the information expert subjects need more time to make the decision for choosing the preferred logos than non-experts (Mean_expert = 20.8 ± 1.1 ; Mean_(non-expert)= 1.7 ± 0.6).

Keywords : EEG, Brain oscillations, Brain Connectivity, Expert and Non-Expert Subjects

Count: 122

Abstract ID: 762

subject: Cognition: Attention

Presentation Type: Oral

Image classification using eye movement patterns of a monkey

Submission Author: Parvaneh Salami

Parvaneh Salami¹, Mohammadreza Daliri²

1. MSc. Student
2. Associate Professor

Background and Aim : The way the visual information is acquired, represented and stored is critical in perception and cognition studies. Many studies have shown that visual system makes extensive use of contextual information for facilitating search in natural scenes. Thus, the eye movement dynamics are dependent on the scene type viewed in a free viewing task. The use of eye tracking studies increased as it can provide information about how attention is guided in the natural world. Studies of eye movements provide a valuable opportunity to investigate the brain mechanisms. Primates perform eye movements toward different location in a natural scene for perception of a visual scene. Analyzing the eye movements contains useful information about the subject's cognitive state. Therefore, the information in the scan path provides an understanding in the way primates explore visual contents in a scene. In this paper, we used monkey's eye movement parameters to distinguish images with two different semantics categories.

Methods : Eye movements of a monkey subject were recorded using an infrared video-based eye tracker system. The monkey was placed in a primate chair, 55 cm from the monitor with the camera being in front. The data recorded while the monkey freely viewed 56 images (28 in each category 'Monkey' and 'Fruit') presented in 7 sessions. The system was set using sampling rate of 500 Hz, in a monocular (left eye) Pupil-CR recording mode. A reward system was positioned in front of the monkey's mouth. After each fixation performed by the monkey, a grape juice reward was delivered for 100 ms (about 5 drops of juice). In order to explore the role of eye movement parameters on different semantic image categories, the low-level image features such as luminance, spatial frequency and edge density parameters were controlled. No statistical differences appeared regard mean of the parameters in the two image categories (using two-tale t-test). The fixation and saccade information were derived from the recorded eye movements. The parameters related to the pattern of monkey's eye movements were compared between the two

image categories. Finally, image categorization was performed using the extracted eye movement parameters by using SVM (RBF & Linear kernel), KNN (K=3) and naïve Bayes classifiers.

Results : The mean value of each parameter was calculated for each category. Using Wilcoxon rank-sum test ($P < 0.05$), the results demonstrate that the mean values of the following parameters; fixation locations (Y-Direction: $p = 1.07 \times 10^{-19}$), fixation duration ($p = 0.001$), fixation scattering in X ($p = 0.006$), saccade amplitude ($p = 0.02$) and saccade duration ($p = 7.66 \times 10^{-19}$) are significantly different in the image categories. The average classification's accuracy are as follows: SVM (Linear kernel)=84%, SVM (RBF kernel)=85.8% ,KNN =84.9% and Naïve Bayes = 79.5%.

Conclusion : Eye movements of a monkey were recorded while freely viewing two different image categories 'Monkey' and 'Fruit'. The results indicate that the pattern of the monkey's eye movements (parameters of fixations and saccades) differ significantly between the two categories. In other words, the presented two image categories can be distinguished using monkey's eye movement.

Keywords : eye tracking; eye movement pattern; image classification; semantic categories

Count: 123

Abstract ID: 124

subject: Cognition: Attention

Presentation Type: Poster

Predicting of PTSD in firefighters based on cognitive factors analysis

Submission Author: Raana Shavaran

Raana Shavaran¹, Dr Maahgol Tavakoli²

1. University of Isfahan, MA in psychology
2. Faculty member of University of Isfahan

Background and Aim : Exposure to trauma is a major causative agent in the appearance of Posttraumatic stress disorder. Research finding from criminal police officers, emergency nurses and firefighters have shown that in such jobs, most people because of confrontation with the sources of stress as dangerous events, more experience Posttraumatic stress disorder. The main objective of this study was to analyze the cognitive performance including attention, executive function and working memory in the prediction of PTSD in the firefighters.

Methods : The research method was descriptive and causal comparative and Statistical Society was consisted of all firefighters in Isfahan in July to October 1395. Sample of this study included 20 firefighters with posttraumatic stress disorder and 20 firefighters were unaffected were selected by random sampling, cluster. The measuring tools of this study was CTT, the Tower of London and subscales of the Wechsler memory in order to measure attention, executive function and working memory has been. After completed and collected questionnaire, evaluated data by SPSS 22 application and were analyzed by the correlation coefficient, Shapiro Wilk, lambda Wilks, Levin, multivariate analysis of variance and U-Mann Whitney U tests.

Results : The results showed that there are significant differences between the scores of cognitive performance in firefighter with PTSD and firefighter Without PTSD ($P < 0/01$).

Conclusion : The results of this study showed, firefighters with PTSD was weaken rather than firefighter without PTSD in attention practice. Therefore, according to available finding, it is conclude the disturbance in cognitive performance in firefighter with posttraumatic stress disorder is more than in firefighters without posttraumatic stress disorder that was caused problems in these people.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Firefighter, Posttraumatic Disorder, Cognitive Performance, Attention, Executive Function, Working Memory

Count: 124

Abstract ID: 526

subject: Cognition: Neurolinguistics

Presentation Type: Oral

Comparison of semantic processing in patients with left temporoparietal damages with normal adults

Submission Author: Negin Borjian boroujeni

Negin Borjian boroujeni¹, fariba yadegari², mehdi alizadeh zarei³

1. University of Social Welfare and Rehabilitation Sciences
2. faculty member of school of rehabilitation sciences, University of Social Welfare and Rehabilitation Sciences
3. faculty member of school of rehabilitation sciences, iran university of medical sciences, tehran, iran

Background and Aim : The semantics is a part of language that make relations between words and sentences with objects and phenomena, and also impact the internal relations of the linguistic elements. Semantic system is central for all language aspects and contributes to the comprehension and expression, whether verbally or in visual form. in traditional view of the relationship between language and the brain, left hemisphere is the dominant for processing of various language information, including semantic information. The distinction between syntactic and semantic information in linguistics functions has led to developing of specialized semantic and syntactic tests. The impairment of semantic system caused by various types of brain damage, including aphasia due to stroke, plays an important roles in dropping linguistic performance in comprehension and expression modalities. The aim of this study was to investigate the impairments of semantic system in a Persian -speaking Aphasic patients.

Methods : In this cross-sectional and descriptive-analytical study, 39 subjects including 13 patients with left temporoparietal impairment (7 males and 6 females with a mean age of 53.26 years) and 26 normal adults (14 males and 12 females with a mean age of 54.19 years) participated. in this study we use pyramids and palm trees (visual and verbal versions), concrete and abstract word synonym test, and six semantic subtest of bilingual aphasia test. One-way ANOVA, independent t-test and Bonferroni's post hoc test with SPSS software version 21 were used to analyze the data .

Basic and Clinical 6th NEUROSCIENCE Congress 2017

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results of this study showed that subjects with left hemisphere damage had a lower performance in the concrete ($p < 0.001$) and abstract ($p < 0.001$) word synonym test. In the verbal version of pyramids and palm trees, the aphasic patients' had significantly lower scores than normal subjects ($p < 0.05$), while in the visual version, there was no difference between two groups ($p = 0.08$). Aphasic patients had a significant loss of performance in the sub scales of synonyms words, antonyms 1, semantic acceptability, semantic opposites in bilingual language test, compared to normal subjects ($p < 0.05$). There were no significant differences between two groups in antonyms 2, semantic category, and semantic opposites ($p = 0.06$).

Conclusion : In the present study the aphasia patients show impairment in their semantic system. These damages are not similar and some semantic domains and some semantic access modalities are intact. It seems that the present research supports the theory of the left hemisphere dominance in semantic processing, but semantic subunits require further research in Persian language.

Keywords : aphasia, semantic, left hemisphere

Count: 125

Abstract ID: 606

subject: Cognition: Neurolinguistics

Presentation Type: Oral

The Effectiveness Of Teaching Persian language By Melodic Intonation Therapy (MIT) On 7-10-Year Persian Autistic Children's Speech

Submission Author: Negin Iravani

Negin Iravani¹, Neda Ferdosi², Maryam Ghorbani³

1. M.A In Teaching Persian Language, Payame Noor University, Isfahan, Iran.
2. PhD of Linguistic, Lecturer, Center for Postgraduate Studies, Payame Noor University, Isfahan, Iran.
3. Assistant Professor in Psychology, Payam Noor Unaversity, Tehran, Iran

Background and Aim : Autism is a developmental disorder of brain which characterized by difficulties in social intraction, verbal communication, and cognition. In spite of several problems in autistic children's speech, there are a few reliable interventions that can produce improvements in speech output. Melodical Intonation Therapy (MIT) based on Albert et al's model, 1973) is rehabilitation method of non-fluent or Broca's aphasia, characterized by short, intoned phrases, presented in a hierarchically program developed on prosodic features. This method was designed by Ferdosi et al for Persian language and implemented on autistic boys. The purpose of this study was to investigation of this method on persian language female autistic children.

Methods : 4 subjects (verbal) were selected for the main study by available sampling method, The subjects were all autistic, female, right-handed 7-10 year old, Persian children who have been studied for 45 sessions (9 weeks) in Isfahan Ordibehesht Autism Center. Background information was gathered by questionnaire based on parent's or instructor's answers. Then children's speech sounds were recorded in natural linguistic context such as free conversation and story retelling and describing colored pictures. Then children's speech sounds were recorded in natural linguistic context such as free conversation. As pretest and post-test, some assessments were accomplished, such as NEWSHA; Persian developmental scale which is used for assessing the speech and expressive and receptive language skills, Also to investigate the quality of speech, MLU (Mean Length of Utterance), speech rate, The number of verbs were assessed after phonetic transcription. Finally, data analysis was accomplished by using SPSS statistics software.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results of the analysis could be presented as follows, There was a statically significant increase in MLU ($p<0/04$), speech rate ($p<0/005$, the number of verbs in sentences ($p<0/001$) after MIT. Besides, in NEWSHA; Persian developmental scale, there was an obvious improvement in speech skills, expressive language skills and Receptive language skills after MIT.

Conclusion : The widely reported unusual speech an autistic children has been quantified by the finding of the present study. It shows that there is convincing evidence of the positive effects of melodic intonation therapy on linguistic features in the Persian autistic female children. So it is strongly recommended as a supplementary method in the rehabilitation of autistic female children's speech.

Keywords : Melodic Intonation Thrapy, Autism, Neuro Psycholinguistics Persian Language Teaching

Count: 126

Abstract ID: 539

subject: Cognition: Neurolinguistics

Presentation Type: Poster

Toward Implicit Syntactic Development: A Study of Motivation Role in EFL Classrooms

Submission Author: Amirabbas Rafiee fazel

Amirabbas Rafiee fazel¹, Mehdi Latifi², Raouf Moini³

1. University of Kashan- Faculty of Literature and Foreign Languages- English Department
2. University of Kashan- Faculty of Literature and Foreign Languages- English Department
3. University of Kashan- Faculty of Literature and Foreign Languages- English Department

Background and Aim : Individual differences in second language (L2) acquisition may be best explained by varying degrees of motivation among learners. Although ample evidence suggests a strong association between motivation and L2 achievement (Dörnyei, 1998), few studies have so far investigated the underlying influence of motivational dimensions, namely novelty, pleasantness, goal/need significance, coping potential, and self/social image in learning process. This study aimed at investigating whether individual differences in the above-mentioned dimensions explained implicit syntactic knowledge at different stages of L2 acquisition.

Methods : To this end, twenty-five English as a Foreign Language (EFL) learners were exposed to three syntactic structures under implicit and explicit training conditions. They also completed two motivation questionnaires, namely Attitudes/Motivation Test Battery and Possible Selves Questionnaire before instruction. Syntactic development was then assessed by Timed grammaticality judgment tasks (using DMDX software) at early and late stages of acquisition.

Results : Our results revealed that motivation had only a limited role in participants' performance on the tests of implicit knowledge on the posttest. However, with the significant improvement of implicit knowledge at delayed testing, positive relationships emerged with several motivational dimensions, particularly self-image and coping potential appraisals. These results support theoretical perspectives of adult L2 acquisition that posit different roles for explicit and implicit knowledge at early and late stages of L2 grammar, respectively.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Overall, the findings suggest that time and learners' proficiency level seem to be among the most important factors for motivational dimensions to implicate the improvement of implicit knowledge, and that variation in learners' patterns of stimulus appraisals may contribute to the variable success in the development of implicit syntactic knowledge in L2 acquisition.

Keywords : motivation; syntax; implicit knowledge; EFL classrooms

Count: 127

Abstract ID: 286

subject: Cognition: Other

Presentation Type: Poster

Effects of postural corrective exercise on neurocognitive parameters in female with forward head posture

Submission Author: Zahra Abdollahzade

Zahra Abdollahzade¹

1. MSc student of rehabilitation of Tehran university of medical science

Background and Aim : This study aimed to investigate the effects of postural corrective exercise on neurocognitive measurements including visual choice reaction time, auditory choice reaction time, visual complex choice reaction time, auditory complex choice reaction time, anticipatory skill of the high speed and low speed of the ball in college-aged females with forward head posture

Methods : Twenty female students with forward head posture (craniocervical angle less than or equal to 50deg) were selected. Subjects performed forward head posture corrective exercise within 4 weeks. The craniocervical angle and neurocognitive measurements (as mentioned above) were measured before and after intervention. The neurocognitive tests were evaluated by speed anticipation and reaction tester (SART) software.

Results : After intervention, the mean of craniocervical angle, visual choice reaction time, auditory choice reaction time and visual complex choice reaction time were significantly decreased ($p < 0.05$). However, the results showed no correlation between craniocervical angle and neurocognitive measurements ($p > 0.05$).

Conclusion : Postural corrective exercise may have positive effects on postural alignment related to forward head posture and neurocognitive measurements.

Keywords : forward head posture, exercise, neurocognition, reaction time

Count: 128

Abstract ID: 58

subject: Cognition: Other

Presentation Type: Oral

The complexity of simple counting: ERP findings reveal early perceptual and late numerical processes in different arrangements

Submission Author: Shadi Akbari

Shadi Akbari¹, Hans Christoph Nuerk², Mojtaba Soltanlou³, Hassan Sabourimoghaddam⁴, Hartmut Leuthold⁵

1. PhD of cognitive neuroscience
2. Department of Psychology, University of Tuebingen, Tuebingen, Germany
3. Department of Psychology, University of Tuebingen, Tuebingen, Germany
4. Cognitive Neuroscience Lab, Department of Psychology, University of Tabriz, Tabriz, Iran
5. Department of Psychology, University of Tuebingen, Tuebingen, Germany

Background and Aim : Counting performance is influenced by visual characteristics of the sets counted. This suggests that counting is not a skill independent of perceptual characteristics and resulting strategies. Thus the counting process can only be fully understood when taking into account these visual factors. we aimed to investigate the effect of illusory contour detection on the counting process while other grouping cues like proximity were controlled and dot sparsity did not inspire the numerosity of sets.

Methods : Adult participants (N=37) enumerated dots (8-12) in irregular and two different types of regular arrangements which differed in the shape of their illusory dot lattices. we recorded behavioral data as well as event-related brain potentials (ERPs) evoked by unattended arrangement changes during an exact enumeration task.

Results : Enumeration speed was affected by both arrangement and magnitude. Arrangement fluctuations elicited significant difference over an early ERP negativity peaking at about 270 ms after stimulus onset, whereas numerosity only affected late processing (>300 ms). We also observed that without perceptual cues for magnitude, it is constructed at a later stage of cognitive processing.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : We suggest that chunking is a prerequisite for more fluent counting which influences automatic processing (<300 ms) during enumeration. We conclude that the counting procedure of exact enumeration depends on the interaction of several perceptual and numerical processes that are influenced by magnitude and arrangement, such as sequential addition of chunked dot numerosities.

Keywords : enumeration, arrangement, numerosity, subitizing, grouping, ERP

Count: 129

Abstract ID: 701

subject: Cognition: Other

Presentation Type: Poster

A systematic study of the effects of psychological interventions on improving the quality of life and improving the mental health of patients with Parkinson's, chronic and MS

Submission Author: Mehri Amiri

Mehri Amiri¹

1. The Welfare Organization

Background and Aim : Introduction: In recently decade we have increases people who suffering from chronic disease, psychosomatic and Parkinson.They are sever affect on mental function and social performance of patients and their family and they are confronting with a lot of economical and social problem and they affection healthy and physical, mental and social dimension of them. These disease have effect on perception of them too. So it can effect on self – confident of patients and consequence of disease. Background and aim: The purpose of this research is chiking the research that they investigate about the effect of psychological factors on perception of patient who suffer from Parkinson and M.S.

Methods : They use systematic method in checking and they of library method in order to research the article that thay are about related between the physically interval in better perception of patient from his/ her life and increase the mental healthy

Results : According this research interval psychology and social protection , cognitive , treatment, treaning, increasing of self- confidence , positive image og himself, omtimism, positive perception of patient from him/ her and decrise effect of heart deasis and improve chyche, social healthy and their family. Improve relationship with the other, self – stimulation , and decrease hygiene problem in Parkinson. Chronical , M.S and effects

Conclusion : : on base of his research , systematic pshychology interval with physical , phcycho social healthy an patient and effect and their healthy

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Psychological interventions, mental health, social health, quality of life, self esteem

Count: 130

Abstract ID: 721

subject: Cognition: Other

Presentation Type: Poster

EEG alpha waves synchronization of Brain hemispheres in divergent thinking

Submission Author: Emad Azar

Emad Azar¹, Saiedeh Khosravi², Dr. Imanollah Bigdeli³

1. graduated cognitive science of Ferdowsi university of mashhad
2. graduated cognitive science of Ferdowsi university of mashhad
3. Professor Department of Clinical Psychology, Faculty of Education and Psychology

Background and Aim : : Neuroscientific approaches to the study of creativity, which is commonly defined as the ability to produce work that is both novel and useful within a certain social context. The distinction between convergent and divergent cognitive processes given by Guilford (1956) had a strong influence on the empirical research on creative thinking. Neuroscientific studies typically find higher event-related synchronization in the EEG alpha rhythm for individuals engaged in creative ideation tasks compared to intelligence-related tasks. As nicely delineated in recent reviews of relevant neuroimaging studies in the burgeoning field of creativity, brain activity has been investigated in response to divergent (as opposed to convergent) thinking, during insightful problem solving or the subjective experience of “AHA! Brain correlates underlying different facets of creative cognition have mostly been investigated in employing EEG techniques. Meanwhile, the particular role of EEG alpha activity in the context of creative cognition has been corroborated in a series of studies employing a broad range of different creativity-related task demands. Furthermore, neuroscientific studies in this research field emphasized the particular role of brain hemispheres in the context of creative cognition. Relevant literature in this field of research suggests that during mentally performing of divergent thinking task were observed significant differences in right hemispheric alpha synchronization. We hypothesize that divergent task processing in both divergent thinking tasks should be accompanied by stronger synchronization of alpha power in right hemisphere rather than left.

Methods : thirty-six undergraduate students of Ferdowsi University of Mashhad (n=18 male; n=18 female) in accordance to the available sampling and voluntary participating, by the use of Handedness Questionnaire, were chosen. These participants had no brain diseases, disorders, and

no history of drug addiction and no history of psychiatric drug use. In order to measure divergent thinking, we have used alternative uses tasks. In the second divergent task, the participants solved the following problem: there are hundreds of poisonous snakes in a zoo. How will it possible to measure the lengths of each snake. The EEG was measured (Mitsar amplifier) by means of silver electrodes located in an electrode cap in 19 positions according to the international 10–20 system. The EEG signals were filtered between 0.1 Hz and 100 Hz; an additional 50 Hz notch filter was applied to avoid power line contamination. Electrode impedances were kept below 5 k Ω for the EEG. In order to test potential differences in task-related alpha (de-)synchronization during the performance of experimental tasks, we used dependent t-test

Results : the findings of this study are indicative There is no significant difference between activation of alpha waves in right and left hemisphere. So that in both of hemisphere was observed to increase the activity of alpha waves (synchronization).

Conclusion : according to these findings, it can be concluded that the difference between the alpha waves in both hemispheres was insignificant.

Keywords : alpha wave, synchronization , Brain hemispheres, divergent thinking

Count: 131

Abstract ID: 650

subject: Cognition: Other

Presentation Type: Oral

Cognitive Assessment in the Air Force Pilot Cadets

Submission Author: Ahmad Ebadi

Ahmad Ebadi¹

1. Assistant professor of defence medicine. Research center of health. Chamran hospital. Tehran. Iran

Background and Aim : A complex task as Air Force pilot needs to many factors like physical fitness, personality traits, cognitive abilities, spiritual power, special knowledge and functional expertise. From these fields cognitive abilities such as perception , attention , memory and executive functions are very important in the flight performance and doing a complete Air Force mission and indeed assessment of this abilities is a base in Air Force Pilot Cadets selection and education.

Methods : In this study we evaluate articles, books and special sites in the cognitive assessment of United states Air Force(USAF) and other countries years between 2000-2017.

Results : The USAF uses computerized cognitive tasks with self-contained presented style for Cognitive Assessment in the Air Force Pilot Cadets that have 100 hours flight training. These test composed of backward digit span, math, visual sequence comparison, symbol digit coding, matching to sample, manikin, divided attention, auditory sequence comparison, pathfinder, shifting attention and dual task.

Conclusion : we propose use of these programs that have normalized with Iranian Air Force(IAF) cadets for cognitive assessment and make a feature for cognitive promotion tasks in the IAF.

Keywords : Cognitive assessment; Air Force; Pilot cadets

Count: 132

Abstract ID: 67

subject: Cognition: Other

Presentation Type: Oral

Estimation of long duration is related to EEG beta power

Submission Author: Amirhosein Ghaderi

Amirhosein Ghaderi¹, Shadi Moradkhani², Arvin Haghghat Fard³, Fatemeh Akrami⁴,
Mohammad Ali Nazari⁵

1. EEG and ERP Lab., University of Tabriz, Tabriz, Iran
2. Department of physics, Amirkabir University of Technology, Tehran, Iran
3. Department of biology, science and research branch, Islamic Azad University, Tehran, Iran
4. School of health management and information science, Iran University of Medical Sciences, Tehran, Iran
5. Cognitive Neuroscience Lab., Department of psychology, University of Tabriz, Tabriz, Iran

Background and Aim : Time perception during long term durations have not been sufficiently investigated by electrophysiological methods. Recently the role of beta wave has been considered in relation to time perception. The role of basal ganglia in beta oscillation generation has also been demonstrated. But the role of this wave has not been considered at long term durations. It is shown that, beta power at central area (motor beta) has inverse relation with activity of basal ganglia-thalamocortical pathway. Since basal ganglia-thalamocortical pathway plays the role of pacemaker at internal clock model, it seems that hyperactivity of central beta is associated with underestimation of time.

Methods : Participants were 33 healthy subjects and according to their estimation of time, they were divided into two groups: overestimation and underestimation. A mindfulness task was performed and time estimation during mindfulness was investigated. Spectral analysis of EEG signals was performed in the standard bands at 19 electrodes and seven sensory-motor activity related electrodes (F3, F4, Fz, C3, C4, Cz, Pz) were investigated. Repeated measure analysis of variance (ANOVA) was used to statistical analysis for four separated beta sub-bands.

Results : The results show significant differences of beta3 (18-25) and high beta (25-30 Hz) absolute powers at Fz, C3, C4, Cz and Pz. In these, the underestimation group exhibits higher value of beta power than the overestimation group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The results may discuss in the context of internal clock model and scalar timing theory. As assumed in the internal clock model (Meck, 1996), lower activity of basal ganglia-thalamocortical pathway cause to underestimation of durations. On the other hand, excess activity of beta may be associated with decreased activity of basal ganglia-thalamocortical pathway (Pfurtscheller, 1981). Therefore in the range of long term duration, the results suggest internal clock model as a valid model for explaining time estimation.

Keywords : Long term duration, quantitative electroencephalography, beta wave, internal clock, mindfulness

Count: 133

Abstract ID: 584

subject: Cognition: Other

Presentation Type: Oral

Behavioral Intervention Aimed at Reducing Urban Residential Water Consumption Through Biophilic Design for Sustainable Behavior

Submission Author: Amanollah Golshan

Amanollah Golshan¹, Ahad Shahhosseini², Seyyedeh Nazanin Hajjari³

1. Industrial Design Graduate, Faculty of Industrial Design, Tabriz Islamic Arts University, Tabriz, Iran
2. Energy and Architecture PhD, Sapienza University of Rome, Associate Professor, Faculty of Industrial Design, Tabriz Islamic Arts University, Tabriz, Iran
3. Neuroscience PhD student, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : Unrestrained consumption of water resources in arid and semiarid regions, such as Iran, has induced multiple ecological crises most notably the approximate desiccation of Lake Urmia. Total drying up of Lake Urmia will bring on a plethora of predicaments in the adjacent regions, including interruption of agrarian activities and displacement of a ballpark figure of 5 million individuals. Investigation of contributing factors, throughout the current and prior researches, unveils unsustainable consumption behavior as the primary culprit. Implementation of behavioral interventions in industrial design is best reflected in the burgeoning field of Design for Sustainable Behavior (DFSB). In the present study, DFSB is combined with biophilic theory, an approach resorting to “love of life”, i.e. emotional, cognitive, and subliminal determinants in user behavior, in order to enhance ecological awareness and bring forth sustainable consumption.

Methods : 60 participants, from 21 urban households dwelling in Urmia, northwestern Iran, were selected to take part in the study. Amotivation Towards the Environment Scale (AMTES) was modified in accordance with the state of affairs in Lake Urmia. The sample group took the modified AMTES. Taking into account prior researches, behavioral intervention in the current study pivoted around Festinger’s “Theory of Cognitive Dissonance” (TCD) to steer the residential users into a course of sustainable water consumption. Subsequently, current water consumption behaviors of the sample group were studied in situ employing Fogg’s “Behavior Grid” (BG) method. Findings, accompanied by biophilic considerations, were accordingly implemented in the

ideation process. Four choice concepts were subject to emotional evaluation, using “Emocards” method (EM), following prioritization of initial ideas. In order to shun bias among the sample group, a new group, comprised of 31 individuals, were selected to conduct the EM experiment choosing the final concept. EM is developed based on Russell’s “circumplex model of affect”. Digital representation of each concept was created using Rhino, a CAD tool. Consequently, based on EM experiment findings, final design was developed as a multifaceted solution.

Results : AMTES results corroborate previous findings as regards unsustainable behavior being the most crucial factor in the aforesaid water crisis. The results also provide sidelights concerning local people’s distrust of direct interventions, surprisingly by either the state institutions or NGOs. BG method identified particular unsustainable habits in water consumption routines. Furthermore, it proved to be an effective tool in terms of categorizing and analyzing user behavior in field observations. EM results indicate when a behavioral intervention, such as TCD, is employed, biophilic elements play a substantial role in determining user preferences and achieving design objectives. Finally, in-situ surveys using partial features of the final design attest study postulations regarding reduction of water consumption via behavior change.

Conclusion : This study demonstrates that TCD, as a cognitive approach, is effectively applicable in design process intertwined with DFSB strategies. Moreover, biophilic approach proved to be a determining factor in achieving sustainable behavior change through design. Being the first interdisciplinary research coalescing neurosciences and industrial design as regards sustainable behavior in Iran, this study paved the way for future collaborations between designers and neuroscientists concerning sustainable consumption.

Keywords : design for sustainable behavior; cognitive dissonance; behavioral intervention; biophilic design; water consumption; Lake Urmia

Count: 134

Abstract ID: 558

subject: Cognition: Other

Presentation Type: Poster

Extracting activated regions in obscured timing cognitive tasks in fMRI: application in mental imagery

Submission Author: Sobhan Hemati

Sobhan Hemati¹, Gholam- Ali Hossein-Zadeh²

1. School of Electrical and Computer Engineering, University College of Engineering, University of Tehran
2. School of Electrical and Computer Engineering, University College of Engineering, University of Tehran

Background and Aim : General Linear Model (GLM) is a common approach for recognizing the activated regions in fMRI. In GLM accurate information of task timing is needed to generate the basic regressors for further analysis. In some cognitive tasks (e.g., sound-triggered mental imagery), the exact onset or offset times of brain activity is determined by the internal mechanisms (even with the application of external stimulus). In such conditions, GLM does not provide an accurate detection of activated regions. In this research, we are going to detect the brain activated regions for a visual mental imagery. Due to the above mentioned limitation of GLM we use a data-driven approach for accurate activation detection.

Methods : We used a nonparametric Independent Component Analysis (ICA) on fMRI data of 12 healthy subjects participated in a visual mental imagery task inside MRI scanner. Based on the previous studies visual mental imagery involves ventral stream of visual system, occipito-temporal, and occipito-parietal (dorsal) parts of the brain. Therefore, time series data of occipital, temporal and parietal lobes (involved in mental imagery task) were extracted and used in GIFT software package. Then we compare the reported activated regions using ICA method with GLM results.

Results : After applying ICA algorithm to fMRI data of mentioned the above selected brain regions, we estimated 26 independent spatial components. Our investigations show the time course of one of these components highly correlates with GLM regressor and also the detected activated brain regions using ICA were concrete clusters and consistent with previous works. On the other hand, we observed some differences in the onsets and offsets of ICA time course imagery blocks and preassumed regressor in GLM imagery blocks. These findings show the model is not accurate

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

in cognitive tasks. We also performed used GLM to extract activated brain regions. these These activation maps were sparse and also there are some regions which haven't detected by GLM algorithm suggesting that the GLM algorithm isn't able to extract activated brain regions because of the model inaccuracy.

Conclusion : As mentioned before extracting activated regions during cognitive tasks such as mental imagery is challenging because there is no accurate model for regressors so the model-based methods are not efficient. In this study, we used a data-driven method to extract activated regions during mental imagery and compared the outcomes with GLM results. The results demonstrate the efficiency of the proposed approach compared to GLM.

Keywords : Independent Component Analysis;mental Imagery ; fMRI ; General Linear Model

Count: 135

Abstract ID: 44

subject: Cognition: Other

Presentation Type: Poster

Effects of ultrasound waves on intracellular calcium and reactive oxygen species rates of hippocampal cells during embryonic course in rat

Submission Author: Mohammad Reza Kaffashian

Mohammad Reza Kaffashian¹, Elahe Ranaei², Naser Abbasi³, Ardeshir Moayeri⁴

1. Department of Physiology, Faculty of medicine, Ilam University of Medical Sciences, Ilam, Iran
2. Department of Anatomy, Faculty of medicine, Ilam University of Medical Sciences, Ilam, Iran
3. Department of pharmacology, Faculty of medicine, Ilam University of Medical Sciences, Ilam, Iran
4. Department of Anatomy, Faculty of medicine, Ilam University of Medical Sciences, Ilam, Iran

Background and Aim : Diagnostic ultrasound is an imaging procedure which has a variety of applications including checking fetus during pregnancy. A few studies have shown the effect of therapeutic ultrasound on intracellular calcium ($[Ca^{2+}]_i$) and reactive oxygen species (ROS). We aimed to investigate the effects of diagnostic ultrasound during fetal life on $[Ca^{2+}]_i$ and ROS in rat's hippocampal cells.

Methods : Adult female Wistar rats after mating were divided into six groups as follows: control group, ethanol group (5g/kg), groups which were exposed to diagnostic ultrasound at frequencies of 3 and 5MHz for 10 minutes on the 11-13 days of pregnancy and groups which underwent ultrasound waves accompanied with ethanol on the same term of pregnancy. After delivery, 14-old day rats were anesthetized, hippocampus was isolated, and after cell culture, $[Ca^{2+}]_i$ was measured using the Flou 3-AM besides a Fluorimetry instrument.

Results : The results showed that diagnostic ultrasound of 3 and 5 MHz frequencies increased significantly $[Ca^{2+}]_i$ levels up to 17.8 and 21.8 rates compared to control group. Ultrasound waves of 3 and 5 MHz frequencies increased significantly ROS at 81.18 and 128.51% rates too. Ethanol alone showed no change in the levels of intracellular $[Ca^{2+}]_i$ and ROS.

Conclusion : It is concluded that diagnostic ultrasound waves of 3 and 5MHz frequencies increase the $[Ca^{2+}]_i$ and the rate of ROS.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : hippocampus, intracellular calcium, ultrasound, rat, ROS

Count: 136

Abstract ID: 396

subject: Cognition: Other

Presentation Type: Oral

neural evidence for top-down visual processing

Submission Author: Behnam Karami

Behnam Karami¹, Roxana Koushki², Farideh Shakerian³, Abdol-Hossein Vahabie⁴, Mohammad-Reza A. Dehaqani⁵

1. School of Cognitive Sciences, Institute for Research in Fundamental Sciences, P.O. Box 19395-5746 Tehran, Iran
2. School of Cognitive Sciences, Institute for Research in Fundamental Sciences, P.O. Box 19395-5746 Tehran, Iran
3. School of Cognitive Sciences, Institute for Research in Fundamental Sciences, P.O. Box 19395-5746 Tehran, Iran
4. School of Cognitive Sciences, Institute for Research in Fundamental Sciences, P.O. Box 19395-5746 Tehran, Iran
5. School of Cognitive Sciences, Institute for Research in Fundamental Sciences, P.O. Box 19395-5746 Tehran, Iran

Background and Aim : The inferotemporal (IT) cortex has long been known to serve as the end stage of complex object representation. In contrary to the most common view that these representations are formed via a bottom-up cascade of information in the cortical regions involved in visual signal processing, recent models have highlighted a role for the top-down feedbacks from higher (frontal) stages of processing. According to these models, partially analyzed version of an image (low spatial frequency components) are projected rapidly from early visual areas to prefrontal regions which subsequently are fed-back to IT cortex to activate most likely interpretations of the input image. Although there are several behavioral and imaging studies in the support of this hypothesis, a direct neural evidence from inferotemporal cortex is still lacking.

Methods : To test this hypothesis, we designed an adaptation task. For this purpose, a number of images including faces, bodies, objects and fractals were selected and subdivided into three sets after their filtering conditions: Low Spatial Frequency (LSF) filtered, High Spatial Frequency (HSF) filtered and unfiltered Intact images. low-pass (LSF) and high-pass (HSF) filtering was performed in the corresponding Fourier domain. During the experiment two filtering stimulus conditions were presented in succession each for 100 ms in the center of a screen spanning 5

degrees of visual angle. All permutations of composition of filtering conditions were presented in the randomized order in each block. The stimuli were presented during monkey gaze fixation and activity of the IT cortical neurons were recorded extracellularly. The data were conditioned and stored for further analysis.

Results : In our paradigm, in the pre stimulus time histograms, the early phase (70 to 150 ms from stimulus onset) of evoked response was presumably neural response to the first presented image (prime) in a trial and late phase (250 to 350 ms from stimulus onset) comprises the response to the second image plus adaptive effect of prime. Considering neural data that passed our criterion of responsiveness to all sets of categories and also to the relevant filtered versions, we found that in trials in which the prime images was preserving low spatial frequency components (LSF and intact images), there was substantial increase in the last phase of response comparing to HSF primed trials. This late modulation of response in LSF primed conditions highly propound the role of hypothetical LSF related feedback from higher areas (PFC) to IT cortex.

Conclusion : To date, conventional models of object recognition relied merely on feed-forward information passing along ventral stream to explain emergence of complex object representations in IT cortex and prompted the role of top-down processing although a considerable number of anatomical and imaging studies have affirmed existence of top-down connections from higher cortical regions to IT cortex. Our study shed a new light on mechanistic role of aforementioned top-down signals for evolution of object representations. We hereby propose that adaptation paradigm may be instrumental for untangling probabilistic effects of other cortical regions on the processing of complex objects in IT cortex.

Keywords : feedback; object representation; inferotemporal cortex; top-down; low spatial frequency

Count: 137

Abstract ID: 352

subject: Cognition: Other

Presentation Type: Poster

The Efficacy of Autobiographical Memory Specificity Training (MEST) on Mood in Depressed Girls Student

Submission Author: Zahra Moazzam

Zahra Moazzam¹, Hamidtaher Neshatdoost², Mahgol Tavakoli³

1. University of Isfahan
2. University of Isfahan
3. University of Isfahan

Background and Aim : The purpose of this study was to investigate the effectiveness of autobiographical memory specificity training (MEST) on mood in depressed girls student.

Methods : The research design of the study was semi experimental with one experimental group and one control group and one month follow-up period. To this purpose a number of 30 depressed girls students in Najaf Abad were randomly selected and randomly assigned into two groups (one experimental group and one control group). Selection criterion was receiving a diagnosis of moderate to severe depression based on The Beck Depression Inventory. Mood Affect Questionnaire was completed by all participants. The experimental group received six 90-minute session of autobiographical memory specificity training and the control group received no intervention.

Results : The results showed that autobiographical memory specificity training significantly reduce negative mood of depressed student ($p < 0/01$) but there was no reduction in follow-up session.

Conclusion : Generally it seems that Autobiographical memory specificity training can be considered as a short-term intervention in conjunction with other treatments to improve depression symptoms.

Keywords : Autobiographical Memory Specificity Training; Mood; Depression

Count: 138

Abstract ID: 90

subject: Cognition: Other

Presentation Type: Oral

The effects of exercise on behavioral deficits during the adolescent period of life in ovalbumin sensitized rats

Submission Author: Amin Mokhtari Zaer

Amin Mokhtari Zaer¹, Mahmoud Hoseini², Mohammad Hossein Boskabady³

1. Neurogeneic Inflammation Research Centre and Department of Physiology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Neurogeneic Inflammation Research Centre and Department of Physiology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3. Neurogeneic Inflammation Research Centre and Department of Physiology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : Allergic asthma during early life period associated with neurochemical and behavioral deficits, including anxiety and depression in children and adolescents. We aimed to determine the effect of forced exercise on behavioral deficits in asthmatic juvenile rats.

Methods : Three-week old male Wistar rats were divided into 4 groups: control (non-exercise and non-sensitized), Exe (exercise and non-sensitized); OVA (non-exercised and OVA-sensitized); and OVA + Exe (exercise and OVA-sensitized). Rats were subjected to chronic ovalbumin (OVA) sensitization and to 4 weeks of low exercise training on a treadmill. Elevated plus maze and forced swim test were conducted to evaluate anxiety-like behaviors and depression respectively. Total and differential white blood cell (WBC) count, oxidant, and antioxidant biomarker levels in bronchoalveolar lavage fluid (BALF) and hippocampus were evaluated.

Results : Compared with the control group, OVA group had an increase in numbers of total WBCs, percentages of eosinophil, neutrophils and levels of MDA in BALF and hippocampus. Time in closed arm and immobility time were also increased, but percentages of lymphocyte and monocyte in BALF, levels of SOD, CAT and thiol in BALF and hippocampus, time in open arms, swimming time were decreases in OVA group. Compared with the OVA group, the OVA + Exe group had declined numbers of total WBCs, percentages of eosinophil, neutrophils in BALF, levels of MDA in BALF and hippocampus, time in closed arm, immobility time, but elevated percentages of

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

lymphocyte, monocyte in BALF, levels of SOD, CAT, thiol in BALF and hippocampus, time in open arms, swimming time.

Conclusion : Exercise plays prominent roles in reduction of anxiety-like behaviors and depression in the asthmatic rats. The effects of exercise are mainly mediated by an increase of antioxidant enzyme activity and inflammatory cells. The results suggest that low-intensity aerobic exercise improves the oxidative-antioxidative balance in the early-life OVA-sensitized rats, which may provide a new therapeutic approach for the treatment of mental disorders in asthma.

Keywords : Asthma; Exercise; Depression; Anxiety; Oxidative stress

Count: 139

Abstract ID: 744

subject: Cognition: Other

Presentation Type: Poster

Cognitive rehabilitation for Children with Traumatic Brain Injury: An Updated Literature Review from 2007 to 2017

Submission Author: Sajjad Montazerghaem

Sajjad Montazerghaem¹

1. Cognitive Rehabilitation Department, Institute for Cognitive Science Studies

Background and Aim : Traumatic brain injury (TBI) is a worldwide leading cause of mortality and disability in children. Cognitive deficits are among the most disabling outcomes of TBI, leading to long-term consequences and affecting the child's recovery. One of the most effective intervention used to ameliorate the cognitive impairments is cognitive rehabilitation (CR) which is based on the principles of brain neuroplasticity and cognitive reorganization. The aim of the present article is provide an updated review in the field of using CR for children affected by TBI.

Methods : The literature was reviewed using the PubMed with the terms of attention, learning, cognitive functions, executive, language, memory, perception, problem solving, and reasoning combined with each of the terms rehabilitation and remediation for children with TBI. Papers published online between 2007 and 2017 were selected on the basis of three inclusion criteria: 1) studies of any design focusing on using CR for TBI in children, 2) papers that were written in English, and 3) papers published in peer reviewed journals.

Results : A total of 11 papers which examined the efficacy of CR in children with TBI, were selected. According to this review, applying CR for Children with TBI, using restorative exercises, compensatory and metacognitive strategies shows promising results in ameliorating the cognitive impairments in this group of patients including perception, attention, memory and executive functions. In addition, the enhancing effects of CR is not limited to cognitive function, but also affect their daily life activity specially in the school.

Conclusion : Despite the limited number of studies in this field, this review demonstrates that CR is an effective intervention in improving cognitive and functional outcomes in children with TBI and should be considered as a main supplementary part of standard treatment. Future well-

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

designed clinical trials examined the efficacy of using different models of CRT with follow-up measures could flourish the literature in this field and provide more evidence to clarify the existing gaps.

Keywords : Cognitive rehabilitation; Traumatic Brain Injury; Children; Restorative exercises; Compensatory strategies

Count: 140

Abstract ID: 797

subject: Cognition: Other

Presentation Type: Poster

The efficacy of cognitive Behavioral Therapy of anxiety and attitude perfectionism in Adolescent in the City of Tabriz

Submission Author: Afsaneh Nasirzadegan

Afsaneh Nasirzadegan¹, Shahin Bahreini², Mehdi Ghavidast³, Zohreh Shekar Riz⁴, Maryam Vahedi⁵

1. M.A in General Psychology, Tabriz Branch, Islamic Azad University, Science and Research Branch, Tabriz, Iran, Email: afsane.nasiri@gmail.com
2. M.A in Clinical Psychology, Islamic Azad University, karaj, Iran
3. M.A in Clinical Psychology, Islamic Azad University, Lahijan, Iran
4. M.A in Consultation and guidance, Science and Research Branch of South, Tehran Azad University, Iran
5. M.A in General Psychology, Islamic Azad University, karaj, Iran

Background and Aim : The Purpose of this study was to investigate the effectiveness of cognitive behavior therapy on reducing level of anxiety and attitude perfectionism.

Methods : This is a experimental pre-post study with one experiments and control group. the anxiety and attitude perfectionism scall was administered as pre-post. After the administration and assessment of the scall 28 students who had highest 35 levels. were selected randomaly divided to two groups. the experimental and control group .each in claded 15 student. cognitive behavior techniquis were applied to the experimental group in 8 session .No application has been done to the control group. After the group end. the anxiety and Dysfunctional Attitude scall was read ministered to all group as post test. Also finding were analyse with ancova and (t) Discrepancy scores.

Results : The result revealed that the cognitive behavior therapy are able to decrease anxiety and Dysfunctional Attitude perfectionism

Conclusion : Based on our results we can conclude that CBT reduces anxiety and dysfunctional attitudes

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Cognitive Behavioral Therapy, Anxiety, Perfectionism

Count: 141

Abstract ID: 791

subject: Cognition: Other

Presentation Type: Poster

The effectiveness of Mindfulness in reducing depression, anxiety and Relapse prevention among substance abuse women

Submission Author: Afsaneh Nasirzadegan

Afsaneh Nasirzadegan¹, Shahin Bahreini², Mehdi Ghavidast³, Maryam Vahedi⁴, baharee shafee⁵

1. M.A in General Psychology, Tabriz Branch, Islamic Azad University, Science and Research Branch, Tabriz, Iran, Email: afsane.nasiri@gmail.com
2. M.A in Clinical Psychology, Islamic Azad University, karaj, Iran
3. M.A in Clinical Psychology, Islamic Azad University, Lahijan, Iran
4. M.A in General Psychology, Islamic Azad University, karaj, Iran
5. M.A in General Psychology, Science and Research Branch of East Azarbaijan, Tabriz Azad University, Iran

Background and Aim : The present study was an attempt to examine the effectiveness of Mindfulness therapy in reducing depression, anxiety and Relapse prevention among substance abuse women

Methods : A quasi-experimental research design along with pretest-posttest design and a control group were employed to conduct this study. Considering inclusion criteria, a total of 24 female substance abusers were selected from two clinics in Tabriz via purposive sampling method. The experimental group participated in six-session therapy plan during six weeks. Two scales Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI) were used for data collection purposes.

Results : Results of analysis of covariance showed that Mindfulness therapy is effective in reduced depression and anxiety scores.

Conclusion : Mindfulness therapy can be included in intervention programs for substance abusers women.

Keywords : Mindfulness, Depression, Anxiety, Relappse prevention, Substance abuse Women

Count: 142

Abstract ID: 430

subject: Cognition: Other

Presentation Type: Poster

The performance of children with attention deficit/hyperactivity disorder in behavioral inhibition tasks in compared with normal children

Submission Author: Vida Poudratchi Asl

Vida Poudratchi Asl¹, Soroush Nasri², Mohammad Ali Nazari³

1. M.A. in clinical psychology, Department of psychology, Ardabil Branch, Islamic Azad University, Ardabil, Iran
2. M.Sc. child and adolescent clinical psychology, University of Tabriz, Tabriz, Iran
3. Associate Professor, department of Psychology, cognitive neuroscience laboratory, University of Tabriz, Tabriz, Iran.

Background and Aim : Inhibition deficits are considered as the central core of attention deficit/hyperactivity disorder, which can lead to impulsive and destructive behaviors. Impulsivity has been consistently linked to many types of disorders likes' attention deficit/hyperactivity disorder, and other psychiatric conditions. In previous researches, "Impulsiveness" is the opposite of the concept of "inhibition". Executive processes play a supervisory role in behavior by controlling attention and thought and behavior. The current study investigates the performance of behavioral inhibition in children with attention deficit/hyperactivity disorder in compared with normal children.

Methods : In this causal-comparative study, 43 children with ADHD symptoms performed the visual version of Go-No go task for assessing the ability of behavioral inhibition, results were compared with performance of 20 normal children by multivariate analysis of variance analysis (MANOVA).

Results : The results demonstrated that there was a significant difference between two groups in Go/No go task indexes included Omission ($P < 0.01$) and Commission ($P < 0.01$). However, there was no significant difference in the performance of the groups in reaction time ($P = 0.158$) and the variability of the reaction times ($P = 0.09$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : According to the results of this study, inhibition deficits in children with ADHD appear to be due to signs that are in the nature of this disorder. Symptoms of attention deficit / hyperactivity disorder, especially due to widespread injuries to executive functions and attention, play a significant role in poor inhibitory and impulsive functioning. Therefore, it seems that children with ADHD symptoms regardless of any other comorbidity disorder are prone to poor performance in behavioral inhibition tasks.

Keywords : Attention-deficit/hyperactivity disorder, Behavioral inhibition, Executive Functions

Count: 143

Abstract ID: 313

subject: Cognition: Other

Presentation Type: Poster

Comparing Attribution Bias in Schizophrenic Patients With and Without Delusions Experience, Major Depression and Normal People

Submission Author: Najme Rastikerdar

Farah Moayed¹, Najme Rastikerdar², Fariba Fattahiyan³, Parisa Zaj⁴

1. Psychiatrist, Assistant Professor, Research Center of Behavioral and Neurosciences, Hormogon university of Medical Sciences, Bandarabbas, Iran
2. PhD Student in Cognitive Psychology, Institute for Cognitive & Brain Sciences, Shahid Beheshti University, Tehran, Iran Coresponding Author: najmerastikerdar@gmail.com.
3. MD, Research Center of Behavioral and Neurosciences, Hormogon university of Medical Sciences, Bandarabbas, Iran
4. MD, Research Center of Behavioral and Neurosciences, Hormogon university of Medical Sciences, Bandarabbas, Iran

Background and Aim : Introduction: Delusion means a false belief that is preserved with an unusual belief, and its absurdity is obvious to others. Although the classic definitions of delusions claim that, they are qualitatively different from normal beliefs, in the new perspectives, the failure to understand oneself and others play a major role in the development of delusion. Therefore, the present study tries to compare attribution bias in people with schizophrenia with and without delusions experience, individuals with major depression and normal people.

Methods : Methods: This study is a casual-comparative research. The sample consisted of 120 people. Ninety persons were the patients admitted to Ibn Sina Psychiatric Hospital in Bandar Abbas, including two groups of 30 patients with schizophrenia (a group with delusions experience and the other without) and a group of 30 patients with major depressive disorder (as hospital control group), who have been admitted by a psychiatrist's diagnosis. In addition, 30 persons accompanying patients and hospital staff who had no history of psychiatric disorders were purposefully selected as the normal group. The survey instrument was internal, personal, and situational attribution questionnaires (IPSAQ) that was completed by respondents with the guidance of examiner.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Results: The results showed that each group of patients had significant differences with normal group in personal bias, whereas there was no difference between groups of patients with each other and in external bias, only schizophrenia without delusions and depression groups had significant differences.

Conclusion : Conclusion: In this study, of two types of bias, personal bias had the highest power in differentiating the group, So this area should be given attention in psychological treatments to improve patients experiencing delusion.

Keywords : Key words: Attribution bias, Personal bias, External bias, Delusions

Count: 144

Abstract ID: 738

subject: Cognition: Other

Presentation Type: Poster

The Relationship Between Attribution Bias and Symptoms of Borderline Personality Disorder in Medical Students

Submission Author: Najme Rastikerdar

Majid saffariniya¹, Najme Rastikerdar², samira Nabipour³, Shole Namazi⁴

1. Associate Professor, Payam noor University, Tehran, Iran
2. PhD Student in Cognitive Psychology, Institute for Cognitive & Brain Sciences, Shahid Beheshti University, Tehran, Iran Corresponding Author: najmerastikerdar@gmail.com.
3. MD, Research Center of Behavioral and Neurosciences, Hormozgan university of Medical Sciences, Bandarabbas, Iran
4. Assistant Professor, Research Center of Behavioral and Neurosciences, Hormozgan university of Medical Sciences, Bandarabbas, Iran

Background and Aim : Introduction: Individuals reaction to different situations is according to their situational perception. Recent cognitive studies suggest that cognitive and attributional biases can be explained some interpersonal problems in patients with personality disorders and it can be considerable in therapeutic interventions. Interpersonal relationship deficits in patients with borderline personality disorder are repeated in the same way in different communication. Therefore, the goal of this research is to increase the knowledge of social cognition in borderline personality by assesment of the relationship between attributional bias and borderline traits in medical students of Hormozgan University of Medical Sciences.

Methods : Method: In this research, 270 medical students of Bandar Abbas University of Medical Sciences availably were selected and were assessed by borderline personality questionnaire (STB) and Attributional bias questionnaires.

Results : Results: Pearson correlation analysis indicated that there is a direct relationship between externalization bias and three dimensions of borderline symptoms (disappointment, impulsivity and paranoid) and the inverse relationship between personalization bias and only disappointment dimension. In attribution processing, in positive event, attribution to self was highest level and

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

then attribution to others and situation, in the negative events, others were the highest, self and then situational attribution were ranked respectively.

Conclusion : Discussion: It can be said that external attribution in negative events and neglect of their role can be related to the repetition of negative events in borderline personalities. Therefore, attention to attributional bias can be considered as the goal of cognitive interventions .

Keywords : Borderline personality, Attribution bias, Personalization, Externalization

Count: 145

Abstract ID: 499

subject: Cognition: Other

Presentation Type: Poster

Effect of Material Organization on Improvement of Memory in Elementary students

Submission Author: Chiman Saeedi

Chiman Saeedi¹, Fateme Mazaheri Tehrani²

1. MA in Psychology, Sanandaj, Iran
2. Department of psychology, Shahid Beheshti university, Tehran, Iran

Background and Aim : Storage of information by means of organization of material in memory, facilitate later retrieval. Children between 8-11 years use this strategy and classifying both in storage and retrieval stage. Researches that assessed usage of organization of information, have found that when children use this strategy, have better performance of retrieval. The aim of this study was to investigate the impact of material organization on improvement of children's memory.

Methods : Forty elementary students in grade five, were selected randomly in the city of Sanandaj and were classified into 2 groups each with 20 students. Subjects were tested with a disorganized word-list or with an organized word-list.

Results : Based on independent t-test, the results indicated that the group that received organized word-list, showed improvement of the quality of memory.

Conclusion : Organization of information improves children's memory. Therefore this strategy can be useful for expanding capacity of memory and successful educational performance in elementary children.

Keywords : Organization of Material, Classification, Memory

Count: 146

Abstract ID: 439

subject: Cognition: Other

Presentation Type: Poster

The role of Social Cognition Dimensions to predict Social Functioning in Patients with Chronic Schizophrenia Disorder

Submission Author: Zahra Saffarian

Zahra Saffarian¹, Behrooz Dolatshahi², Abbas Pourshahbaz³, Najmeh Rasti Kerdar⁴

1. PhD student in clinical psychology .Department of clinical psychology, school of behavior science, university of social welfare and rehabilitation sciences.Tehran. Iran.
2. Assistant Professor Department of Clinical Psychology, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.
3. associated Department of Clinical Psychology, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.
4. PhD Student in Cognitive Psychology Institute for Cognitive & Brain Sciences,Shahid Beheshti University,Tehran, Iran.

Background and Aim : The people who suffering from schizophrenia disorder experience diverse defects in their social functioning. Given that poor social function is associated with relapse in these patients, so it is very important that the underlying factors are identified. In this study the contribution of each components of social cognition includes, emotion perception, theory of mind and attributional bias for predicting social functioning in schizophrenic patients has been investigated

Methods : The sample included 60 patients with chronic schizophrenia who were selected based on purposive sampling which they were evaluated by social cognition tools (Hinting task, Emotion Identification task and The Ambiguous Intentions and Hostility Questionnaire) and social functioning scale.

Results : According the Regression analyzing of datas, the results have shown that the theory of mind and emotion perception could predict the social functioning in these patients.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : It seems that the theory of mind and emotion perception are basic abilities in the explanation of general social function whereas attributional bias is noticeable in the explanation of special social behaviors such as aggression

Keywords : social cognition, theory of mind, attributional bias, social functioning, emotion perception

Count: 147

Abstract ID: 711

subject: Cognition: Other

Presentation Type: Oral

Brain circuitry involved in the interaction between stress and reward systems

Submission Author: Abdolrahman Sarihi

Abdolrahman Sarihi¹, Siamak shahidi², Alireza Komaki³

1. Neurophysiology Research center, Hamadan University of Medical Sciences, Hamadan, Iran
2. Neurophysiology Research center, Hamadan University of Medical Sciences, Hamadan, Iran
3. Neurophysiology Research center, Hamadan University of Medical Sciences, Hamadan, Iran

Background and Aim : Stress is one of the major factors involved in drug abuse, particularly in relapse and drug-seeking behavior. However, the detailed mechanisms underlying the interactions between stress and drug abuse are unclear.

Methods : We review the neuronal pathways, type of neurons and molecules that might mediate functional interactions between stress and reward systems.

Results : Stress responses are mediated by corticotrophin-releasing factor (CRF) originated from different cell types located in several brain areas. Here we explain: a) the Brain circuitry involved in the direct interaction between stress and reward systems. b) Identification of CRF neurons which synapse on ventral tegmental area (VTA) dopaminergic neurons. C) The effects of drugs of abuse on the CRF, CRF-R1 and CR-BP system. D) The participation of CRF, CRF-R1 and CRF-BP system in cocaine and methamphetamine induced behaviors.

Conclusion : Related mechanisms and new findings will be presented in this talk.

Keywords : Stress, reward system, corticotrophin-releasing factor, ventral tegmental area

Count: 148

Abstract ID: 359

subject: Cognition: Other

Presentation Type: Oral

Evaluation of early stages of facial emotion recognition in children with attention-deficit / hyperactivity disorder based on early positive negativity

Submission Author: Mahdiyeh Sarraf razavi

Mahdiyeh Sarraf razavi¹, Mehdi Tehrani-Doost², Farnaz Ghassemi³, Mohammad Ali Nazari⁴, Seyyedeh-Zohreh Ziatabar-Ahmadi⁵

1. Neuroscience Department, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Psychiatry, Tehran University of Medical Sciences (TUMS), Tehran, Iran
3. Department of Biomedical Engineering, Amirkabir University of Technology (AUT), Tehran, Iran
4. Department of Psychology, Cognitive Neuroscience Laboratory, University of Tabriz, Tabriz, Iran
5. Department of Speech & Language Pathology, Faculty of Rehabilitation Sciences, Babol University of Medical Sciences, Babol, Iran

Background and Aim : Children with attention-deficit/hyperactivity disorder (ADHD) have some impairments in emotional relationship which can be caused by deficits in emotional processing. It can be hypothesized that these children have some deficits in early stages of facial emotion discrimination. Based on this hypothesis, the present study investigated neural correlates of early visual processing during emotional face recognition in this group compared with typically developing children using the event-related potentials (ERP).

Methods : Nineteen boys between the ages of 7 and 11 years diagnosed with ADHD (Combined type) based on DSM-IV classification were compared with nineteen typically developing children matched on their ages, genders and IQs. The participants performed an emotional face recognition task while their brain activities were recorded using the event-related potentials procedure.

Results : The results indicated that ADHD children compared to normal group showed a significant reduction in the early posterior negativity (EPN) component, which is thought to reflect early perceptual emotion discrimination, for happy and angry faces ($P < 0.05$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The present study supports the notion that individuals with ADHD have some impairments in early stage of emotion processing which can lead to their misinterpretation of emotion in faces.

Keywords : Emotional face recognition . Event-related potentials (ERP) . Early posterior negativity (EPN) . Attention-deficit / hyperactivity disorder (ADHD)

Count: 149

Abstract ID: 814

subject: Cognition: Other

Presentation Type: Oral

Repetition and novelty effects of stimulus duration on Event-Related Potential components

Submission Author: Hossein Sepasi Moghaddam

Hossein Sepasi Moghaddam¹, Mohammad Ali Nazari², Hassan Sabourimoghaddam³, Reza Khosrowabadi⁴, Seyed Shahriar Arab⁵

1. Ph.D. in cognitive neuroscience, University of Tabriz, Tabriz, Iran.
2. Associate professor at the department of psychology, Cognitive Neuroscience Laboratory, University of Tabriz, Tabriz, Iran.
3. Assistant professor at the department of psychology, University of Tabriz, Tabriz, Iran.
4. Assistant professor at Institute for cognitive and brain sciences, Shahid Beheshti University, Tehran, Iran.
5. Assistant professor at the department of biophysics, faculty of biological sciences, Tarbiat Modares University, Tehran, Iran.

Background and Aim : The responses to a visual or auditory stimulus that is repeatedly presented with a variable or fixed interval are reduced relative to those at first or novel presentation. The earlier studies have often compared these effects along many of different variables but, little is known about how they work in the pure timing condition and its effect on neural modulation. In the current research, we investigated how repeated and non-repeated exposure to a duration around a range of hundreds of milliseconds impact time processing. We focused on whether the changes are dependent on an aligned processing or relay on multi-directional neural processing across the brain networks.

Methods : Using a specific mixed paradigm we tried to subtract sensory interference of the modalities from the effects of time to obtain more dedicated temporal processing. The effects were recorded using 19 channel EEG on male and female participants. The measure of both early sensory and later ERP component were collected and compared in different condition helping a mixed design of analysis of variance.

Results : The ERPs data showed both decrease and increase in the size of latency and amplitude of the component associated with repetition and also the novelty.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : We suggest a link between temporal information in form of change in neural network dynamics which can be traced by the delay in oscillations and measure of voltage. It not only has diversity in the pattern but also in different electrode site. The result can support a distributed processing of time.

Keywords : time perception; duration repetition; duration novelty; neural mechanism; ERP component

Count: 150

Abstract ID: 595

subject: Cognition: Other

Presentation Type: Poster

The Effectiveness of Mindfulness-integrated CBT on Increased Impulse Control and Anger Control in Amphetamine-Dependent

Submission Author: Mehdi Yaghobi

Mehdi Yaghobi¹, Mohammad Abdekhoda²

1. Kashan University of Medical Sciences
2. Tavalodi Dobare SUD center of Qom

Background and Aim : Objective: The aim of this study was to investigate the effectiveness of Mindfulness-integrated CBT on impulse control and anger control of anger in amphetamine-dependent patients.

Methods : Method: A quasi-experimental research was a pre-test and post-test type with control group. Amphetamine-dependents who referred to MMT centers in Qom, the population of the study consisted of 50 subjects (25 experimental and 25 control group) who were randomly selected as the sample. The experimental group was exposed to 8 Mindfulness-integrated CBT sessions on mindfulness skills. To collect data, Baran's Emotional Intelligence impulse Control subscale (1997) and Spielberger's Anger Inventory were used.

Results : Results: The results showed that the training of Mindfulness-integrated CBT in the experimental group increased the impulse control and anger control in amphetamine-dependent.

Conclusion : Conclusion: Mindfulness-integrated CBT training is essential for promoting substance abuse prevention or relapse.

Keywords : Mindfulness, Impulse Control, anger control, amphetamine-dependent

Count: 151

Abstract ID: 119

subject: Cognition: Other

Presentation Type: Oral

Panel - Neuroendocrinology of dementia

Submission Author: Maryam Zahmatkesh

Maryam Zahmatkesh¹

1. Neuroscience and Addiction Studies Department, School of Advanced Medical Technologies, Tehran University of Medical Sciences, Tehran, IRAN

Background and Aim : There are several evidences in regards to neurohormonal changes in different type of dementia. It is believed that most of peripheral hormones are also synthesized in the brain or modulate brain homeostasis by act on their central receptors. These include brain erythropoietin system, thyroid hormone, melatonin, neurosteroids, insulin and other peripheral hormones. The aim of this study is to provide a summary of the research implicating a role for neuro-hormones in dementia.

Methods : The studies were gathered from the PubMed database over the past 10 years. We searched the name of all hormones with brain, and dementia. We included the English articles both animal and human studies.

Results : It has been shown that low vitamin D was concomitant with all-cause dementia. Furthermore there was a strong correlation between the level of melatonin decreases and the progression of dementia. Erythropoietin has been shown to attenuate the A β 25-35-induced tau phosphorylation in human neuroblastoma cells. The neurosteroid biosynthesis pathway is also altered in Alzheimer's type of dementia. Reduced brain estrogen production as a risk factor for developing dementia has been reported. Insulin resistance has also been implicated by multiple studies in the development of dementia.

Conclusion : There are several studies that have been shown neurohormonal modulations during different type of dementia. It seems that the future treatments should target the hormonal changes in its earliest stages, before irreversible mental decline has occurred.

Keywords : Neurohormones; dementia; cognition

Count: 152

Abstract ID: 768

subject: Emotion, Motivation

and Behavior: Neural Basis of Human Behavior

Presentation Type: Poster

Role of the amygdala GABA-A receptor and Morphinergic in anxiety and arousal memory based on Test-Retest paradigm..

Submission Author: Atefeh Akbari

Atefeh Akbari¹, farhad valizadegan²

1. university of mazandaran
2. university of mazandaran

Background and Aim : Anxiety is an emotion characterized by an unpleasant state of inner turmoil, often accompanied by nervous behavior, such as pacing back and forth, somatic complaints, and rumination Basolateral Amygdala is an important site of anxiety. interactions between Gabaergic and Opioidergic systems in Basolateral amygdale were used for investigation anxiety and memory. The elevated plus-maze has been employed.

Methods : The male wistar rats were used for this tests. The site of BLA were canulated unilaterally. Rats were injected by morphine (4,5 and 6 mg/kg) intrapritoneally , while muscimol (0.2,0.4 and 0.8 $\mu\text{g}/\text{rat}$) and bicuculline (0.4,0.6 and,0.8 $\mu\text{g}/\text{rat}$) were injected to BLA. Open arm time percentage (%OAT), open arm entry (%OAE) and locomotor activity were determined by this behavioral test. Retention tested 24 hours later. administration of morphine (6mg/kg) increased the OAT% in anxiety test, indicating anxiolytic-like effect but can't effect on memory response.

Results : Intra Basolateral amygdala infusion of muscimol (0.8 $\mu\text{g}/\text{rat}$) have an anxiolytic-like effect. While co-administration of muscimol (0.8 $\mu\text{g}/\text{rat}$) and ineffective dose of morphine (4mg/kg) showed significant increase of OAT% in anxiety test, thus presenting anxiolytic and improved memory response. Intra Basolateral amygdala administration of bicuculline (0.8 $\mu\text{g}/\text{rat}$) decreased OAT% ,indicating the decrease of anxiety-like behavior. While co-administration of intra Basolateral amygdala bicuculline (0.8 $\mu\text{g}/\text{rat}$) and effective dose of morphine (6mg/kg) showed a significant increase in OAT%, presenting an anxiolytic response. Co-administration of ineffective doses of morphine (4mg/kg) and muscimol (0.8 $\mu\text{g}/\text{rat}$) with the ineffective dose of

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

bicuculline (0.4 μ g/rat), showed that bicuculline can reverse the anxiolytic-like effect of morphine and muscimol and decrease memory paradigms.

Conclusion : It should be noted that there are no significant changes in locomotor activity in all of tests. The results indicate that morphine and gabaergic drugs creates the compromise effects on anxiety and improving memory in the Basolateral amygdale. But these systems have synergistic effects on anxiety and memory.

Keywords : Gabaergic system, Amygdale, Elevated plus maze, Anxiety, Rat

Count: 153

Abstract ID: 475

subject: Emotion, Motivation

and Behavior: Neural Basis of Human Behavior

Presentation Type: Poster

The effect of neurofeedback on increasing attention in Karate players with plasticity approach to Brian

Submission Author: Fatemeh Ghanaee

Fatemeh Ghanaee¹, Elahe Hajjar shoricheh², Hamidreza Taheri³, Mehdi Sohrabi⁴, Fatemeh Ghanaei⁵

1. -
2. Master of Ferdowsi University of Mashhad
3. professor of Ferdowsi University of Mashhad
4. professor of Ferdowsi University of Mashhad
5. Master Student of Ferdowsi University of Mashhad

Background and Aim : Introduction: Karate Exersice could include changes in blood flow, hormone and growth factor release, receptor expression, angiogenesis, apoptosis, neurogenesis, and synaptogenesis. these changes in the brain may extend beyond traditional motor areas to regions and structures normally linked to learning, cognition, and emotion. But for excellent change in performance of karate player with approach to plasticity of Brain in this research used of Neurofeedback (NF) training. Neurofeedback (NF) is a form of biofeedback that uses real-time (RT) modulation of brain activity to enhance brain function and behavioral performance. The purpose of this study was to investigate the effect of neurofeedback on the attention of karate players. Neurofeedback (NF) is a form of EEG biofeedback used to successfully improve cognitive and physical performance of humans.

Methods : Metod: Rsearch metod was quasi-Experimental with pre-test and control group. Participants in this study were selected from Razavi Khorasan Karateka Team(n=26) who are randomaly assigned into two groups of experiment(n=13) and control (n=11) . initially, all the participants were evaluated by stroop test. Experimental group members received neurofeedback training for six week(15 sessions, 3 times a week for 40 minutes) and control group members did not receive such an experiment. At end of neurofeedback training, participants were evaluated again with the mentioned above tools.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : RESULTS: In order to analyze the data, in addition to the descriptive method (mean and standard deviation), inferential methods(independent T and ANCOVA) were used as well. The independent T-test results that Neurofeedback training had a significant on increasing the level of attention of Karate players($p=0/04$, $T =-31/44$).

Conclusion : Conclusion: The results of this study indenticated that Neurofeedback training could increase the level of attention of Karate players. That is evidence of capacity of plasticity in brain. NF training provides new methods for instant reward of brainwave patterns associated with better cognitive functions or younger brains. We envision great progress will occur in brain training of attention.

Keywords : Keywords: Neurofeedback, Attention, Karate players

Count: 154

Abstract ID: 635

subject: Emotion, Motivation

and Behavior: Neural Basis of Human Behavior

Presentation Type: Poster

Mindfulness Meditation: A Review of Neural Mechanisms

Submission Author: Amir hosein Mehrsafari

Amir hosein Mehrsafari¹, Amir Hossein Mehrsafari²

1. -
2. Department of sport psychology, Faculty of sport science, university of Tehran

Background and Aim : The operational definitions of mindfulness include diverse aspects such as the impartial, constant attending to feelings, emotions and thoughts, to name just a few. Mindfulness-based interventions are fast growing and have been increasingly implemented for alleviating stress, promoting psychological health, dealing with chronic disease and as adjunct therapy for mental disorders. Despite this fact, not many studies have tried to characterize the neural mechanisms of mindfulness. Recently, a number of functional and structural neuroimaging studies have aimed to deepen our understanding of the mindfulness neural processes.

Methods : The present study is a review article. A total number of 37 articles (published between 2010 and 2017) were collected and reviewed searching the keywords of Mindfulness, Meditation, Neural Mechanisms and Brain Areas in the PubMed, Science Direct, and Springer websites.

Results : detailed review of literature provided convincing evidence supporting the impact of mindfulness on the function of the medial cortex and its associated default mode network. Also, it was found that this practice affected insula and amygdala as well as, at least in some cases, the lateral frontal regions and basal ganglia. These findings are supported by structural imaging studies and also some changes in the hippocampus have been reported by this line of research.

Conclusion : generally, the articles reviewed in this study add to our understanding of mindfulness and the neural processes associated with this practice. Yet, an important limitation of the literature which makes drawing direct comparison unfeasible is the fact that a great number of methodologies have been used and the studied population has been too diverse. Nevertheless, the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

present literature is valuable in that it attempts to define the neural mechanisms of mindfulness and lays the foundation for further investigation into the field.

Keywords : Mindfulness, Neural Mechanisms, Brain Areas, Functional and structural neuroimaging.

Count: 155

Abstract ID: 740

subject: Emotion, Motivation

and Behavior: Neural Basis of Human Behavior

Presentation Type: Poster

Study of the involvement of dobutamine in the improvement effect of ascorbic acid on acute restraint stress-induced memory impairment in adult male mice

Submission Author: Turaj Moatamedi

Turaj Moatamedi¹, Moatamedi T², Khajehpour L³, Moazedi AA⁴

1. -
2. Shahid Chamran University, Ahvaz, Iran
3. Shahid Chamran University, Ahvaz, Iran
4. Shahid Chamran University, Ahvaz, Iran

Background and Aim : Stress has a negative effect on cognitive functions, including memory. Ascorbic acid has been shown to improve memory in several empirical models. On the other hand, ascorbic acid is involved in the function of several neurotransmitter systems. For this purpose, here the role of beta- adrenergic receptors in improving Memory impairment is caused by acute restraint stress.

Methods : In this study, 40 adult NMARI mice weighting 20-30 g were used. animal divided into 4 groups: salin(ml/kg,ip),salin(ml/kg,ip)+stress, ascorbic asid(15mg/kg,ip)+stress, dobutamine(2.5mg/kg,ip)+ascorbic asid(15mg/kg,ip)+sress. saline and ascorbic asid treatment by ip for 6 day.dobutemine were injected immediately befor stress .animals were trained in the step-down task .the next day animals were restrained 30 min and after 30 min was test and step-down latency(SDL)was recorded.

Results : both ascorbic asid (IP)and dobotamine (IP) did not change SDL,while ineffective dose of ascorbic asid in the presence of ineffective dose of dobutamine impaired SDL significantly (P<0.05).

Conclusion : The results showed that ascorbic acid can reduce the effect of stress on memory and at least part of this effect is achieved through the beta-adrenergic system.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : acute stress, dobutamine, ascorbic acid, step-down, memory

Count: 156

Abstract ID: 510

subject: Emotion, Motivation

and Behavior: Biological Rhythm and Sleep

Presentation Type: Poster

Sleep in Children with Autistic Spectrum Disorder

Submission Author: Reza Ayazi

Reza Ayazi¹, Samira rajaei²

1. MSc of Occupational Therapy, School of Rehabilitation Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. MSc of Occupational Therapy, School of Rehabilitation Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Children with autism have cognitive dissonances and emotional problems, such as depression, anxiety, learning problems, and mental development problems caused by sleeping disorders. The object of the present review article was to study sleep disorders and their related factors.

Methods : The current review article was written to discuss sleep in children with autism according to the latest clinical research. Articles published between 2000 and 2015 were reviewed. We searched for three keywords (sleep, autism, and functional) using Google, ProQuest, PubMed, Science direct, and Google Scholar.

Results : 55 investigations were found meeting the specified criteria. Articles related to sleep disorders, sleep, functional autism, and sleep were selected using a targeted selection approach. During this process, seven articles were selected as the main articles for the review.

Conclusion : It was found that sleep in children suffering from autism might be influenced by mental damage, anxiety, and behavioral problems. On the other hand, appropriate physical activity may improve sleep patterns and sleep disorders. Understanding sleep, factors affecting sleep, sleep problems, and their treatments may greatly help in improving sleeping in children with autism.

Keywords : sleep; autism;Function

Count: 157

Abstract ID: 509

subject: Emotion, Motivation

and Behavior: Biological Rhythm and Sleep

Presentation Type: Poster

Effects of acute sleep deprivation induction on anxiety behavior: role of GABA ergic system of central nucleus of amygdala

Submission Author: Hoda Parsa

Hoda Parsa¹, Alireza Imani², Mahdiah Faghihi³

1. Department of Physiology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Physiology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
3. Department of Physiology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Nowadays life style and shift working cause shortage of sleep time which is associated with behavioral disorders especially anxiety. As central nucleus of amygdala (CeA) has long been known as a part of the neural circuitry critical for emotion and GABAergic system of CeA play roles in sleep regulation, in this study we evaluated the effect of acute sleep deprivation (ASD) induction on anxiety.

Methods : Central nucleus of amygdala of twenty eight male wistar rats was bilaterally cannulated for saline or bicuculline (GABA receptors antagonist) injection (0.1 nmol/0.5 μ l in volume of 0.5 μ l same at each side). Anxiety behavior was assessed using elevated plus maze and the percentage of entries and time spent in open arms was considered as anxiety index. Animals were randomly divided to four groups (n=7): 1) Control group: 24 hours after saline injection, elevated plus maze test was done; 2) Bicuculline group (BIC+IR): 24 hours after bicuculline injection , elevated plus maze test was done; 3) Acute sleep deprivation group (ASD+IR): immediately after saline injection, animals were put in sleep deprivation box for 24 hours, then elevated plus maze test was done; 4) Bicuculline and acute sleep deprivation group (BIC+ASD+IR): immediately after bicuculline injection, animals were put in sleep deprivation box for 24 hours, and then elevated plus maze test was done.

Results : Open arm entries percentage and time spent in open arm was decreased following intra-CeA injection of BIC as compared to control group (p<0.001). Induction of 24 hours ASD immediately after BIC injection, led to increase in open arm entries percentage and time spent in

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

open arm when compared to BIC group ($p < 0.001$). No statistical difference was found between control and ASD groups

Conclusion : Intra-CeA injection of bicuculline increased anxiety level while acute sleep deprivation induction decreased bicuculline-induced anxiety.

Keywords : Acute sleep deprivation, Anxiety, Central nucleus of amygdala, Elevated plus maze, GABAergic system.

Count: 158

Abstract ID: 742

subject: Emotion, Motivation

and Behavior: Biological Rhythm and Sleep

Presentation Type: Oral

REM sleep and emotional processing; Insights from functional connectivity analysis of sleep EEG signal

Submission Author: Saman Seifpour

Saman Seifpour¹, Mohammad Mikaeili², Anahita Khorrami³, Mohammad Nami⁴, Khosro Sadeghniaat⁵, Ali Khadem⁶

1. Department of Biomedical Engineering, Shahed University, Tehran, Iran.
2. Department of Biomedical Engineering, Shahed University, Tehran, Iran.
3. Department of Cognitive Psychology, Institute for Cognitive Science Studies, Pardis, Iran.
4. Department of Neuroscience, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran.
5. Department of Occupational Sleep Research Center, Baharloo Hospital, Tehran University of Medical Sciences, Tehran, Iran.
6. Department of Biomedical Engineering, Faculty of Electrical Engineering, K. N. Toosi University of Technology, Tehran, Iran.

Background and Aim : In recent years, an extensive body of research has provided encouraging evidence that the REM sleep facilitates the consolidation of emotional memories. It is assumed that the learning process by inducing specific changes in neuronal activity during sleep pave the way for consolidating the newly acquired memories. To specify such changes, the EEG coherence was measured during subsequent sleep of performing a declarative learning task. In this research, by using a nap paradigm and employing a functional brain connectivity approach, it is proposed that the coherent EEG activity during REM sleep across various regions of the scalp may provide a unique insight into emotional learning processes.

Methods : Sixteen healthy subjects (9 females) between the ages of 19 and 26 years participated in the research. All subjects were healthy, nonsmoking, medication-free students with a regular sleep-wake cycle. Subjects napped in the sleep laboratory of Baharloo Hospital on two consecutive days. After a baseline nap (first day), on the second day, subjects participated in 2 study sessions separated from each other with a 4-h interval. During the first (encoding) session, participants

learned a total of 96 emotionally negative and neutral stimuli (with an equal number of images) selected from the International Affective Picture System (IAPS). At the second (recognition) session, the 96 old pictures of encoding session were mixed with 96 new matched pictures and presented to each subject. Following the first study session, but prior to the second, subjects obtained a 120-min sleep opportunity recorded with digitized polysomnography (PSG). EEG was recorded from F3, Fz, F3, T3, C3, Cz, C4, T4, O1, and O2 electrodes. Sleep stages were scored visually by a blind expert according to the AASM criteria.

Results : To evaluate memory performance, the sensitivity index (d') was calculated for both of emotional and neutral stimuli by subtracting normalized z-transformed probabilities of hit rates from false-alarm rates. Because Theta activity (4 to 7 Hz) is a prominent feature of the REM sleep EEG signal, we only concentrated on this frequency band to achieve the research purposes. The association between inter- and intra-hemispheric EEG coherence and memory performance was examined by Pearson's correlation analysis. The correlation analysis illustrated that the intra-hemispheric EEG coherence of frontal and central regions was positively correlated with sensitivity index of both emotional and neutral stimuli ($r > 0.77$, $P < 0.01$). In contrast, intra-hemispheric coherence of occipital region was only associated with neutral stimuli ($r = 0.79$, $P < 0.01$). Likewise, a significant correlation was found between intra-hemispheric connectivity of fronto-central and fronto-temporal regions and the recognition rate of neutral pictures ($r > 0.68$, $P < 0.03$).

Conclusion : These findings indicate sleep EEG coherence of intra-hemispherical areas, unlike inter- hemispherical areas, can reflect processes of the brain during off-line emotional memory consolidation. Moreover, it can be hypothesized that the Theta activity has a particular functional significance for processing of newly acquired emotions during REM sleep. Finally, it is concluded that functional connectivity analysis may provide insights into the brain networks involved in emotional processing.

Keywords : Sleep; EEG; Emotional Memory; Functional Connectivity; Coherence Analysis.

Count: 159

Abstract ID: 387

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

The effect of vitamin C on anxiety induced by nicotine in adult male mice

Submission Author: Sana Alboghobeish

Sana Alboghobeish¹, Lotfollah khajehpour², mahnaz kesmati³

1. Shahid chamran university of ahvaz
2. shahid chamran university of ahvaz
3. shahid chamran university of ahvaz

Background and Aim : Anxiety is a compromised response that is created in response to multiple physiological and environmental stresses and can protect a person against danger. What is clear is the involvement of multiple systems involved in the anxiety process, so far, several studies have been done in this regard. Vitamin C (ascorbic acid) is a water-soluble antioxidant that plays a role in many physiological reactions in the body. On the other hand, nicotine, which increases it by taking tobacco in the body, has an anxiety effect. Anxiety disorders after schizophrenia and depression are the most common psychiatric disorders. The aim of this study was to evaluate the role of vitamin C on anxiety induced by nicotine.

Methods : Twenty-eight male mice (30 ± 2 gr) were randomly divided into four groups: saline (10 ml/kg) group, nicotine receiving group (0.8 mg/kg), nicotine receiving group (0.8 mg/kg) in addition to vitamin C (40 mg/kg) and nicotine receiving group (0.8 mg/kg) in addition to vitamin C (80 mg/kg). Anxiety test was performed 30 minutes after injecting of drugs (intraperitoneal) in elevated plus maze. For this purpose, for 5 minutes, anxiety indices such as percentage of open arm opening (% OAE) and percentage of time remaining in the open arm (% OAT) was recorded and evaluated. Finally, the results were analyzed by ANOVA and Tukey test and $P < 0.05$ was considered significant.

Results : The results showed that nicotine (0.8 mg/pg) increased anxiety behaviors. On the other hand, vitamin C (80 mg/kg) combined with nicotine (8 mg/pg) could prevent the effect of nicotine on anxiety.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Based on the findings of this study, vitamin C may also reduce anxiety induced by nicotine in the elevated plus-maze anxiety assessment model.

Keywords : Anxiety, Elevated plus maze, Mice, Nicotine, Vitamin C.

Count: 160

Abstract ID: 637

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Oral

Orexin type 1 receptor antagonist within the ventral tegmental area mediates stress and drug priming –induced reinstatement of morphine conditioned place preference

Submission Author: Ronak Azizbeigi

Ronak Azizbeigi¹

1. Department of Physiology, Faculty of Veterinary Medicine , Sanandaj Branch, Islamic Azad University, Sanandaj, Iran

Background and Aim : The hypocretin (HCRT) or orexin neuropeptide system play a crucial role in reward processing and drug addiction. It has been reported that orexin-containing neurons from the lateral hypothalamus (LH) project densely to the ventral tegmental area (VTA), to be involved in relapse of drug-seeking following extinction. Orexin A and orexin B signal at two G-protein coupled receptors, OX1R and OX2R, which are widely expressed in the brain, including in the VTA. The role of orexinergic system in relapse to drug of abuse has been reported, but a little is known about its role in stress-induced reinstatement to morphine-conditioned place preference (CPP). In the current study, the reinstatement model has been used to examine the effects of intra-VTA administration of orexin-1 receptor (OX1R) antagonist on drug priming –and forced swim stress (FSS)-induced reinstatement of morphine.

Methods : Adult male albino Wistar rats weighing 200-280g were bilaterally implanted with cannulas into the VTA. Conditioned place preference (CPP) paradigm was performed by subcutaneous (s.c) injection of morphine (5mg/kg) during a 3- days conditioning phase. Conditioning score (CS) and locomotor activity of animals were recorded by Ethovision software on the test day. After a 24hr “off” period following achievement of extinction criterion, rats were tested for drug priming-induced reinstatement by priming dose of morphine (1mg/kg, sc) and for FSS-induced reinstatement 10 min after FSS. In FSS procedure, animals were forced to swim for 6 min in cylinder filled with water (24-27°C). In the next experiments, animals received different doses of intra-VTA administration of orexin type 1 receptor antagonist (0.3, 3 and 1µg/0.5µl 12%

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

DMSO preside), bilaterally and were subsequently tested for FSS- and morphine priming –induced reinstatement.

Results : The results showed that administration of orexin-1 receptor antagonist in the VTA significantly suppressed FSS and drug priming induced reinstatement dose-dependently.

Conclusion : Overall, our finding indicate that the VTA is a brain area through which stimulation of orexin receptors participate in stress and drug priming- induced relapse of morphine seeking behavior.

Keywords : relapse, forced swim stress, orexin, conditioned place preference

Count: 161

Abstract ID: 689

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

The effect of predatory stress in pre-gestational period in male and female rats on corticosterone plasma levels of offspring

Submission Author: Negar Azizi

Negar Azizi¹, Maryam Mahmoodkhani², Dr.Shiva Roshan-Milani³, Dr.Ehsan Saboory⁴, Zafar Gholinejad⁵, Naseh Abdollahzadeh⁶

1. Student Research Committee,Urmia University of Medical Sciences,Urmia,IRAN
2. Department of Physiology,School of Medicine ,Urmia University of Medical Science
3. Neurophysiology Research Center,Urmia University of Medical Science,Urmia,Iran
4. Neurophysiology Research Center,Urmia University of Medical Science,Urmia,Iran
5. Department of Biochemistry,School of Medicine ,Urmia University of Medical Science
6. Department of Physiology,School of Medicine ,Urmia University of Medical Science

Background and Aim : Stress activates the hypothalamus of the autonomic nervous system, which is responsible for the increased release of corticotrophin releasing hormone (CRH), in response to input from extrahypothalamic sources.This release in turn, promotes the secretion of adrenocorticotrophic hormone (ACTH) from the anterior pituitary, which subsequently leads to the release of corticosterone(COS) from the adrenal cortex. In general, blood levels of COS are elevated after exposure to stressful events. This improves the restorative capacity of the body and prepares the organism for future challenges. Many studies have found that stress during pregnancy is linked to an increased corticosteron in offspring. Few studies have investigated hypothalamic-pituitary-adrenal (HPA) axis activity, during pre-gestational stress. In the present study, effect of predatory stress in pre-gestational period on male and female rats in corticosteron plasma levels of their offspring is investigated.

Methods : Adult male and female rats were divided to two groups: stressed (n=8) and non stressed rats (n= 16). Stressed rats were exposed to predatory stress. This stress involved 1- h sessions twice daily (8-9 AM and 3-4PM) in a cage placed within the visual range of a caged cat (50 day for males and 15 day for females, according to their spermatogenesis and oogenesis periods). Then

female stressed rats were paired with non-stressed male and the male stressed rats were paired with non-stressed female. Non-stress female rats were paired to non-stress male rats as control group. After parturition their pups were investigated in three groups: control pups, only-mother stressed group and only-father stressed group. On postnatal day 30-31 blood samples were collected from the pups of each group to determine COS levels, using ELISA method.

Results : In stressed groups, COS plasma levels of offspring were significantly increased in comparison to control group ($p < 0.05$). But no significant difference in the levels of COS was detected between only-mother stressed and only-father stressed pups.

Conclusion : Pre-gestational stress can increase serum corticosterone levels of offspring similar to which occurred in prenatally exposed stress pups. Effects of chronic stress on HPA axis in male and female rats may be enough strong to transfer to embryo development medium. Father's stress may also affect his offspring by altering the content of important markers in his sperm. More investigation is required to address this issue.

Keywords : predator stress; corticosteron (COS); rat; HPA axis; pre-gestational period

Count: 162

Abstract ID: 333

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

Hippocampal orexin receptor 2 blockade prevents anxiety-like behavior following acute stress

Submission Author: Saeedeh Bahramzadeh Zoeram

Saeedeh Bahramzadeh Zoeram¹, Mahmoud Elahdadi Salmani², Iran Goudarzi³, Taghi Lashkarblouki⁴

1. Faculty of Biology, Damghan University
2. Faculty of Biology, Damghan University
3. Faculty of Biology, Damghan University
4. Faculty of Biology, Damghan University

Background and Aim : Orexinergic system, plays a crucial role in the regulation of arousal, wakefulness, anxiety and the stress response. The hippocampus, a structure involved mainly in memory process, is highly susceptible to stress and has a high expression level of orexin receptors. This study investigated the effect of orexin receptor 2 blockade on anxiety-like behavior following stress in rats.

Methods : Animals underwent cannula implantation in the hippocampal region. Acute stress was applied with or without injection of orexin receptor 2 antagonist (TCS OX29); and also chronic restrain stress (ten days) were done with or without TCS OX29 infusion. After the ending of infusions (once or ten times) anxiety behaviors were examined using open field (OF) and elevated plus maze (EPM).

Results : Results showed that, while acute stress led to increased immobility and anxiety in the open field and elevated plus maze tests, respectively; acute infusion of TCS OX29 reversed this situation. The behavior of chronically stressed animals in the OF and EPM, have no difference with respect to the control rats.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our results indicate that orexin receptor 2 in the hippocampus may be involved in the development of anxiety-like behavior following acute stress.

Keywords : Hippocampus, Orexin receptor 2, Stress, Anxiety-like behavior.

Count: 163

Abstract ID: 690

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

Curcumin attenuates anxiogenic-like behaviors that induced by chronic stress in mice

Submission Author: Ali Bayat

Ali Bayat¹, S. Ali Seyedinia², Parnia Tarahomi³, Abbas Ali Vafaei⁴, Ali RashidyPour⁵

1. Research Center and Department of Physiology, Student Research Committee, Semnan University of Medical Sciences, Iran
2. Research Center and Department of Physiology, Student Research Committee, Semnan University of Medical Sciences, Iran
3. Research Center and Department of Physiology, Student Research Committee, Semnan University of Medical Sciences, Iran
4. Research Center and Department of Physiology, Semnan University of Medical Sciences, Iran
5. Center and Department of Physiology, Semnan University of Medical Sciences, Iran

Background and Aim : Numerous studies have shown that chronic stress induce psychological disorder include of anxiety and depression. A few studies have shown that Curcuma Longa, an active constituent curcumin have beneficial effects on brain behavioral responses. While these effect on anxiety-related behaviors in the already are not well known. In this study we investigated whether chronic stress would increase expression of anxiogenic-like behaviors, if so, the possible effect of curcumin for recovering anxiogenic-like effects in mice.

Methods : In this experiment study we used of albino mice (n=10 in each group). Animals were injected intraperitoneally with daily dose of Curcumin (15 and 30 mg/kg) during a period of 21 days chronic restraint stress (6h/day). Also elevated plus-maze (EPM) model and the light/dark (L/D) box were used to evaluate anxiety-like behaviors.

Results : In the EPM, treatment animals showed more activity (time spent and number of entries) in the open arms than control groups. In the L/D box, treatment group spent significantly more time in the light side of the apparatus and made higher rearing than control groups.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our results showed that chronic stress induced angiogenic-like effects and the curcumin decreased severity of angiogenic-like behaviors as psychological dependence in mice.

Keywords : Curcumin; Chronic stress; Anxiety; Elevated plus-maze; Light/dark box; Mice

Count: 164

Abstract ID: 360

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

Beneficial effects of voluntary exercise and crocin on anxiety and depression like behaviors induced by juvenile' chronic stress in adult male rats

Submission Author: Mohadeseh Ghalandari shamami

Mohadeseh Ghalandari shamami¹, Shahla Nourizade², Abbas Ali Vafaei³, Ali Rashidy-Pour⁴

1. Laboratory of Learning and Memory, Research Center and Department of Physiology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran
2. Laboratory of Learning and Memory, Research Center and Department of Physiology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran
3. Laboratory of Learning and Memory, Research Center and Department of Physiology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran
4. Laboratory of Learning and Memory, Research Center and Department of Physiology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran

Background and Aim : In 2005, UNICEF reported that over 50% of the world's children are exposed to chronic stress, therefore discovering if chronic early-life stress directly impacts cognitive and behavioral function is extremely important. Extensive studies have established that exposed to chronic stress in adolescent may develop anxiety and depression-like behaviors in adulthood. Today, for chronic stress harmful effects, drug consumption such as *Crocus sativus* L. (Iridaceae) and physical activity such as wheel running are beneficial compounds. The present study investigated the effects of Crocin, wheel running and the combined treatment on juvenile' chronic stress –induced anxiety and depression like behaviors in adult male rats.

Methods : Juvenile rats were subjected to restraint stressed rats (2 h/day, 10 days from PND30-PND40) and then, treated with Crocin (25 and 50 mg/kg/day for 15 days), and/or 15 days voluntary wheel running from PND40- PND55. In PND60, rats were subjected to anxiety and depression like behaviors tests in elevated plus maze (EPM) and force swimming test (FST), respectively.

Results : Our result indicated that stressed rats spent less time in the open arms (OAT)($P<0.05$) and made less open arm entry(OAE) than the control group ($P<0.001$).While, treatment with Crocin 25mg/kg ($P<0.05$), Crocin 50 mg/kg($P<0.001$) and exercise-crocin 25mg/kg ($P<0.01$)increased OAT in the stressed juvenile rats in adulthood. Also OAE% increased with treatment by Crocin 25mg/kg($P<0.001$), Crocin50 mg/kg ($P<0.001$), exercise-crocin 25mg/kg ($P<0.05$) and exercise-crocin50mg/kg ($P<0.01$) in the stressed juvenile rats in adulthood. In the stressed group immobility time was significantly increased in the FST than the control group. While, treatment with exercise ($P<0.001$), Crocin 25 mg/kg ($P <0.01$), Crocin 50 mg/kg ($P<0.001$), exercise-Crocin25 mg/kg ($P<0.05$) and exercise-Crocin50 mg/kg ($P<0.001$) significantly reduced the immobility time in the FST.

Conclusion : In conclusion, our data showed that regular exercise (voluntary wheel running) and traditional treatments could alleviate behavioral deficits in the stressed juvenile male rats during the adult period.

Keywords : juvenile stress; crocin; running wheel exercise; anxiety; depression.

Count: 165

Abstract ID: 803

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

Low resilience to stress are associated with candidate gene expression alterations in the dopaminergic signaling pathway

Submission Author: Arvin Haghightafard

Arvin Haghightafard¹, Esfandiar Azad², Alireza Mohammadi³

1. Department of biology, Tehran North Branch, Islamic Azad university, Tehran, Iran
2. Behavioral Sciences Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran
3. Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran

Background and Aim : In stressful conditions, person's ability to do the task appropriately with minimal anxiety level is known as stress resilience. Genetic bases of stress resilience had been studied in previous animal model and human studies. Genetic variants in Neuropeptide Y , CRHR1 and 5-HTT were associated to low resilience.

Methods : We studied expression of DRD1(5q35) , DRD2(11q23) , DRD3(3q13) , DRD4(11p15) and DRD5(4p16) COMT(21q11) , DBH(9q34) , TH(11p15) , MAOA(Xp11) and DDC(7p12) DAT(5p15) and 5-HTT(17q11) BDNF(11p13) and GDNF(5p13.1-p12) with real time PCR, associated by comprehensive psychological assessments in 400 subjects divided to four groups. Group A included persons with normal reaction to major life events stressors, group B included persons with acute stress reaction to major life events stressor; group C included persons with normal reaction to Crises/catastrophes stressors and group D included persons with acute stress reaction to Crises/catastrophes stressors.

Results : Results showed over expression of genes coding neurotrophic factors and genes involved in dopamine synthesis, transportation and receptors and low expression of genes involved in degradation of dopamine and serotonin transportation. Expression changes were correlated to psychological parameters including personality factors and memory.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : We find that the up regulation of DRD1, DRD2, DRD3, DRD4, DBH, DAT and BDNF as well as the down regulation of 5-HTT, MAOA and COMT, are associated with stress resilience which is modulated by dopaminergic and serotonergic pathways. We conclude that, in addition to resilience, these gene expression variations were correlated with other psychological parameters including personality, depression, anxiety and intelligence.

Keywords : Stress Resilience, Dopaminergic Pathway, DRD2, Psychological Biomarkers

Count: 166

Abstract ID: 403

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

Modulation of nitric oxide system in the nucleus accumbens change the effect of stress on the learning and memory in the Barnes maze in the rats

Submission Author: Yasaman Hosseini

Yasaman Hosseini¹, hedayat sahraei², boshra hatef³, fatemeh hosseini⁴

1. Neuroscience research center,baqiyatallah university of medical sciences,Tehran,Iran
2. Neuroscience research center,baqiyatallah university of medical sciences,Tehran,Iran
3. Neuroscience research center,baqiyatallah university of medical sciences,Tehran,Iran
4. Department of Nursing and Midwifery, Shiraz university of medical sciences,Shiraz,Iran

Background and Aim : Nitric oxide (NO) is synthesized by nitric oxide synthesis from L-arginine after NMDA activation. NO has a critical role in the neurogenesis, long-term potentiation, synaptic plasticity and learning- memory. The nucleus accumbens (NA) is divided in to two structures: the NA core is involved in motor activity and the NA shell involved in autonomic and rewarding system function.

Methods : The animals is placed in the stereotaxic device after anesthesia and a guided cannula was put in the shell of NA. Then the electrical shock to the sole was induced for four days. Each day two different drugs, L-NAME (inhibitor of by nitric oxide synthesis) and L-arginine (precursor of nitric oxide), in the three dosages of 1, 5 and 10 mg were injected to the shell of NA, 5 minutes before stress protocol. The blood sample was taken from edge of eye for measurement of the level of plasma glucocorticoide (GC). The learning and memory test was conducted by Barnes maze and the number of errors, distance, time and motor strategies to reach the target was measured.

Results : The significant increase of level of GC happened after stress. But the effect of drug, dosage were significantly interacted with stress. The findings of Barnes maze showed that the numbers of errors, time spend and distance to reach the target in the positive control group (stress without drug) were significantly less than negative control group (without stress and drug). The

direct, serial and random strategies were used by negative control group. during 5 days but only random strategy was used in day of 12. It means that normally the memory was not formed. The stress stimulated the rats to use more direct strategy but they used only random strategy after 12 days. In the general the injection of drug under stress or without stress decreased the random strategy and change it to direct or serial ones especially in the 1 mg L-arginine and 5 mg L-NAME after 12 days. According this, the distance and error were changed. The distance to target in the 1 mg L-arginine without stress group was significantly less than other doses and negative. The 1 mg L-NAME without stress showed reverse effect. It means that this group went more distance in comparison the negative control and its strategy was more random and less direct in the day of 5. Result showed that if the rat used the serial strategy the time was increased but if used the direct strategy the distance and error were decreased.

Conclusion : 1 mg L-arginine decreased the GC and facilitated the short-term memory in stress but the 1 mg L-NAME increased the GC and reduced the short-term memory in nonstress condition.

Keywords : stress- L-NAME- L-arginine- memory-Learning- barnez maze

Count: 167

Abstract ID: 302

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

Effects of sub chronic social and isolation stresses on feeding behavior and nutritional biomarkers

Submission Author: Mina Sadat Izadi

Mina Sadat Izadi¹, Maryam Radahmadi², Maedeh Ghasemi³, Atefeh Rayatpour⁴

1. MSc of Physiology, Department of Physiology, School of Medicine, Isfahan University of Medical Science, Isfahan, Iran
2. Ph.D of Physiology, Department of Physiology, School of Medicine, Isfahan University of Medical Science, Isfahan, Iran
3. Assistant Professor, Department of Physiology, School of Medicine, Isfahan University of Medical Science, Isfahan, Iran
4. MSc of Physiology, Department of Physiology, School of Medicine, Isfahan University of Medical Science, Isfahan, Iran

Background and Aim : Multiple internal and external factors can regulate energy homeostasis. Stress as one of the external factors can alter the feeding patterns and some related nutritional biomarkers. On the other hand, Ghrelin as a hungry hormone, has the key role in determining the feeding behaviors and providing energy. Therefore, this study investigated the effects of sub chronic social and isolation stresses on nutritional behaviors and their relations with blood glucose and serum ghrelin levels.

Methods : Fifteen male Wistar rats (200-250gr) were randomly allocated into three experimental groups including: control, social stress and isolation stress groups. Rats were under psychological stress for 7 days. In the 8th day of the protocol, the food intake trend measured for three consecutive hours after the period of food deprivation about 16-18 hrs, also to measure the fast blood glucose and ghrelin levels, blood sampling was performed. The fasted glucose levels were determined by glucometer and the serum ghrelin levels were measured by ELISA test.

Results : Based on the results, food intake trend decreased in both sub chronic social and isolation stresses compared to control group, while this reduction was significant ($P<0.05$) in isolation stress group compared to control group. Also partially hyperglycemia was shown in both stress groups, while the serum ghrelin levels in both stress groups were decreased compared to control group.

Conclusion : It seems that, the downward food intake trend after the period of food deprivation in both stress groups, despite the abnormal conditions means that, the body still strives to maintain its physiological status. Although the observed differences in the amount of food consumption and serum ghrelin levels in both psychological stresses showed that, the type of stress probably affected the different nutritional pathways. According to this fact that the type of stress has the key role in determining the feeding patterns, the isolation stress was more effective in reduction of food intake. Also it seems that, the sub chronic induction of stress as a passage stage from acute to chronic level, has anorectic effects in both social and isolation stress groups. These anorectic effects are probably due to the increased blood glucose and decreased serum ghrelin levels too. It seems that, the releasing of Adrenals steroid hormones from Hypothalamic-Pituitary-Adrenal (HPA) axis and Epinephrine from Sympathetic nerves system (SNS) may be the cause of hyperglycemia. Therefore, the activation of HPA axis and subsequent reduction of neuropeptide Y level, can decrease the ghrelin function too and reduce the food intake in both stress groups.

Keywords : Psychological stress; Food intake; Blood Glucose; Ghrelin and Rat.

Count: 168

Abstract ID: 464

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

The effect of effective doses of crocin on cognitive memory in the male rats under chronic isolation stress

Submission Author: Fatemeh Khani

Fatemeh Khani¹, Maryam Radahmadi², Hojjatallah Alaei³, Elahe Jafari⁴

1. Ph.D student of Physiology, Department of Physiology, School of Medicine, Tarbiat Modares University, Tehran, Iran
2. Assistant Professor, Department of Physiology, School of Medicine, Isfahan University of Medical Science, Isfahan, Iran
3. Professor, Department of Physiology, School of Medicine, Isfahan University of Medical Science, Isfahan, Iran
4. MSc of Physiology, Department of Physiology, School of Medicine, Isfahan University of Medical Science, Isfahan, Iran

Background and Aim : It is suggested that isolation stress causes potential alteration in brain function and memory processes. On the other hand, crocin is an active compound of *Crocus sativus* L. (saffron) that has been used in the treatment of a wide variety of diseases by amelioration of oxidative stress. This study investigated the effects of effective doses of crocin on cognitive memory in the male rats under chronic isolation stress.

Methods : Rats were randomly assigned to five groups (n=8 in each group) and the treatment was given as following: control (Co), sham (Sh; received saline as vehicle daily for 21 days), chronic isolation stress (St.I; rats were stressed in individual housing 6 h/day for 21 days), and two groups receiving daily of crocin (30, and 60 mg/kg) accompanied by a period of 21 days isolation stress. Cognitive memory was evaluated on day 22, by novel object recognition test (NOR).

Results : Data revealed that the exploration time of the new object (N) showed a significant ($P < 0.05$) decreases and enhancement respectively compared to their familiar object (F) in the St.I, St.I-C60 groups. Also, novel exploration time showed significant enhancements ($P < 0.01$) in St.I-

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

C30 and St.I-C60 groups compared to St.I group. In NOR test, the main discrimination index (D2) showed a significant decreases ($P < 0.01$) in the St.I compared to the Co group. Therefore, cognitive memory significantly decreased only in the St.I group. In the St.I-C30 and St.I-C60 group, the D2 of NOR showed a significant enhancement ($P < 0.05$ and $P < 0.001$; respectively) compared to the St.I group.

Conclusion : The results showed that chronic isolation stress severity impaired locomotor activity, recognition of novel object and cognitive memory . Crocin especially its high dose (60 mg/kg) had better protective effects against cognitive memory corruption caused by isolation stress. Furthermore, administration of especially 60 mg / kg crocin has beneficial effects on cognitive memory. Therefore, high dose of crocin with respect to it's low dose had better protective effects against cognitive loss is caused by chronic isolation stress. It seems that crocin probably can be useful as new pharmacological drugs for isolated patient.

Keywords : memory, Isolation stress, Novel Object Recognition, Crocin , Rat.

Count: 169

Abstract ID: 675

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Oral

Pre-gestational stress increased susceptibility to seizure in offspring rats

Submission Author: Maryam Mahmoodkhani

Maryam Mahmoodkhani¹, Negar Azizi², Dr. Ehsan Saboory³, Dr. Shiva Roshan-Milani⁴

1. Student Research Committee, Urmia University of Medical Sciences, Urmia, IRAN
2. Department of Physiology, School of Medicine, Urmia University of Medical Sciences, Urmia, Iran
3. Neurophysiology Research Center, Urmia University of Medical Sciences, Urmia, Iran
4. Neurophysiology Research Center, Urmia University of Medical Sciences, Urmia, Iran

Background and Aim : Neurodevelopmental programming — the implementation of the genetic and epigenetic blueprints that guide and coordinate normal brain development — requires tight regulation of transcriptional processes. Epilepsy is a neurodevelopmental disorder which is strongly influenced by genetic and environmental factors. Many studies have found that stress during pregnancy is linked to an increased incidence of epileptic behaviors. However, few studies have investigated effect of pre-gestational stress on seizure susceptibility in offspring. We investigated the effect of pre-gestational stress on epileptic behaviors in offspring

Methods : The male rats were randomly divided into two groups to form a combination of control and stressed groups. The male rats were predatory stressed (exposed to a cat) twice per day for 50 consecutive days. At the end of the stress procedure, the rats coupled as follows: male and female control (Mc-Fc), male stressed and female control (Ms-Fc). Then, the puppies born from these groups were evaluated for pentylenetetrazole (PTZ)-induced seizure.

Results : The data that were normally distributed were analyzed using parametric techniques. Statistical analysis was carried out using SPSS 16 software (SPSS/PC-16, SPSS Inc, USA). The data that were normally distributed were analyzed using parametric techniques; Independent t-test was performed to analyze the data related to epileptic behaviors (except Duration of tail rigidity and latency of Tonic-Clonic). Data related to Duration of tail rigidity was analyzed using two-way ANOVA for two factors of stress and sex. The data related to latency of tonic-clonic

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

(TC) seizures that was not normally distributed was analyzed using Mann Whitney U test. The result was expressed as mean \pm SEM and differences were considered significant at $p < 0.05$.

Conclusion : These data emphasize the impact of pre-gestational stress during spermatogenesis on epileptic behaviors in offspring. This result indicates that epigenetic marks generated within germ cells as a result of environmental influences throughout life can shape future generations long before conception occurs.

Keywords : predatory stress; pre-gestational period; epilepsy

Count: 170

Abstract ID: 633

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

The effect of positive self-talk on salivary cortisol, alpha-amylase levels and competitive anxiety in elite athletes

Submission Author: Amir hosein Mehrosafar

Amir hosein Mehrosafar¹, Amir Hossein Mehrosafar²

1. -
2. Department of sport psychology, Faculty of sport science, university of Tehran

Background and Aim : Competition for athletes arise anxiety and psychological pressure. Cortisol is known as a marker of HPA axis activity. Physical and psychological stress simulate the hypothalamus and secrete corticotrophin releasing hormone (CRH), which ultimately leads to increased secretion of cortisol from the adrenal cortex. Secreted cortisol enters into brain cells, and increase or decrease of that may cause changes in behavior. The salivary enzyme alpha-amylase has been suggested to reflect stress-related changes in the body. Its secretion is known to be elicited by activation of the autonomic nervous system which controls the salivary glands. The aim of this study was to investigate the effect of positive self- talk on competitive anxiety responses, salivary cortisol and salivary alpha-amylase levels in elite athletes.

Methods : For this purpose, 30 elite athlete's man who participated in this study and were divided into two experimental and control groups. Competitive anxiety was assessed with the CSAI-2R. The samples were tested for free concentration of cortisol, using enzyme-linked immunosorbent assays (ELISA). Competitive anxiety, alpha-amylase salivary and cortisol levels were measured in both groups in pre-test (the first competition). The experimental group performed a 6-session practice. After that, post-test was performed (the second competition). Data were analyzed by MANCOVA test.

Results : The results showed that after intervention competitive anxiety and salivary cortisol has decreased. but, positive self-talk intervention couldn't reduce alpha-amylase levels.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : In general, it can be concluded that positive self-talk training can reduce psychophysiological responses of competitive anxiety. Also, it seems that positive self-talk intervention is not effective on short-term stress responses.

Keywords : Competitive anxiety, Salivary cortisol, Salivary alpha-amylase, Positive Self-talk.

Count: 171

Abstract ID: 824

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

Histological effects of hydroalcoholic extract of juniperus excelsa on improvement of memory and damaged passive avoidance learning by acute immobilization stress in Wistar Male Rats

Submission Author: Zahra Musavi

Zahra Musavi¹, Shahrbanoo Oryan², Delaram Eslimi³, Adel Salari*⁴

1. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
2. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
3. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran
4. Department of Animal Science, Faculty of Biological Sciences, Kharazmi University, Tehran-Iran

Background and Aim : studies show that juniperus excels contains high levels of Flavonoids and Antioxidant properties that could have positive impacts on memory and learning and reduce the prevalence of neuronal degeneration disorders such as Alzheimer and Parkinson. Also juniperus excels has reducing impact on stress. Attention has been paid on to study juniperus excels impact in memory and damaged passive avoidance learning by acute immobilization stress in Male Wistar Rats.

Methods : 64 adult male Wistar rats weighing approximately (200-250 gr) were divided into 8 groups of 8. Control, sham, stress, stress with effective dose of herbal extracts and four groups received extract of juniperus excels. The extract received orally in doses of (50, 100, 150 and 200) mg / kg / BW, in the form of gavage for 14 days. At the end of two weeks experiment, Anesthetized animals and their brain were separated. After fixation, samples from the left and right hippocampus were prepared for studying and counting the neurons with a light microscope.

Results : Acute immobilization stress causes damage to the hippocampal neurons in the CA1 and CA3 regions. In rats under acute immobile stress treated with 100 mg / kg doses of extract of juniperus excel , compared with rats under stress condition (p <0.05),) destruction of the hippocampal neurons were prevented in CA1 and CA3 regions.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Based on the results of this study, extract of juniperus excels maybe due to flavonoids and antioxidant properties which prevents the destruction of the hippocampal neurons in the CA1 and CA3 regions which causes memory damage and inactive avoidance learning during stress.

Keywords : stress, juniperus excels, memory, learning.

Count: 172

Abstract ID: 144

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

Memantine in the basolateral amygdala reduces stress-induced anxiety like behavior in male Wistar rat

Submission Author: Ahmad Rafia

Ahmad Rafia¹, Shahrbanoo Oryan², Akram Eidi³, Hedayat Sahraei⁴

1. Department of Biology, Science and Research Branch, Islamic Azad University, Tehran, Iran.
2. Department of Biology, Science and Research Branch, Islamic Azad University, Tehran, Iran.
3. Department of Biology, Science and Research Branch, Islamic Azad University, Tehran, Iran.
4. Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.

Background and Aim : It is well understood that stress can induced anxiety. However, the role of N-Methyl-D-Aspartate (NMDA) glutamate receptors located in the basolateral amygdala in this regard is not clear. In the present study, the role of NMDA receptors in the basolateral amygdala in potentiation and/or reduction of anxiety like behavior induced by electro foot shock stress were investigated in male Wistar rats.

Methods : Two stainless steel gauge 23 cannula were place in the basolateral amygdala of rats using stereotaxic coordination. Seven days later, the animals were undergone to the stress protocol as follow: They experience seven consecutive stress sessions lasting for 60 min. Five min before each stress session, the animals had received different doses of memantine (0.1, 1 and 5 $\mu\text{g}/\text{rat}$) or saline (1 $\mu\text{l}/\text{rat}$) in their basolateral amygdala. On the day 8, animals were tested for anxiety like behavior (using open field method).

Results : Our results indicated that stress was able to increases the animals locomotion. However, memantine (1 $\mu\text{g}/\text{rat}$) can decrease this behavior in the animals. The drug exacerbated the stress effect in dose 5 $\mu\text{g}/\text{rat}$. The drug induced locomotion activity in dose 1 $\mu\text{g}/\text{rat}$ per se.

Conclusion : It could be concluded that NMDA glutamate receptors in the basolateral amygdala may play a pivotal role in mediation of stress-induced anxiety in the rats.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Anxiety; Memantine; NMDA receptors; Stress

Count: 173

Abstract ID: 611

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

Memantine in the dorsal hippocampus reduces stress-induced anxiety like behavior and depression in male mice

Submission Author: Masoomeh Rahimi

Masoomeh Rahimi¹, Maryam Khosravi², Hedayat Sahraei³

1. Islamic Azad University North Tehran

Background and Aim : It is well understood that stress can induced anxiety and depression. However, the role of N-Methyl-D-Aspartate (NMDA) glutamate receptors located in the dorsal hippocampus in this regard is not clear. In the present study, the role of NMDA receptors in the dorsal hippocampus in potentiation and/or reduction of anxiety like behavior and depression induced by electro foot shock stress were investigated in male NMRI mice.

Methods : Two stainless steel gauge 23 cannula were place in the middle part of the dorsal hippocampus of mice (20-25 g) using stereotaxic coordination. Seven days later, the animals were undergone to the stress protocol as follow: They experience four consecutive stress sessions lasting for 60 min. Five min before each stress session, the animals received different doses of memantine (0.1, 1 and 5 $\mu\text{g}/\text{mouse}$) or saline (1 $\mu\text{l}/\text{mouse}$) in their dorsal hippocampus. After stress termination, the animals were tested either for anxiety like behavior (using elevated plus maze method) or depression (using forced swimming test procedure).

Results :). Our results indicated that stress was able to increases the anxiety like behavior and also depression in the animals. However, memantine (1, and 5 $\mu\text{g}/\text{mouse}$) can decreases these behaviors in the animals in a dose-dependent manner.

Conclusion : . It could be concluded that NMDA glutamate receptors in the dorsal hippocampus may play a pivotal role in mediation of stress-induced anxiety and depression in the mice.

Keywords : Anxiety; Depression; NMDA receptors; Stress

Count: 174

Abstract ID: 643

subject: Emotion, Motivation

and Behavior: Stress and the Brain (Stress-modulated Pathways, Stress and Cognition, Stress Related Disorders)

Presentation Type: Poster

Combination of exercise and levothyroxine alleviate maternal hypothyroidism-induced anxiogenic like behavior in rat pups

Submission Author: Seyed Ali Seyedinia

Seyed Ali Seyedinia¹, Parnia Tarahomi², Nahid Jashirenejad³, Ali Bayat⁴, Abbas Ali Vafaei⁵, Ali RashidyPour⁶

1. Research Center and Department of Physiology, Student Research Committee, Semnan University of Medical Sciences, Iran
2. Research Center and Department of Physiology, Student Research Committee, Semnan University of Medical Sciences, Iran
3. Research Center and Department of Physiology, Student Research Committee, Semnan University of Medical Sciences, Iran
4. Research Center and Department of Physiology, Student Research Committee, Semnan University of Medical Sciences, Iran
5. Research Center and Department of Physiology, Semnan University of Medical Sciences, Iran
6. Research Center and Department of Physiology, Semnan University of Medical Sciences, Iran

Background and Aim : The brain is an important target for thyroid hormones. Also the lack of these hormones during brain development associated with causes of severe cognitive and neurological disorders. Also exercise has beneficial effects on brain function. The aim of this study were determined the effects of levothyroxine and treadmill exercise on anxiogenic like behavior that induced by maternal hypothyroidism in rat's pups.

Methods : For the induction of hypothyroidism in rat pups, 6-propyl-2-thiouracil (PTU) was added to the drinking water (100 mg/L) of mothers, from the 6th prenatal day to the 21th postnatal day. The rat pups were exercising in treadmill and received levothyroxine for 2 weeks. Also for assess of anxiety like behavior, animal was testing to elevated plus maze and light & dark task.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Result indicated that induction of hypothyroidism during the fetal and early postnatal period were increase anxiety like behavior in rat pups. Combination of levothyroxine and treadmill exercise during the postnatal period alleviate the above effects.

Conclusion : These findings suggest that combination of levothyroxine and exercise may provide preventive or therapeutic value to the hypothyroidism-induced neurological disorders.

Keywords : Exercise; Hypothyroidism; Memory; Anxiety; Levothyroxine

Count: 175

Abstract ID: 245

subject: Emotion, Motivation
and Behavior: Reward and the Brain

Presentation Type: Oral

Effect of silver nanoparticles on expression of naloxone- induced withdrawal symptoms in the morphine conditioned rat

Submission Author: Mahnaz Rahimpour

Mahnaz Rahimpour¹, Manizheh Karami², Ali Haeri rohani³

1. Phd student, Faculty of Biology, College of Sciences, University of Tehran
2. Associate Professor, Department of Biology, Faculty of Basic Sciences, Shahed University
3. Professor, Faculty of Biology, College of Sciences, University of Tehran

Background and Aim : Drug seeking behavior is a complex phenomenon which can be displayed by animals. Repeated injection of morphine make the rat conditioned to place while naloxone, a competitive opioid receptor antagonist, may reverse the effect of morphine. Nanomaterials (NMs) are materials that have structural components smaller than 1 μm in at least one dimension. Silver nanoparticles, one of the most commercially used nanomaterials, may be available in biological systems because that the use and degradation of nanosilver-impregnated products will likely result in an environmental release of nanosilver. The purpose of this research was to study the effects of silver nanoparticle on naloxone induced withdrawal behavioral signs in morphine conditioned rats.

Methods : Animals (male Wistar rats weighing 300-350 g) were cannulated bilaterally by stereotaxis apparatus for the CeA (Anteriorposterior= -2.28 mm posterior to bregma and lateral= ± 4.1 mm; dorsoventral= 7.8 mm, according to the atlas of Paxinos and Watson (Paxinos and Watson 2007) coordinates and passed a recovery period lasting one week. Conditioned place preference was conducted using a five-day schedule of an unbiased procedure including three phases (pre-conditioning, conditioning, and test). Morphine (2.5-10 mg/kg) was injected subcutaneously (s.c) through the conditioning once a day. On test day, naloxone (0.05- 0.4 $\mu\text{g}/\text{rat}$) was administrated intra- central nucleus of amygdala (CeA) 5 min before testing. Silver nanoparticles (0.0001, 0.001, 0.01 $\mu\text{g}/\text{rat}$) were injected intra-nucleus 15 min before microinjection of naloxone (0.4 $\mu\text{g}/\text{rat}$). The behavioral signs was recorded and assessed by Ethovision system. Behavioral data in all groups were compared by ANOVA (one- and/or two-way analysis of variance).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Morphine repeated injection (5 mg/kg, s.c.) induced a significant drug-seeking behaviors in experimental animals compared with the control group. Naloxone microinjection into CeA (0.4 μ g/rat) did not cause meaningful withdrawal response. But, a microinjection of silver nanoparticles (0.001, 0.0001 μ g/rat) had significant effect on expression of naloxone- induced withdrawal symptoms in the morphine conditioned rat while the single particles (intra-CeA) did not provide significant signs.

Conclusion : The silver nanoparticles in the CeA may augment the antagonistic effect of Naloxone pre-testing of place conditioning of rats to morphine.

Keywords : morphine, naloxone, silver nanoparticles, withdrawal, rat

Count: 176

Abstract ID: 683

subject: Emotion, Motivation
and Behavior: Reward and the Brain

Presentation Type: Oral

Effect of hippocampal microinjection of Calcium-Calmodulin-Dependent Protein Kinase II inhibitor on Spatial Memory Consolidation of Morphine Sensitized Rats

Submission Author: Hamid AhmadianMoghadam

Hamid AhmadianMoghadam¹, Mitra-Sadat Sadat-Shirazi², Solmaz Khalifeh³, Maryam Farahmandfar⁴, Mohammad-Reza Zarrindast⁵

1. Iranian National Center for Addiction Studies, Tehran University of Medical Sciences, Tehran, Iran
2. Iranian National Center for Addiction Studies, Tehran University of Medical Sciences, Tehran, Iran
3. Cognitive and Neuroscience Research Center (CNRC), Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran
4. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
5. Department of Pharmacology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : When addictive drugs are repeatedly used by individuals, molecular changes in the brain promote continued taking the drug which is difficult to control. Despite a large body of studies the exact mechanism of relapse and dependence in addicted individuals is not well understood. In addicted individuals, hippocampal-dependent memory can be affected by analgesic opioids. Also, Calcium-calmodulin-dependent protein kinase II (CaMKII) has well-described roles in the spatial memory consolidation. However, the effect of CaMKII on spatial memory of addicted individuals is not clear. : The main objective of the study is to evaluate CaMKII role on the spatial memory of male Wistar rats, which previously was sensitized with morphine.

Methods : Animals were sensitized as model of relapse. For this purpose animals were treated with morphine to induce sensitization. Then all animals let be free of the drug for five days. In the 9th day, a challenging dose of morphine administrated before train session. Then the effect of CaMKII inhibitor on memory consolidation was investigated through hippocampal microinjection of CaMKII inhibitor (KN-93), an inactive structural analog of CaMKII inhibitor (KN-92), and

naloxone on morphine-sensitized rats. The drugs were microinjected in dorsal hippocampus CA1 sub-region. The consolidation of spatial memory was assessed by Morris Water Maze test.

Results : Results showed that spatial memory impaired when 5mg/kg morphine administrated before train session. After morphine administration (20 mg/kg) for 3 days followed by 5 days washout period, pre-train administration of morphine (5mg/kg) retrieved the memory in MWM task. This retrieval of memory was reversed by naloxone (5mg/kg, i.p). For the assessment of CAMKII effect on morphine sensitization induced memory retrieval, our result showed that microinjection of KN-93 (10 nmol/rat) to CA1 enhanced spatial memory. Also results showed KN-93 alone impaired memory formation in MWM task, while in morphine sensitized rat, KN-93 improved memory consolidation. It should be noted that administration of KN-92 did not have significant effect on memory consolidation.

Conclusion : Our results confirmed that acute exposure to morphine, impaired consolidation of spatial memory in the rat. Also, results represented that morphine-induced spatial memory impairment might be improved by morphine sensitization phenomena. Moreover, for the first time our results showed that administration of CaMKII inhibitor on morphine addicted rats on induction phase, potentiates the effect of morphine in spatial memory retention.

Keywords : addictive drugs; Spatial Memory; Morphine Sensitized Rats

Count: 177

Abstract ID: 447

subject: Emotion, Motivation
and Behavior: Reward and the Brain

Presentation Type: Oral

Considering the relationship between D2 in Paraventricular hypothalamic nucleus and Ghrelin in food-deprived male rats

Submission Author: Niyousha Danesh

Niyousha Danesh¹, Afsane Elyasi², Morteza Salimi³

1. Medical student, Shahid Beheshti university of medical science, Tehran, Iran
2. Professor of physiology, department of physiology and neurophysiology research center, Shahid Beheshti University of medical science
3. MSc of Physiology, Shahid Beheshti university of medical science, Tehran, Iran

Background and Aim : Obesity is a worldwide public health issue which causes chronic diseases. Dopamine has a crucial role on feeding behavior and it is distributed in different parts of brain such as Hypothalamus. Paraventricular nucleus (PVN) is one of the main nuclei in hypothalamus and expression of D2 dopamine receptors in PVN is significant. Also dopaminergic system affect peripheral gastric hormones including ghrelin, previous studies demonstrated that D2R agonist increases food intake in rats. we hypothesized that plasma ghrelin has role in this modulation.

Methods : Male Wistar rats (220-250 g) were implanted with guide cannula directed to the PVN. Stereotaxic coordinates were, lateral: +0.4 mm from midline; dorsoventral: 7mm from skull surface; anteroposterior: -1.8 mm from the bregma. Intra-PVN microinjections of quinpirole and saline were performed under brief anesthesia.. All drugs were administered in 0.9% saline. plasma Ghrelin was measured by ELISA method.

Results : our result show that Intra-paraventricular injections of quinpirole (0.3 µg) significantly increased plasma ghrelin concentration and it reached to maximum level in 20 minutes after injection. After comparison of prefasting plasma ghrelin (mean 323.8) and fasting (mean 2331). ($p < 0.0001$) we found a significant increase in plasma ghrelin. Moreover saline microinjection decreased plasma ghrelin in a time dependent manner subsequent to feeding but after quinpirol microinjection we found that plasma ghrelin level increased in 20 minutes after food intake (Mean : 3725)

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our study indicates a significant relationship between D2R in PVN, Ghrelin and Feeding, and dopamine in hypothalamic paraventricular nucleus increases plasma Ghrelin and rises food intake. This stimulatory effect is probably mediated through D2-like dopaminergic receptors.

Keywords : Feeding, Hypothalamus, Paraventricular Nucleus, Dopamine, Ghrelin, D2R

Count: 178

Abstract ID: 409

subject: Emotion, Motivation

and Behavior: Reward and the Brain

Presentation Type: Oral

Stress-induced anhedonia and weight loss: the role of MC4R

Submission Author: MINA GOUDARZI

MINA GOUDARZI¹, AREZO NAHAVANDI²

1. Department of Physiology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran.
2. Neuroscience Research Center, Department of Physiology, Iran University of Medical Sciences, Tehran, Iran. Department of Physiology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran.

Background and Aim : Chronic stress is predisposing factor for reward unresponsiveness, or anhedonia. Low quality of life and different neuropsychiatric conditions, are the next step of anhedonic phenotype. On the other hand, anhedonia may be a major symptom of mood disorders like mental depression, too. Weight loss is usually, along with anhedonia, as an exacerbating factor. MC4R mineralocorticoid receptor play a key role , both on weight control and stress response. Here, we tried to find if MC4R gene expression is the only necessary factor to fade out anhedonia induced weight loss , or not?

Methods : In this study, we used male adult rats,between 200-250 gr,living in standard animal house situation. The rats were divided into two main stressed (CUMS) and non-stressed, groups each group then, divided to treated and saline-treated, sub groups. Treatment started at the second week of stress induction and ended after sixth week. Then, after NOR test and SCT ,all rats went for data collection, through fixed brain (NAc cell count), fresh brain (for MC4R gene),plasma (for corticosterone plasma level) sampling. Rats were weighted, weekly from the beginning of experiment.

Results : 6 week of CUMS,rats showed impaired NOR and SCT compared with intact rat.(P<0/001), High NAc MC4R expression and corticosterone plasma level, were detected as well. (P<0/001,P<0/05) Treatment resulted in lower MC4R expression in stressed sub-group,compared with stress+saline(P<001) Both NOR test and SCT, revealed improvement following treatment(P<0/05,P<0/01) stress+treatment subgroup comparement with stress+saline showed MC4R expression level decreased following treatment(P<0/001) stress induced Anhedonia induced low

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

weigh gain ($P < 0/001$). Treatment revealed no difference between treated and non treated sub groups, weight. ($P < 0/1$)

Conclusion : This study revealed that impaired weight gain (weight loss) which is a core symptom following CUMS, can be continued, even after normalization of MC4R gene expression and possibly other factors ,play role in this phenomena, too.

Keywords : MC4R,STRESS,NOR,SCT

Count: 179

Abstract ID: 708

subject: Emotion, Motivation
and Behavior: Reward and the Brain

Presentation Type: Oral

D1 receptor antagonist reduced memory deficits in offspring of morphine-abstinent parents in rats

Submission Author: Maral Matloob

Maral Matloob¹, Mohammad-Reza Zarrindast², Nazanin Monfared³, Mohammad Safarzadeh⁴, Mitra-Sadat Sadat-Shirazi⁵

1. Iranian National Center for Addiction Studies (INCAS), Tehran University of Medical Sciences, Tehran, Iran.
2. Iranian National Center for Addiction Studies (INCAS), Tehran University of Medical Sciences, Tehran, Iran.
3. Iranian National Center for Addiction Studies (INCAS), Tehran University of Medical Sciences, Tehran, Iran.
4. Iranian National Center for Addiction Studies (INCAS), Tehran University of Medical Sciences, Tehran, Iran.
5. Iranian National Center for Addiction Studies (INCAS), Tehran University of Medical Sciences, Tehran, Iran.

Background and Aim : Accumulating evidence suggests that epigenetic mechanisms play an important role in the formation and maintenance of memory in the brain as well as addiction. Previous data showed that D1-like dopamine receptor up-regulated in offspring of morphine-abstinent rats. In this study, we examined the effect of SCH23390 as a D1-like receptor antagonist on spatial memory in offspring of morphine abstinent rat.

Methods : Animals received morphine orally in adulthood for 21 days and let them be free of the drug for ten days. Offspring of these rats were divided into four distinct groups: control, offspring of maternal morphine exposure (MME), offspring of paternal morphine exposure (PME), and PME+MME group. SCH23390 injected into prefrontal cortex, and Morris Water Maze test was performed.

Results : Data showed SCH23390 injection in the prefrontal cortex increased escape latency and traveled distance in MME and PME+MME groups compared with control group ($P < 0.001$ for

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

both). The injection of D1 receptor antagonist had no effect on memory in PME group compared with control group ($P>0.05$).

Conclusion : Inhibition of D1 receptors in the brain could be a new candidate against spatial memory deficits in the offspring of morphine-abstinent parents.

Keywords : Addiction; Opioid; SCH; Spatial memory

Count: 180

Abstract ID: 725

subject: Emotion, Motivation
and Behavior: Reward and the Brain

Presentation Type: Oral

D1 receptor antagonist administration in Nucleus Accumbens modulate morphine reinforcing effect in offspring of morphine abstinent rats

Submission Author: Nazanin Monfared

Nazanin Monfared¹, Mohamadreza zarin dast², Mitra sadat shirazi³, Maral matloob⁴, Mojtaba behruzi⁵, Aryan rajab pour⁶

1. Iranian National Center for Addiction Studies (INCAS), Iranian Institute for Reduction of High-Risk Behaviors, Tehran University of Medical Sciences, Tehran, Iran
2. Iranian National Center for Addiction Studies (INCAS), Iranian Institute for Reduction of High-Risk Behaviors, Tehran University of Medical Sciences, Tehran, Iran
3. Iranian National Center for Addiction Studies (INCAS), Iranian Institute for Reduction of High-Risk Behaviors, Tehran University of Medical Sciences, Tehran, Iran
4. Iranian National Center for Addiction Studies (INCAS), Iranian Institute for Reduction of High-Risk Behaviors, Tehran University of Medical Sciences, Tehran, Iran
5. Iranian National Center for Addiction Studies (INCAS), Iranian Institute for Reduction of High-Risk Behaviors, Tehran University of Medical Sciences, Tehran, Iran
6. Iranian National Center for Addiction Studies (INCAS), Iranian Institute for Reduction of High-Risk Behaviors, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Opioid addiction is one of the most critical issues in the world, especially in the Middle East. In addition to patients who engaged with substance abuse disorder, their family and children involved in that. Previous researches demonstrated that genetic and environment are two essential factors to prone individuals to drug abuse. The children of drug abusers are more prone to psychiatric disorders such as addiction. As dopaminergic system changed in offspring of morphine-abstinent rats, in this study, we evaluated whether with blocking D1-like receptors in nucleus accumbens (NAC) core could prevent the rewarding effect of morphine in offspring of morphine-abstinent rats.

Methods : Male and female Wistar rats were used in this study. They received morphine orally for 21 days. Ten days after last morphine administration, animals prepare to mate according to 4 groups: (1) drug-naïve male and female, (2) drug-naïve male and morphine-abstinent female, (3)

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

drug-naïve female and morphine-abstinent male, and (4) morphine abstinent male and female. Adult male offspring were used for surgery and conditioned place preference (CPP) test. SCH 23390 injected to NAC core and CPP performed.

Results : Data showed that morphine administration (7.5 mg/kg) did not induce conditioning in offspring of the morphine-abstinent parent(s) ($p < 0.001$) compared with offspring of drug-naïve parents. However, when SCH 23390 injected in NAC core during the induction phase, the offspring of morphine-abstinent rat conditioned with the same dose of morphine.

Conclusion : Previous studies showed that offspring of the morphine-abstinent rats are more prone to opioid addiction, and also they developed morphine tolerance. In our study, we found that with blockade of D1-like dopamine receptor in the NAC we can prevent morphine-induced tolerance in these offspring. Inhibition of D1-like dopamine receptor in the NAC could be a new candidate against morphine-reinforcing effect in children with one and/or two morphine-abstinent parent(s).

Keywords : addiction;opioid;SCH

Count: 181

Abstract ID: 688

subject: Emotion, Motivation
and Behavior: Reward and the Brain

Presentation Type: Oral

Evaluation of paternal and/or maternal morphine exposure on Obsessive-Compulsive behavior in male Wistar rat

Submission Author: Kiyana Rohbani

Kiyana Rohbani¹, Mohammad-Reza Zarrindast², Mahsa Ale-Ebrahim³, Saba Sabzevari⁴, Mitra-Sadat Sadat-Shirazi⁵

1. Department of Molecular and Cellular Sciences, Faculty of Advanced Sciences and Technology, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran.
2. Iranian National Center for Addiction Studies (INCAS), Tehran University of Medical Sciences, Tehran, Iran.
3. Department of Molecular and Cellular Sciences, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran.
4. Department of Molecular and Cellular Sciences, Faculty of Advanced Sciences and Technology, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran.
5. Iranian National Center for Addiction Studies (INCAS), Tehran University of Medical Sciences, Tehran, Iran.

Background and Aim : Drug addiction is a common chronic, relapsing disorder in which compulsive drug-seeking and drug-taking behaviors persist despite serious negative consequences. There are numerous family, adoption and twin studies which identified the significant role of heritable influences on individual differences in addiction. Two large-scale studies have examined opioid addiction reported that 23% of the variation in opioid addiction in men was attributable to genetic factors. Obsessive-compulsive disorder (OCD) is a disorder wherein individual experiences recurring thoughts that cause irrational fears and anxiety. They engage in repeated, compulsive rituals, such as counting items, hand washing, and organizing. Individuals with OCD often have other psychopathology. There is evidence showed that prenatal morphine exposure leads to increase anxiety. In fact, the line between OCD and addiction can become blurry when someone who suffers from OCD is also abusing drugs or alcohol. In this study, we evaluated grooming behavior as an index of OCD in offspring of the morphine-abstinent rat.

Methods : In this study male and female Wistar rats were used. All animal received water soluble morphine in adulthood for 21 days, and then let them be drug-free for ten days. Offspring of these rats were used in 3 distinct groups. Paternal morphine exposed, maternal morphine exposed and maternal and paternal morphine exposed. We assessed grooming behavior as an indicator of obsessive-compulsive behavior in the rodent in these groups in comparison to offspring of drug-naïve rats.

Results : Grooming behavior in male offspring with one and/or two morphine-abstinent parent(s) increased compared with the offspring of drug naïve rats [$F(3,28)= 14.354, p<0.001$].

Conclusion : Previous studies showed that morphine-induced trans-generational consequences. Exposure to morphine in adulthood leads to enhance the risk of psychiatric disorders such as depression and substance abuse in offspring. OCD is one the comorbid disorder with addiction and OCD increase the risk of substance abuse disorder in patients. In this survey, we found that morphine exposure in parents before gestation can increase obsessive-compulsive behavior in offspring. According to our result, children with one and/or two morphine-abstinent parent(s) need more psychological supports to avoid psychiatric disorders.

Keywords : Addiction; Opioid; Obsessive-compulsive disorder; Grooming behavior test

Count: 182

Abstract ID: 687

subject: Emotion, Motivation
and Behavior: Reward and the Brain

Presentation Type: Oral

Adult rat morphine exposure changes anxiety-like behavior in male offspring

Submission Author: Saba Sabzevari

Saba Sabzevari¹, Mohammad-Reza Zarrindast², Mahsa Ale-Ebrahim³, Kiyana Rohbani⁴, Mitra-Sadat Sadat-Shirazi⁵

1. Department of Molecular and Cellular Sciences, Faculty of Advanced Sciences and Technology, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran.
2. Iranian National Center for Addiction Studies (INCAS), Tehran University of Medical Sciences, Tehran, Iran.
3. Department of Molecular and Cellular Sciences, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran.
4. Department of Molecular and Cellular Sciences, Faculty of Advanced Sciences and Technology, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran.
5. Iranian National Center for Addiction Studies (INCAS), Tehran University of Medical Sciences, Tehran, Iran.

Background and Aim : Drug addiction may refer to a chronically relapsing disorder that has been characterized by 1) compulsion to seek and take the drug, 2) loss of control in limiting the intake, 3) and the emergence of a negative emotional state; which put the individuals' life into a crisis. Previous studies demonstrated that genetics and environmental factors have a great impact on the vulnerability of individuals to addiction. Anxiety can make a susceptible person turn to drugs or alcohol to cope with the stress of anxiety. In this study, we evaluated the anxiety-like behavior in the male litter of the morphine-abstinent rats.

Methods : Female and Male Wistar rats received morphine orally in adulthood with increasing doses (0.1, 0.2, 0.3 and 0.4 mg/ml, sucrose 3% in water) for 21 days. Ten days after the last morphine administration, animals were placed for mating in 4 groups, as follows: Healthy (drug naïve) female and healthy male, morphine-abstinence female and healthy male, morphine-abstinence male and healthy female, morphine abstinence male and female. Their adult male offspring were tested for anxiety level using Elevated Plus Maze (EPM).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : We found that open arm time percentage (OAT%) decrease in offspring of morphine-abstinent parents [$F(3,28)=6.253$, $p<0.01$] compared with offspring of drug-naïve parents. Also, Open arm entry percentage (OAE%) decreased in offspring with one and/or two morphine-abstinent parents in comparison to control group [$F(3,28)= 16.368$, $p<0.001$]. However, total locomotion did not change among groups ($p>0.05$).

Conclusion : Morphine exposure before gestation induced epigenetic changes that it might transfer to the next generation. We found that exposure to morphine even 10 days before gestation increase anxiety-like behavior in male offspring. In support of our results, there is evidence showed that prenatal morphine exposure leads to increase anxiety in EPM test in offspring. As anxiety state it one of the risk factors for drug addiction, it is important that children of parents who had morphine abuse history getting psychological support to avoid substance abuse.

Keywords : Addiction; Opioid; Anxiety-like behavior; Elevated Plus Maze (EPM); Offspring

Count: 183

Abstract ID: 92

subject: Emotion, Motivation
and Behavior: Reward and the Brain

Presentation Type: Oral

Single-neuron activity in the nucleus accumbens on the extinction and reinstatement morphine-induced conditioned place preference: the key role of the NMDA and AMPA receptors in the reward- associated

Submission Author: Ali Siahposht khachaki

Ali Siahposht khachaki¹, Abbas Haghparast²

1. Department of Physiology and Pharmacology, Mazandaran University of Medical Sciences, Ramsar International Branch, Sari, Iran
2. Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Background and Aim: The mesocorticolimbic dopaminergic system projecting from the ventral tegmental area (VTA) to the nucleus accumbens (NAc) is necessary for the initiation of opioid compulsive usage and reward-associated behaviors. Activation of AMPA and NMDA glutamatergic receptors in the nucleus accumbens probably is a part of the mechanism of drug related reward. In this work, we investigated on the effects intracerebroventricular administration the AMPA (CNQX) and NMDA (AP5) antagonist on both extinction and reinstatement of morphine –induced conditioned place preference (CPP).

Methods : Materials and methods: All animals passed CPP procedure and afterwards, received intracerebroventricular administration of different doses of D-AP5 or CNQX during extinction period or reinstatement phase. The conditioning scores were recorded by Ethovision software. After behavioral test in the reinstatement day, the prefrontal cortex, nucleus accumbens and hippocampus were then removed and the levels of c-fos, CREB, and phosphorylated-CREB were measured using western blotting. In vivo single unit recording after the extinction period were performed in urethane anesthetized rats. After 20 min of baseline recording from accumbens neurons the non-effective dose of morphine (1mg/kg; s.c.) were performed and the spontaneous firing were continued to be recorded for 40 min

Results : Our results showed that administration of D-AP5 or CNQX significantly shortened the extinction (maintenance) of morphine CPP. Besides, injection of these antagonists before

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

administration of priming dose of morphine (1 mg/kg, subcutaneously) following extinction period decreased the reinstatement of morphine CPP in extinguished rats. However, the effect of CNQX on maintenance and reinstatement of morphine was more significant than D-AP5. In the molecular session ICV microinjection mentioned antagonists decreased c-Fos level and CREB/pCREB ratio and also, the electrophysiology session ICV microinjection these antagonists increased baseline firing of the nucleus accumbens neurons.

Conclusion : These findings suggested that glutamate receptors involve in extinction and reinstatement of morphine-CPP, and antagonism of these receptors may be useful for faster extinction of drug-induced reward and attenuation of relapse

Keywords : Reward; Extinction; Reinstatement; Conditioned place preference; NMDA receptor; AMPA receptor

Count: 184

Abstract ID: 651

subject: Emotion, Motivation

and Behavior: Behavioral Pharmacology

Presentation Type: Poster

Feeding by Vitamin C during neonatal and juvenile growth improves learning and memory of rats

Submission Author: Atena Akbari

Atena Akbari¹, Farimah Beheshti², Mahmoud Hosseini³

1. Student Research Committee, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran
2. Department of Medical Basic Sciences and Neuroscience Research Center, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran
3. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : We investigated the effects of feeding by Vitamin C (Vit C) during neonatal and juvenile growth on learning and memory of rats.

Methods : Rats after delivery were randomly divided into four groups and treated: (1) Control group which received normal drinking water, (2-4) Vit C 10, 100 and 500 mg/kg from the first day. After 8 weeks, 10 male offspring of each group were randomly selected and tested in the Morris water maze (MWM) and passive avoidance (PA) tests. The animals were deeply anesthetized and the brain tissues were removed for biochemical measurements. All data are presented as the mean \pm SEM. The analysis was performed using the SPSS software version 16.

Results : 10-500 mg/kg, Vit C reduced the time latency ($P<0.05$ - $P<0.01$), traveled distance ($P<0.01$) and increased the time spent in target quadrant ($P<0.01$ - $P<0.001$). In PA, 10 and 100 mg/kg of Vit C increased the latency ($P<0.05$). 10, 100 and 500 mg/kg of Vit C decreased the malondialdehyde (MDA) ($P<0.05$ - $P<0.01$) in the brain tissues while, increased total thiol concentration and catalase activity compared to the control group ($P<0.01$ - $P<0.001$).

Conclusion : We showed that feeding of the rats by Vit C during neonatal and juvenile growth has positive effects on learning and memory that might be due to the anti-oxidative effects.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Vitamin C, Memory, Learning, Juvenile, Oxidative stress

Count: 185

Abstract ID: 77

subject: Emotion, Motivation

and Behavior: Behavioral Pharmacology

Presentation Type: Poster

The effect of sulpiride administration as a D2 receptor antagonist on memory extinction in auditory fear model in rats

Submission Author: Masoumeh Dadkhah

Masoumeh Dadkhah¹, Abbas Ali Vafaei², Ali Rashidy-Pour³, Parnia Tarahomi⁴

1. Student's Research Committee, Semnan University of Medical Sciences, Semnan, Iran
2. Research Center and Department of Physiology, Semnan University of Medical Sciences, Semnan, Iran
3. Research Center and Department of Physiology, Semnan University of Medical Sciences, Semnan, Iran.
4. Student's Research Committee, Semnan University of Medical Sciences, Semnan, Iran.

Background and Aim : Dopamine signaling participate in a variety of neurobiological processes that contribute to learning and memory and suppression of conditioned fear after extinction. Many regions of brain especially infralimbic of prefrontal cortex (ILPFC) play an essential role in the extinction of fear-based memory. Moreover, we found no studies that assessed the role of Dopamine receptors (DRs) in IL in fear memory extinction. Here, we investigated the effect of DRs, D2 receptor blocking on auditory fear memory (AFM) extinction in rats.

Methods : Male Wistar rats (250 – 300 g) with surgically implanted bilaterally cannula aimed at the ILPFC were trained and tested in an auditory fear condition task. After fear conditioning on day 1, rats were divided in 7 groups (n = 8): vehicle – saline (control), SUL 500ng-SAL, SUL 250ng-SAL, SUL 125ng-SAL, SUL 62.5ng-SAL, SUL 31.25ng-SAL and SUL 15.125ng-SAL. For investigate the role of DRs, D2 receptor in IL, infusion of different doses of SUL(0.5µl/side) was injected into ILPFC prior to extinction training on day 2 (test 1), and the freezing behavior measured during 3 days, in 24 intervals.

Results : We found that SUL infused immediately before extinction training dose dependently facilitate extinction. The highest (500ng) and lowest (15.125ng) dose of SUL as saline group had no effect on extinction. The other doses that were used in this study facilitate fear extinction ($P \leq 0$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : We suggest that D2 receptors dose dependently facilitate extinction in auditory fear memory task.

Keywords : Extinction, Sulpiride, Dopamine, Auditory Fear Conditioning, Rat

Count: 186

Abstract ID: 646

subject: Emotion, Motivation
and Behavior: Behavioral Pharmacology

Presentation Type: Poster

Improving effects of PPAR γ agonist on brain tissue oxidative damage induced by febrile seizure in the rat

Submission Author: Nazanin Gheis

Nazanin Gheis¹, Farimah Beheshti², Mahmoud Hosseini³, Nosaibeh Riahi Zaniani⁴

1. Student Research Committee, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran
2. Department of Medical Basic Sciences and Neuroscience Research Center, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran
3. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
4. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : Febrile seizures associated with fevers typically greater than 38°C are the most common convulsive event in infancy and childhood. The aim of the current study was to investigate the effects of peroxisome proliferator-activated receptor gamma (PPAR γ) on brain oxidative stress induced by febrile seizure.

Methods : Febrile seizure was modeled by hyperthermia-induced seizure in 9-11-day -old male rats by a heated chamber. The animals were divided into 3 groups (n=8) based on the presence or absence of seizure behaviors: 1) Control group (Control), 2) hyperthermia with all seizure signs (Seizure) and 3) hyperthermia with all seizure signs and treated by pioglitazone 3 mg/kg (Seizure-Pio). The animals were deeply anesthetized and the brain tissues were removed for biochemical measurements. All data are presented as the mean \pm SEM. The analysis was performed using the SPSS software version 16.

Results : The results showed that malondialdehyde (MDA) concentrations in cortex and hippocampus were significantly increased in seizure group (P <0.01). Treatment with pioglitazone decreased the concentration of this substance in both cortical and hippocampal tissues (P <0.05 and P <0.01, respectively). Also, the concentration of total thiol groups and the activity of

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

superoxide dismutase (SOD) and catalase in the cerebral cortex and hippocampus were significantly lower in the seizure group than in the control group ($P < 0.01$). Treatment with pioglitazone increased the levels of thiol group concentration and SOD and catalase activity in comparison to Seizure ($P < 0.01$).

Conclusion : It is suggested that this $PPAR\gamma$ agonist can reduce the oxidative stress caused by febrile seizure and provide a reliable route to prevent febrile seizure subsequent consequences.

Keywords : Febrile seizure; Oxidative stress; Pioglitazone; $PPAR\gamma$

Count: 187

Abstract ID: 369

subject: Emotion, Motivation
and Behavior: Behavioral Pharmacology

Presentation Type: Poster

Neuropharmacological effects of *Rosa damascena*

Submission Author: Hojjat Ghelichi zaveh

Hojjat Ghelichi zaveh¹, Alireza Dehghan², Mohammad Amin Khezri³, Farimah Beheshti⁴,
Mahmoud Hosseini⁵

1. Student Research Committee, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran
2. Student Research Committee, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran
3. Student Research Committee, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran
4. Department of Medical Basic Sciences and Neuroscience Research Center, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran
5. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : *Rosa damascena* mill L (*R. damascena*), generally referred to as Damask rose, and is known as Gole Mohammadi in Iran. It is one of main member of Rosaceae family. Rosaceae are understood to be decorative plants. The *R. damascena* has additionally been utilized for therapeutic purposes. This plant has also been advised as a gentle laxative. Rose oil heals depression, grief, nervous stress and tension.

Methods : We searched the literature available in Scopus, PubMed and Science Direct databases for English articles published until 1990. For this purpose, we used 5 keywords for *R. damascena*, 3 for animal models and 7 for nervous system disorders.

Results : This review article summarized a variety of in vitro and in vivo studies in order to find out the effects of *R. damascena* and its active constituents, in nervous system, the in vivo studies was more than in vivo studies. There are not many studies have been done on the effects of this plant on the nervous system and studies that have been done so far has not said precisely the action mechanism of these effects. The results of several important studies have shown that this plant exhibits beneficial effects in different nervous system diseases including memory impairment, anxiety, depression, epilepsy and pain. In addition, based on the current review, it is concluded

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

that *R. damascena* through increasing the GABAergic tone and particularly antioxidative effects improve nervous system diseases.

Conclusion : The present review is an effort to provide a detailed scientific literature survey about pharmacological activities of the plant on nervous system. Results showed that *R. damascena* and its components can be considered as promising agents in the treatment of nervous system disorders.

Keywords : *Rosa damascena* mill L, Central nervous system, Neuropharmacological effects

Count: 188

Abstract ID: 188

subject: Emotion, Motivation

and Behavior: Behavioral Pharmacology

Presentation Type: Poster

The effects of intracerebroventricular injection of orexin A on sexual behavior and motor activity in male wistar rats: role of kisspeptinergic mediating pathway

Submission Author: Abdolkarim Hosseini

Abdolkarim Hosseini¹, Homayoun Khazali²

1. Faculty of Life Sciences and Biotechnology, Shahid Beheshti University, Tehran, Iran
2. Faculty of Life Sciences and Biotechnology, Shahid Beheshti University, Tehran, Iran

Background and Aim : In recent years, many researchers have shown that orexin system plays an important role in the regulation of reproductive axis and sexual motivation. In addition, kisspeptin signaling pathway plays a role in relaying the environmental and metabolic information to reproductive axis. In the present study, the role of kisspeptin signaling system was investigated on mediating the effects of orexin on sexual behavior and motor activity of male rats.

Methods : In this experimental study, forty-eight male wistar rats weighing 220-250 g in 6 groups (in each group n = 8) received either saline, kisspeptin-10 (1 nmol), P234 (Receptor antagonist of kisspeptin, 1 nmol), orexin A (3 nmol), simultaneous injections of orexin A and kisspeptin, orexin A and P234, respectively, via the third ventricle at final volume of 3 μ l. 10 min after the administration of solutions rats undergo to open field test to motor behavior assessment for 5 min. After the test, for evaluation of sexual behavior for each animal introduce a female receptive rat and for 40 min sexual behavior of animal was recorded by a digital video camera. Data were analyzed by SPSS software version 24 and appropriate statistical tests.

Results : Intracerebroventricular (icv) injection of orexin caused to significant increase in the latencies of mount (ML), intromission (IL) and ejaculation (EL), and to significant increase in the number of mount (NM) and locomotor activity compared to the control animals ($p < 0.05$). The 3 nmol dose of orexin led to significant decrease in the number of ejaculation, sexual activity index (SAI) and copulatory efficiency (CE) compared to the control animals ($p < 0.05$). Pretreatment of

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

the 3 nmol orexin received animals with 10 nmol kisspeptin modulate the effects of orexin. As well as, injection of p234 caused to significantly increase of NM, ML, IL, EL and locomotor activity compared to control group ($p < 0.05$). Also, the concomitant injection of orexin and P234 led to the enhancement of effects of each peptide alone ($p < 0.05$).

Conclusion : The icv injection of orexin A suppressed the sexual behavior and elevated the motor activity in male rats. It was suggested that orexin relay information to the reproductive axis with its modulating effect on the kisspeptinergic system as an inter-neural pathway.

Keywords : Orexin; Kisspeptin; Sexual Behavior; Motor Activity; Rat

Count: 189

Abstract ID: 385

subject: Emotion, Motivation

and Behavior: Behavioral Pharmacology

Presentation Type: Poster

The involvement of cholinergic muscarinic receptors in dorsal hippocampal CA1 area on memory impairment induced by iron oxide nanoparticles in adult male rats

Submission Author: AZAM KARIMI

AZAM KARIMI¹, Lotfollah khajehpour², mahnaz kesmati³

1. Shahid chamran university of ahvaz
2. shahid chamran university of ahvaz
3. shahid chamran university of ahvaz

Background and Aim : With the increasing development of nanotechnology, nanomaterials are used instead of conventional compounds. Our previous studied indicated that Fe₂O₃ nanoparticles (Fe₂O₃ NPs) usage could induce memory impairment in animal models. Also, it is well known that involvement of muscarinic cholinergic receptors in process of the memory formation. In the current study, we examined the possible role of cholinergic muscarinic receptors in dorsal hippocampal CA1 region in memory impairment induced by Fe₂O₃ NPs in adult male rat.

Methods : Wistar adult male rats weighing 200-250 g were used. Animals divided into four groups: saline(1μl/rat) +saline(ml/kg, ip), saline(1μl/rat) +Fe₂O₃ NPs(7.5mg/kg, ip), pilocarpine(1,2μg/rat)+saline(ml/kg) and pilocarpine(1μg/rat)+Fe₂O₃ NPs(7.5mg/kg, ip). Pilocarpine was injected intra-CA1 of dorsal hippocampus after training and before intraperitoneal administration of Fe₂O₃ NPs. Passive avoidance memory was examined in all animal groups by step-through apparatus in two phases: training day and testing day. In the test day, latency to enter dark compartment was measured for evaluation of animal's memory retrieval.

Results : intraperitoneal injection of Fe₂O₃ NPs (7.5mg/kg) after training decreased memory retrieval in passive avoidance memory in test day. On the other hands, Post-training intra-CA1 microinjection of pilocarpine (1 μg/rat), had no significant effects on memory retrieval. While,

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

post-training administration of pilocarpine (1 μ g/rat, intra-CA1) plus Fe₂O₃ NPs (7.5mg/kg), reversed the impairment effect of Fe₂O₃ NPs on memory retrieval.

Conclusion : It seems that Fe₂O₃ NPs probably is induced memory impairment by decreases of the cholinergic muscarinic activity in CA1.

Keywords : Memory, Hippocampus, Cholinergic, nanoparticle

Count: 190

Abstract ID: 364

subject: Emotion, Motivation
and Behavior: Behavioral Pharmacology

Presentation Type: Poster

Neuropharmacological effects of *Nigella sativa*

Submission Author: Negin Mirzaei

Negin Mirzaei¹, Farimah Beheshti², Mahmoud Hosseini³

1. Student Research Committee, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran
2. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
3. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : *Nigella sativa* (NS) (Ranunculaceae family) is generally utilized as a therapeutic plant all over the world. The seeds of the plant have a long history of use in different frameworks of medicines and food. It has been widely used to treat nervous system diseases such as memory impairment, epilepsy, neurotoxicity, pain, etc. This review article summarized in vitro and in vivo studies in order to report the effects of NS and its active constituents on the nervous system.

Methods : We searched the literature available in Scopus, PubMed and Science Direct databases for English articles published until 1985. For this purpose, we used 5 keywords for NS, 3 for animal models and 7 for nervous system disorders.

Results : According to different studies it seems that NS can affect the nervous system and related diseases. In these studies, aqueous, alcoholic and hydro-alcoholic extracts and NSO has been considered. It should be mentioned that TQ is seen to be the most useful known element of NS and can be regarded as a useful agent in the treatment of diseases of the nervous system. The results of several studies have shown that this plant can improve memory impairment, anxiety, depression, epilepsy, neurotoxicity, neurodegeneration and pain. In addition, based on the current review, it is concluded that NS, through inhibition of acetylcholinesterase enzyme and particularly due to its antioxidative effects improves nervous system diseases. It is also suggested that NS has

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

interactions with the GABA, opioid and NO system. However, a few studies confirmed the beneficial effects of NS on epilepsy and seizures in children.

Conclusion : The present review is an effort to provide a detailed scientific literature survey about pharmacological activities of the plant on nervous system. Results showed that NS and its components can be considered as promising agents in the treatment of nervous system disorders.

Keywords : Nigella sativa, Thymoquinone, Central nervous system, Neuropharmacological, effects

Count: 191

Abstract ID: 778

subject: Emotion, Motivation
and Behavior: Behavioral Pharmacology

Presentation Type: Poster

Anti-anxiety activity of South marshmallow in the elevated plus-maze test

Submission Author: Tajmah Mombeini

Tajmah Mombeini¹, Hamid Gholami Pournadie², Soroush Mazloumi³

1. a-Department of Pharmacology, School of Medicine, Shahed University, Tehran, Iran; b-Neuroscience Research Center, Shaheed Beheshti University of Medical Sciences, Tehran, Iran
2. c-Department of physiology and pharmacology, Pasteur Institute of Iran, Tehran, Iran; b-Neuroscience Research Center, Shaheed Beheshti University of Medical Sciences, Tehran, Iran
3. d-School of Medicine, Shahed University, Tehran, Iran.

Background and Aim : Anxiety disorders are marked by excessive fear and avoidance, often in response to specific objects or situations, in the absence of true danger. These disorders are widely treated with the GABAA agonists, benzodiazepine drugs. Although these drugs are relatively safe, they produce many undesirable side effects such as respiratory and cognitive problems. Besides, some of medicinal plants have been traditionally used as a nerve calming remedy (sedative), such as South marshmallow (*Alcea aucheri*) from Malvaceae family. Flowers of South marshmallow are used as mucilage for prophylaxis and therapy of diseases and discomforts of the respiratory and the gastrointestinal tracts, menstrual disorders, urinary complaints, ulcers and, inflammations. We hypothesized that South marshmallow may have anti-anxiety effect, due to the following reasons. Firstly, it has been used traditionally as a sedative agent and; secondly, the plant contains some neuroactive phytochemicals such as flavonoids, which have affinity for the central benzodiazepine receptors. Therefore, the present study was designed to evaluate possible anxiolytic effect of an aqueous extract of flowers of South marshmallow in rats.

Methods : Anti-anxiety effect was assessed using the elevated plus-maze test (EPM). Male Wistar rats were treated with saline (control), graded doses of aqueous extract of *Alcea aucheri* (at doses of 35, 70, and, 175 mg/kg) or, diazepam (positive control) at dose of 1.2 mg/kg. Drugs were dissolved in saline, and all agents were injected intraperitoneally (IP). Animals were subjected to behavioral assessment in the EPM, 1 h after drug administration. Data were obtained using

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Ethovision software; a video tracking system for automation of behavioral experiments. Then, the percentage of time spent or entries into open arms, closed arms and, total arm entry were obtained during a 5 min session in EPM.

Results : The results showed that the extract at its highest dose (175 mg/kg) induced a statistically significant increase in percentage of time spent on open arms, compared with saline group. This effect was also observed in diazepam-treated rats. Total arm entry was not different between extract-, diazepam- and, saline-treated groups.

Conclusion : It is concluded that South marshmallow may have acute anti-anxiety effect. This study is the first to report that a plant of the genus *Alcea* has behavioral effect compatible with anxiolytic-like activity.

Keywords : South marshmallow; Ant-anxiety effect; Elevated plus-maze; Rat

Count: 192

Abstract ID: 760

subject: Emotion, Motivation

and Behavior: Behavioral Pharmacology

Presentation Type: Poster

Effect of aqueous extract of South marshmallow on spontaneous locomotor activity in rats

Submission Author: Tajmah Mombeini

Tajmah Mombeini¹, Hamid Gholami Pournadie², Fereydoun Tahmasbi³

1. a-Department of Pharmacology, School of Medicine, Shahed University, Tehran, Iran; b-Neuroscience Research Center, Shaheed Beheshti University of Medical Sciences, Tehran, Iran
2. c-Department of physiology and pharmacology, Pasteur Institute of Iran, Tehran, Iran; b-Neuroscience Research Center, Shaheed Beheshti University of Medical Sciences, Tehran, Iran
3. d-Paramedical School, Tehran Medical Branch, Islamic Azad University, Tehran, Iran

Background and Aim : The medicinal plant South marshmallow from Malvaceae family has been used by Iranian people for the treatment of gastrointestinal, respiratory and, dermatologic disorders; as a diuretic agent as well as a nerve calming remedy. However, neither clinical nor experimental assessments are present to indicate the sedative effect for this plant and other plants of the genus *Alcea*. The scope of this study was to investigate the acute effect of an aqueous extract of flower of South marshmallow on locomotor activity in rats.

Methods : Sedative effect was assessed using the open field test. Locomotor activity made by animals was automatically recorded by Ethovision software. Experimental groups of male rats received an intraperitoneal injection of saline (control), graded doses of *Alcea aucheri* aqueous extract (at doses of 2.18, 8.75, 17.5, 35, 70, 175, 350 and 700 mg/kg) or, diazepam (positive control), at dose of 3 mg/kg. Both of diazepam and the extract, were diluted with saline on the day of experiment; before use. Locomotor activity was defined as total distance traveled (cm) by rat during a 30 min period immediately after drug injection.

Results : Diazepam and the extract showed similar behavioral effects in the open field test. The extract at doses equal or greater than 17.5 mg/kg significantly decreased total distance traveled compared with saline-treated group. Furthermore, linear regression analysis confirmed a dose-

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

dependent effect of the extract on locomotor activity, i.e. increasing the dose of the extract caused a reduction in locomotor activity ($p < 0.0001$).

Conclusion : These data indicated that South marshmallow may have acute sedative effect. This study is the first to report that a plant of the genus *Alcea* has sedative activity.

Keywords : South marshmallow; Sedative effect; Open field; Rat

Count: 193

Abstract ID: 224

subject: Emotion, Motivation

and Behavior: Behavioral Pharmacology

Presentation Type: Poster

Acute Administration of Nigella sativa Showed Anxiolytic and Anti-Depression Effects in Rats

Submission Author: Zahra Niazi Mashhadi

Zahra Niazi Mashhadi¹, Farimah Beheshti², Fatemeh Norouzi³

1. Student Research Committee, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran;
2. Division of Neurocognitive Sciences, Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran;
3. Department of Physiology, Esfarayan Faculty of Medical Sciences, Esfarayan, Iran;

Background and Aim : Nigella sativa (NS) has been shown to have some effects on the central nervous system. In the present work, anxiolytic and anti- depression effects of an acute administration of hy-dro-alcoholic extract of NS was investigated in rats.

Methods : The rats were grouped and treated 30 min before conducting the behavioral tests: (1) saline as a control group, (2-4) three groups including NS 100, NS 200 and NS 400 treated by three doses (100, 200 and 400 mg/ kg) of NS. The animals were examined using Forced Swim Test (FST), Open-Field (OFT) and Elevated Plus Maze (EPM) tests. All data are presented as the mean \pm SEM. The analysis was performed using the SPSS software version 16.

Results : NS extract improved the time spent, crossing number and traveled distance in the central zone in OFT compared to the control group ($p < 0.01$ - $p < 0.001$). The time spent in the peripheral area of OFT by all animals' treated groups was lower than that of control group ($p < 0.01$ and $p < 0.001$). Com-pared to the control group, all three extract treated groups showed greater total crossing and total traveled distance in OFT ($p < 0.05$ - 0.001). Compared to the control group, the animals treated by 200 and 400 mg/kg of NS spent longer times in the open arm of EPM ($p < 0.05$ and $p < 0.001$). All three doses of the extract shortened the closed arm entries compared to the control group ($p < 0.001$). The animals of NS 200 and NS 400 groups spent lower times in the closed arm compared to the control group ($p < 0.01$ and $p < 0.05$). In FST, the immobility times in

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

the NS 400 group were lower than control ($p < 0.05$). All three doses of the plant extract increased the climbing times compared to the control group ($p < 0.01$ - $p < 0.001$).

Conclusion : The results of the present work demonstrated that acute administration of the hydro-alcoholic extract of NS had anxiolytic and anti-depression effects in rats. More advanced examinations are needed for better climbing times of the responsible compound(s) and mechanism(s).

Keywords : Anxiety, anxiolytic, central nervous system, depression, *Nigella sativa*, rats.

Count: 194

Abstract ID: 327

subject: Emotion, Motivation

and Behavior: Behavioral Pharmacology

Presentation Type: Poster

Hippocampus Cannabinoid-receptors induced facilitation of fear memory extinction in rats

Submission Author: Shshla Nourizad hydarlo

Shshla Nourizad hydarlo¹, Shahla Nourizade², Abbas Ali vafaei³, Ali Rashydi-pour⁴, Mohadeseh Ghalandari-Shamami⁵

1. -
2. Laboratory of Learning and Memory, Research Center and department of Physiology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran, 1Seyyed Al Shohada Heart Hospital, Uremia University of Medical Sciences, uremia, Iran
3. Laboratory of Learning and Memory, Research Center and department of Physiology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran
4. Laboratory of Learning and Memory, Research Center and department of Physiology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran
5. Laboratory of Learning and Memory, Research Center and department of Physiology, School of Medicine, Semnan University of Medical Sciences, Semnan, Iran

Background and Aim : Extinction is a type new inhibitory learning that results from presentation of a conditioned stimulus in the absence of the unconditioned stimulus, leading to a reduced fear response to the conditioned stimulus. Different areas in the brain are involved in extinction include of pre frontal cortex hippocampus and amygdala The Posterior hippocampus is involved in the Extinction process. In this study we examine the role of exogenous cannabinoids in traumatic memory extinction.

Methods : The male Wistar rats were placed in a stereotaxic frame and implanted bilaterally, with the cannula tips 2 mm above the posterior hippocampus. The CB1 receptor antagonist AM251 (2.5 -5–10 ng per 0.2 μ L per side) or vehicle (DMSO) dimethyl sulfoxide, infused bilaterally into the posterior hippocampus of rats 10 minutes before Extinction test.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results show that infusion of CB1 receptor antagonist AM251 in doses of 2.5 and 5 ng but not 10 ng per 0.2 μ L per side facilitate of memory extinction in auditory fear conditioning task ($P < 0.05$).

Conclusion : These findings indicate that endocannabinoids in the posterior hippocampus facilitate extinction. Induced dose-dependent decrease of fear conditioning extinction.

Keywords : AM251, extinction, the posterior hippocampus, endocannabinoids

Count: 195

Abstract ID: 26

subject: Emotion, Motivation

and Behavior: Behavioral Pharmacology

Presentation Type: Poster

Effects of gestational and lactational treatment with aqueous Fennel seed extract on sexually dimorphic behaviors in female mice

Submission Author: Rahmatollah Parandin

Rahmatollah Parandin¹

1. Department of Biology, Faculty of Sciences, Payame Noor Universtiy, PO BOX 19395-3697, Tehran, Iran.

Background and Aim : The notion that estrogens disorder neural network organization controlling of some rodent sexually dimorphic behaviors during perinatal life is now one of accepted tenets in the neuroscience and behavioral Physiology. In addition, exposure to estrogenic environmental disruptor compounds (EDCs) that imitate estrogen function can permanently disturb the nervous system and behavior. Organizational role of perinatal estrogens has been confirmed for some sexually dimorphic behaviors such as estrus cycle, lordosis behavior and saccharin preference. Phytoestrogens are EDCs found in some plants, most notably edible plants. Despite the abundant literature about the benefits of phytoestrogens on body, presently there is data about adverse effects of some phytoestrogens on sexually dimorphic behavior. The current study was designed to the effects of in utero and neonatal exposure with fennel as a phytoestrogen on estrus cycle, lordosis behavior and saccharin preference.

Methods : Pregnant BALB/c mice were injected intraperitoneally with distilled water (sham), 100, 200 or 400 (mg/kg body weight) aqueous fennel seed extract (AFSE), daily from day 7 of gestation to postnatal day (PND) 7 and the female offspring were studied. Control mice received no treatment. The vaginal smear was examined everyday morning (08:00–10:00 h) by lavage using 0.9% saline solution from PND 40 until PND 70. At lordosis behavior test, an 80-day-old female mouse was placed in a glass aquarium with a vigorous male mouse of the BALB/c strain and we recorded the lordosis responses of the female to the mounts of the stimulus male. The test lasted until the female had received 10 mounts or 10 min had elapsed. The test was repeated at 9 pm in 3 consecutive days. lordosis quotient (LQ) was determined by dividing the number of times a female displayed lordosis response by the total number of mounts by the male sexual partner, and multiplying this value by 100. The saccharin preference test consisted of providing each mouse

with two sources of water. One bottle of water contained deionized, distilled water, while the other bottle contained a 0.5% saccharin solution. Saccharin preference was determined by dividing the amount of saccharin solution consumed by the total fluid for each day.

Results : A 30 days vaginal smear check indicated that control, sham or 100 AFSE treated female mice showed a constant 4- or 5-day estrus cycle, whereas 200 or 400 AFSE treated mice showed a prolonged estrus with decreased proestrus, estrus and metestrus stages and increased and diestrus stage and index. 400 AFSE treated females showed lordosis with a low LQ when compared to the control group. On the other hand, LQs were lower in the 100 and 200 treated groups but not significantly when compared to the control group. AFSE had no significantly effect on saccharin preference.

Conclusion : Taken together, this study show that fennel acts as an estrogen like component in the sexual differentiation of the brain and causes defeminization of the brain in regulating the estrus cycle and adult sexual behavior in female mice.

Keywords : fennel, brain, sexually dimorphic behaviors

Count: 196

Abstract ID: 242

subject: Emotion, Motivation
and Behavior: Behavioral Pharmacology

Presentation Type: Poster

Effectiveness of combining medication and behavioral therapy on autism spectrum disorder

Submission Author: Mohammad Rezaei

Mohammad Rezaei¹, AliReza Moradi², Gohar Lotfi³, Farzad Weisi⁴

1. Pediatric developmental Disorders Research Center, Hamadan University of Medical Sciences, Hamadan, Iran.
2. Institute for cognitive science studies Cognitive sciences , Kharazmi University, Tehran, Iran.
3. 1. Pediatric developmental Disorders Research Center, Hamadan University of Medical Sciences, Hamadan, Iran.
4. Department of Speech therapy, Iran University of Medical Sciences, Tehran, Iran.

Background and Aim : Autism is a neuro-developmental disorder that impresses on social interaction, verbal and nonverbal communication and stereotyped behavioral patterns. In this paper we tried to examine whether risperidone plus Pivotal response treatment would be superior to risperidone only on behavioral problems.

Methods : The research method was quasi-experimental with case-control. Thirty four children diagnosed with ASD according to Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) were randomly divided into two groups: A RIS treatment group (n = 18) and a RIS plus PRT (n = 16). Behavioral problems were evaluated with the Aberrant Behavior Checklist (ABC). Assessment of ABC was performed in three phases, immediately before, after of the treatments and following (3 months after of the treatments).

Results : Results showed ABC scores were decreased in both groups after 3 months ($p < 0.05$) compared with the scores prior to treatment. Also, there was no significant differences in following measures of the ABC's subscale between the two groups, in expect of stereotypic behavior subscale ($p = 0.017$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Medication can reduce behavioral problems in children with ASD. Treatment with RIS combined with PRT may result in reducing inappropriate speech in children with autism than RIS training alone. Therefore, the combination of RIS plus PRT is recommended for controlling and treating this disorder.

Keywords : Autism spectrum disorder, Behavioral problems, Pharmacology, Risperidone, Pivotal response treatment

Count: 197

Abstract ID: 291

subject: Emotion, Motivation

and Behavior: Behavioral Pharmacology

Presentation Type: Poster

Effect of chronic ethanol consumption on sexual behavior of adult male wistar rats in the copulatory phase

Submission Author: Maryam Sadeghzadeh

Maryam Sadeghzadeh¹, mahrokh samadi², shirpoor alireza³

1. Student Research Committee, Urmia University of Medical Sciences, Urmia, Iran
2. Department of Physiology, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran
3. Department of Physiology, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran

Background and Aim : The interaction of ethanol consumption and sexual behavior has been studied over the past 3 decades, in the field of behavioral neuroscience, it is essential to use the appropriate animal models for the topic of investigation. but few studies have been examined how ethanol consumption affects the general behavioral aspects of the copulatory cycle patterns in male rats. The aim of current study was to evaluate of chronic ethanol consumption on adult male wistar rat sexual behavior alteration in precopulatory, copulatory and executive phases of copulatory cycle.

Methods : Male intact adult rats were divided into two groups namely: control and ethanol treated (4.5g/kg BW daily) groups. After 42 days treatment, male rats were given daily access to adult female for 4 hours per day for 4 consecutive days and rats sexual behavior were recorded under video recorder by camera.

Results : The results revealed that chronic ethanol consumption caused significant increases of anogenital sniffing latency, mount latency, intermission latency, and ejaculation latency period in the ethanol group compared to those in the control group

Conclusion : It is suggested that chronic ethanol consumption may reduce male rat's tendency for sexual interaction with female rats as manifested by enhanced latency periods in the copulatory phases.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Ethanol ;Sexual behavior; Rat ;Copulatory phase.

Count: 198

Abstract ID: 258

subject: Emotion, Motivation

and Behavior: Behavioral Pharmacology

Presentation Type: Poster

Glucosensitive neurons of PVN stimulate food intake via plasma glucose

Submission Author: Masoud Shareghi brojeni

Masoud Shareghi brojeni¹, Afsaneh Eliassi², Abbas Haghparast³, Abbas Aliaghaei⁴

1. Department of physiology-Medical School-Shahid Beheshti Univesity. of Medical Sciences
2. Neurophysiology Research Center, Shahid Beheshti University of Medical Sciences
3. Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
4. Department of Biology and Anatomical science, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : By using IHC, we showed the existence of glucosensing neurons in PVN. Modulation of neuronal activity by glucose is pivotal in coordinating energy balance and behavior. Therefore, we hypothesized that the PVN glucosensing neurons may be involved in the control of food intake and energy balance.

Methods : Male wistar rats (220-250 g) implanted with guide cannula directed to the PVN based on paxinos coordination, lateral: +0.4 mm from midline; dorsoventral: 7mm from skull surface; anteroposterior: -1.8 mm from the bregma. Glucose (0.3, 0.8, 1.5 μ g) and saline (0.3 μ l) were microinjected into the PVN and food intake was measured over 1 h. Feeding trials normally occurred from Saturday to Wednesday between 9:00 and 10:00 h. All drugs were prepared freshly just before test and they were administered in distilled water. Plasma glucose was measured by ELISA method.

Results : Intra-paraventricular injection of glucose (0.3 μ g, 0.8 μ g, 1.5 μ g) increased feeding in a dose-dependent manner. The amount of glucose-induced food intake reached statistical significance at doses of 0.8 and 1.5 μ g ($P < 0.001$) after 1 h. The plasma glucose concentration reaches the maximum value after PVN-microinjected glucose.

Conclusion : The present study suggests that PVN-microinjected glucose stimulates food intake through, at least in part, glucosensing neurons.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Glucosensing neuron, PVN, Feeding, glucose

Count: 199

Abstract ID: 718

subject: Emotion, Motivation
and Behavior: Behavioral Pharmacology

Presentation Type: Poster

Lavandula angustifolia administration attenuates prenatal lead exposed induced learning & memory impairments in male rats

Submission Author: Farahnaz Taheri

Farahnaz Taheri¹

1. Institute of Neuropharmacology, Neuroscience Research Center, Kerman University of Medical Sciences, Kerman, Iran

Background and Aim : Lead absorption during pregnancy causes deficits in learning and memory processes during adolescence. This study was performed to evaluate the effects of methanolic extract of *lavandula angustifolia* (LAF) on the learning & memory of prenatal lead exposed adult male offspring rats.

Methods : Pregnant rats received tap water containing 0.2 % lead acetate throughout the gestation period. Control rats had free access to tap water. Two male offspring from each mother (2months old, weighing 180-200g) were randomly selected and were treated with saline and LFA (50, 100 & 200mg/kg/ip/20d). Spatial memory of groups were evaluated by using Morris water maze (6-8 rat/group).

Results : our data showed a significant increase in escape latency ($P<0.05$), travelled distance ($P<0.001$) as well as decrements in crossings frequencies to target quadrants ($P<0.01$) in antenatally lead exposed male offspring compared to control. *lavandula angustifolia* (200mg/kg/i.p) ameliorate the memory deficits in male offspring by increasing the time spent and traveled distance in the trigger zone ($P<0.05$, $P<0.01$ vs saline, respectively). There was no significant difference in swimming speed between control and saline/ *lavandula* treated antenatally lead exposed male offspring.

Conclusion : In summary, the results showed memory deficits in antenatally lead exposed male offspring. LAF treatment (especially 200 mg/kg) in prenatally lead exposed male rats ameliorates

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

the cognitive behavior. The exact mechanism(s) is not determined, but it could be mediated through the anticholinesterase and antioxidant effects.

Keywords : Lead, Learning, Memory, *lavandula angustifolia* , Rats

Count: 200

Abstract ID: 648

subject: Emotion, Motivation
and Behavior: Motivation and Emotion

Presentation Type: Poster

Prevalence aggression in Addicted patients admitted to in Kermanshah psychiatrc center Farabi

Submission Author: Nasrin Abdoli

Jalal Shakeri¹, Vahid Farnia², Nasrin Abdoli³, Safora Salami⁴, Mostafa Alikhani⁵

1. Department of Psychiatry ,Assistant Professor, substance Abuse Prevention Research Center, Kermanshah University of Medical Sciences, Kermanshah ,Iran
2. Department of Psychiatry ,Assistant Professor, substance Abuse Prevention Research Center, Kermanshah University of Medical Sciences, Kermanshah ,Iran
3. Substance Abuse Prevention Research Center, Psychiatry Department, Kermanshah University of Medical Sciences, Kermanshah, Iran
4. Substance Abuse Prevention Research Center, Psychiatry Department, Kermanshah Kermanshah University of Medical Sciences, Kermanshah, Iran
5. Substance Abuse Prevention Research Center, Psychiatry Department, Kermanshah Kermanshah University of Medical Sciences, Kermanshah, Iran

Background and Aim : Psychiatric disorders are causes of addicts' rehabilitation failure, on the other side psychiatric diseases are not objective thus hardly diagnosed by general practitioners who play substantial roles in addiction. treatment. To improve the treatment quality offered to opioid-dependent patients, this study aims to assess psychiatric In psychosis, which includes many psychological disorders, the person's perception of the reality is perverted so seriously that their psychological actions get extremely chaotic. Addicted individuals may become unable to remain in their jobs, and carry out their complicated social and family responsibilities. In this thesis we have studied the prevalence of aggression in Addicted individuals, since the coincidence of these two psychological dis orders is highly probable, and consequently the Addicted individuals having these disorders get increasingly unable to do their responsibilities.

Methods : In this descriptive research, These cross-sectional study 142 opioid-addicts along with their 110 family members were assessed. Patients were selected following a random cluster sampling method within 22 rehabilitation clinics. Addected Patients were 142 people, having different types of psychosis who had been hospitalized in Farabi hospital of Kermanshah, have

been studied. And the information related to them in case of the aggression scale (the scale of clinical aggression by William Esnell et al) have been provided and recorded in related questionnaires.

Results : In this study 57 percent of the patients were female and 43 percent of the patients were male. 38.1 percent of them had lower levels of educations, 29.6 percent had degrees under the high school certificate, 30.3 percent had the high school certificate and upper, and 4.9 percent had the B.A. degree or upper. 58.4 percent had "thought psychosis" and 21.4 percent had "mood psychosis". 43.2 percent of the patients declared to have psychosis record in their past, and 44.7 of them didn't admit any psychosis records. 47 percent of the patients under study had showed intense aggression, in which men had a bigger share than women. It was found that aggression in single people was more than other people having other material status.

Conclusion : In this thesis, it was found that from the 142 patients under study, 62 people had intense aggression that needed treatment. And 48 people had low levels of aggression. Furthermore, intense aggression showed to occur more in men. Also, it was found that patients with "thought psychosis" had higher levels of aggression.

Keywords : aggression, psychosis. clinical anger

Count: 201

Abstract ID: 215

subject: Emotion, Motivation

and Behavior: Motivation and Emotion

Presentation Type: Poster

The improving effect of nicotine on stress-induced anxiety inhibited by the blockade of ventral hippocampal NMDA receptors in rats

Submission Author: Parinaz Farzamfard

Parinaz Farzamfard¹, Ameneh Rezayof²

1. School of Biology, college of science, University of Tehran, Tehran, Iran
2. School of Biology, college of science, University of Tehran, Tehran, Iran

Background and Aim : Clinical studies showed that the tendency to cigarette smoking can be increased by exposing to the stressful stimuli. It has been suggested that nicotine via binding to nicotinic acetylcholine receptors improves some psychological and physiological stress symptoms including anxiety-induced behaviors. Stress exposure activates the hypothalamo-pituitary-adrenocortical (HPA) axis to increase secretion of glucocorticoids for stress adaptation. As mentioned in the review literature, the ventral hippocampus is involved in emotional responses and also in complex cognitive operations. It should be also noted that there is a wide-spread system of glucocorticoid receptors in the limbic system, notably in the hippocampus and amygdala, which plays a critical role in stress-induced anxiety. Considering all above mentioned, the aim of the present study was to evaluate the effect of systemic nicotine administration on stress-induced anxiety in adult male Wistar rats. In addition, the experiments were designed to investigate whether the blockade of the glutamatergic NMDA receptors in the ventral hippocampus (VH) affects the stress-induced anxiety under nicotine administration.

Methods : The animals (200-250 g) were anesthetized with an intraperitoneal injection of ketamine/xylazine mixture and then were bilaterally cannulated in the VH using the stereotaxic instrument. Before the beginning of the experiments, all animals were allowed to recover for one week. Each animal was exposed to the forced swimming test (5 or 10 min) in the water cylinder with the temperature of $20\pm 1^\circ\text{C}$ to induce acute stress. To measure the level of anxiety and exploratory behaviours in the animals that exposed to the acute stress, a hole-board apparatus was used. This apparatus had an enclosed arena with holes in the floor. The frequency and duration of

head-dipping, rearing and locomotor activity were scored for 5 min, as three common activities in the rats.

Results : Our results showed the anxiogenic-like behaviours as manifested in seeking behaviors including decreased head-dipping produced by 10 min exposure to stress in rats. Systemic administration of different doses of nicotine (0.05-0.1 mg/kg, i.p.) attenuated stress-induced anxiogenic-like behaviors in the hole-board apparatus. Bilateral intra-VH microinjection of a selective NMDA receptor antagonist, D-AP5 (1-2 μ g/rat) attenuated the response of an effective dose of nicotine (0.1 mg/kg, i.p.) on stress-induced anxiety. It should be considered that the blockade of these receptors by the same doses of D-AP5 alone did not induce any effect on anxiety-like behaviours.

Conclusion : Therefore, it seems that the exposure to acute stress may be associated with anxiogenic-like behaviours which can be inhibited by nicotine administration. Moreover, nicotine-induced inhibition of anxiety under stress may mediate via NMDA receptors of the VH glutamatergic system.

Keywords : Nicotine; Stress; Anxiety; NMDA receptors; Rat(s)

Count: 202

Abstract ID: 55

subject: Emotion, Motivation
and Behavior: Motivation and Emotion

Presentation Type: Poster

the significant role of the mineral salt and mild compulsive exercise to improve spatial learning, memory and motor activity in adult male rats level

Submission Author: Shahnaz Hajizade

Shahnaz Hajizade¹, Mahmud Sheikh², Nasser Naghdi³

1. Department of Physical Education, Sport Faculty, University of Tehran, Tehran, Iran
2. Laboratory of Neuro-organic Chemistry, Institute of Biochemistry and Biophysics (IBB), University of Tehran, Tehran, Iran
3. Physiology and Pharmacology Department, Pasteur Institute of Iran, Tehran, Iran

Background and Aim : One of the most important survival mechanisms is learning and memory processes. Learning and memory are fundamental functions of the brain which are affected by food and environmental factors. Diet, in combination with environmental factors plays a crucial role in shaping of brain's cognitive capacity. Minerals especially cations are the effective factors on memory and learning. Magnesium (Mg) is one of the four main cations in the body with two positive charges, and the second intracellular cation which plays a major role in different metabolism processes and accelerates over 300 enzymatic reactions. Mg activates reactions of amino acids and protein synthesis. Furthermore, it plays a key role in many biological processes, such as muscle contraction, enzyme activity, blood clotting and nerve stimulation, ribosomes evolution, DNA and RNA reactions.

Methods : To emphasize the role of physical exercises and Magnesium (Mg) in improvement of cognitive performance, we planned to investigate the effect of Mg and mild compulsive exercise on spatial learning and memory of adult male rats. Accordingly, we divided male Wistar rats into four groups: (I) control, (II) Mg treatment, (III) exercise and (IV) Mg-exercise in the different dosages of Mg (0.5 mmol/kbw, 1 mmol/kbw, 1.5 mmol/kbw and 2 mmol/kbw) were injected in the form of gavage during one week. Also, One week mild running on treadmill was used for exercise treatment. The Morris water maze test (MWM) and open field tool were used to evaluate spatial learning, memory and motor activity, respectively.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Our results clearly showed that 1 mmol/kbw Mg was applied as an effective dosage. Strikingly, one-week mild exercise on treadmill had no significant effect on spatial motor activity, learning and memory. Feeding 1 mmol/kbw Mg for a week showed a significant difference in learning and exploration stage. Compared to control animals, these results reveal exercise and Mg simultaneously had effect of learning and reminding.

Conclusion : As a consequence, although mild exercise had no effect on motor activity and memory, Mg intake improved spatial learning, memory and locomotor activity. The Mg feeding could be a promising supplemental treatment in the neurodegenerative disease. It is worthwhile to mention consumption of Mg leads to enhancement of memory, so animals find the hidden platform with the highest velocity.

Keywords : Memory, Learning, Motor activity, Magnesium, Treadmill, Rat

Count: 203

Abstract ID: 490

subject: Emotion, Motivation
and Behavior: Motivation and Emotion

Presentation Type: Poster

The effect of crocin and exercise on short term memory in rats under chronic unpredicted stress

Submission Author: Hajaralsadat Hosseini dastgerdi

Hajaralsadat Hosseini dastgerdi¹, Maryam Radahmadi², parham reisi³, Azadehalsadat Hosseini Dastgerdi⁴

1. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
2. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
3. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
4. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

Background and Aim : Introduction:Unpredicted stress is known a state of psychological responses that was caused by actual and potential stressors that tend to disturb the body homeostasis specially brain functions. Previous studies suggested that chronic stress affect memory processing. On the other hand, as the main component of saffron or *Crocus sativus* L has been used in the treatment of a wide variety of disorders. Also, it indicated that crocin and exercise have been benefit effect brain function in both traditional and modern medicine,. The present study investigated the effect of crocin and exercise on short term memory in rats under chronic unpredicted stress.

Methods : Materials and Methods:Thirty two male Wistar rats were randomly allocated to four different groups (n=8 per treatment) containing:control, stress group, unpredicted stress groups receiving daily intraperitoneal injections of crocin (30,mg/kg) and/or exercise accompanied by a period of 21 days unpredicted stress. For induction of unpredicted stress as one kind of destructive emotional stress was used various stresses such as immersion, restraint, heat, cold, elevated stresses for 2 hour per day for 21 days).Rats were forced to run on a treadmill for 1h/day at a speed 20-21 m/min.Finally, memory functioning was evaluated using the passive avoidance test after foot shock. For evaluation of memory, latency were determined at the end of experiments by using passive avoidance test

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Results: Results revealed that unpredicted stress significantly ($P<0.01$) decreased latency compared to control group. In addition, latency significantly ($P<0.05$) increased in stressed group of receiving crocin compared unpredicted stress. Whereas, latency in stressed group with exercise showed a significant ($P<0.05$) decreases compared to control group.

Conclusion : Conclusion: Based on the results obtained, the beneficial effects of crocin (30 mg/kg) observed on short term memory in chronic unpredicted stressed group. However, crocin had protective effect on memory in unpredicted stress condition. Whereas, exercise could not improve memory in unpredicted stress group. Therefore, crocin acts better than exercise for improvement of memory. Also, it is noticeable that although the long term usage of crocin had benefit effect on brain function, but it did not improve memory as much as control group. Therefore, the finding suggest that this kind of stress (unpredicted stress) can indicated one of the most destructive psychological stress.

Keywords : Keywords: Memory, Stress; Passive Avoidance; Crocin, Exercise, Rat.

Count: 204

Abstract ID: 655

subject: Emotion, Motivation
and Behavior: Motivation and Emotion

Presentation Type: Oral

A Comparative Study of the Effectiveness of Methods for Creating Educational Motivation in Students

Submission Author: Saadi Lotfali

Saadi Lotfali¹, Behnam Javandel²

1. Cognitive Psychologist (MA), Institute for Cognitive Sciences Studies-Tehran, Iran & Family Consulting center (Learning disability therapist)& School consultant in education. Second district in karaj city, Iran
2. University Teacher, Phd student(English language Teaching), Payamnur and Azad Universities of Parsabad, Ardebil, Iran , Azadi Square, Parsabad City, Ardebil, Iran.

Background and Aim : Motivational factors are one of the most important tools used to encourage students to study. These factors are related to personality traits. The person's personality affects their decision and similarly influences their interests, wishes, and needs. Two important sets of categorizing personalities include extroversion and introversion. Extroverted characters often perceive their success as an environmental factor, while introverted characters see it as a result of their own efforts.

Methods : Twenty extroverts and twenty introverts were selected from middle school students and each group was divided into two groups (four groups of 10). Then each group of personality types received educational motivation counseling (based on external and internal motivation). After practical training, motivation was provided for one month. At the end of one month, internal and external motivation questionnaires were completed by the students and the obtained data were analyzed.

Results : Data analysis and comparison of obtained meanings showed that extroverted individuals were significantly interested in receiving cash rewards and external motivational factors ($p < 0.05$), and introverted individuals were interested in receiving internal motivational factors ($p < 0.05$).

Conclusion : Choosing the type of motivational factor is best done according to the type of student's personality. Therefore, the use of instant rewards such as cash prizes and tokens for

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

extroverted students, planning, long-term plans and ways to create self-esteem can be more effective in introverted students. With the use of motivational counseling techniques, regardless of the personality of the students, desirable results may not be obtained and the coordination of these two features is important.

Keywords : education, student, motivation, personality

Count: 205

Abstract ID: 7

subject: Emotion, Motivation
and Behavior: Motivation and Emotion

Presentation Type: Poster

The Effect of hydroalcoholic Extract of Green Tea on reserpine-induced Depression Symptoms in male mice

Submission Author: Shima Mohammadi

Shima Mohammadi¹, mohammad hossein mohammadi mehdiabadi hassani²

1. Neuroscience Department, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Animal Biology, Faculty of Biological Sciences, Kharazmi University, Tehran, Iran.

Background and Aim : A major depressive disorder is one of the most common psychiatric disturbance which along without interest any kind of activity and everyday enjoyment. In this study, we investigated the anti-depressive effects of different doses of hydroalcoholic extract of green tea.

Methods : In this experimental study, 40 male mice were randomly selected. Animals were divided into 5 experimental groups as follows (n=8): Group I: saline-treated mice (Intraperitoneal injection of 1 mg/kgBW). Group II: reserpine (5 mg/kgBW)-treated mice (negative control). Group III: Animals were first treated with reserpine (5 mg/kgBW) and then received fluoxetine (20 mg /kgBW) intraperitoneally after 18 hours (positive control group). Group IV and Group V: Animals were first treated with reserpine. After 18 hours two different doses of hydroalcoholic extract of green tea (100 and 200 mg/kgBW, Intraperitoneal) were injected for 14 days. Immobility, swimming and climbing behaviors were recorded within 6 minutes.

Results : The data obtained from forced swimming test (FST) and tail suspension test (TST) showed that the green tea extract dependent dose compared with the control group and significantly reduced the immobilization duration in both tests ($P<0.001$). Green tea extract dependent dose increases the duration of swimming ($P<0.001$). But there was no significant change during of climb time.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Data showed that hydroalcoholic extract of green tea has a significant antidepressant effect and this effect is similar to fluoxetine.

Keywords : Depression; Green Tea; FST; TST

Count: 206

Abstract ID: 8

subject: Emotion, Motivation
and Behavior: Motivation and Emotion

Presentation Type: Poster

The Effect of Silymarin Extract on reserpine-induced Depression symptoms in Male Mice

Submission Author: Mohammad hussain Mohammadi mehdiabadi hassani

Mohammad hussain Mohammadi mehdiabadi hassani¹, Mohammad hossein Mohammadi mehdiabadi hassani², shima mohammadi³

1. -
2. Department of Animal Biology, Faculty of Biological Sciences, Kharazmi University, Tehran, Iran.
3. Department of Animal Biology, Faculty of Biological Sciences, Kharazmi University, Tehran, Iran.

Background and Aim : Depression is a prevalent and debilitating disease associated with many social, economic and social consequences. The side effects of antidepressants have led researchers to isolation of natural products. The aim of this study was to investigate the effect of silymarin extract on depression symptoms induced by reserpine in mice.

Methods : 42 male mice were used in this study. Animals were divided into 6 experimental groups as follows (n=7): Group I: saline-treated mice (Intraperitoneal injection of 1 mg/kgBW). Group II: reserpine (5 mg/kgBW)-treated mice (negative control). Group III: Animals were first treated with reserpine (5 mg/kgBW) and then received fluoxetine (20 mg /kgBW) intraperitoneally after 18 hours (positive control group). Group IV, Group V and Group VI: Animals were first treated with reserpine. After 18 hours three different doses of silymarin extract (50, 100, 150 mg/kgBW, Intraperitoneal.) were injected for 14 days. Depression symptoms were evaluated by forced swimming test (FST) and tail suspension test (TST).

Results : Data obtained from FST test showed that silymarin (150 mg /kg) exhibits the most potent antidepressant effect on days 1, 7 and 14 as compared to the other groups in mice model of depression. In addition, data of TST test showed that silymarin (100 mg / kg) induces the highest anti-depressant effect on days 7 and 14 compared to the fluoxetine group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Data showed that extract of Silymarin has a significant antidepressant effect and this effect is similar to fluoxetine.

Keywords : Depression; Silymarin; FST; TST

Count: 207

Abstract ID: 750

subject: Emotion, Motivation

and Behavior: Motivation and Emotion

Presentation Type: Oral

Impact of Computer Games on Arousal in Children With ADHD

Submission Author: MohammadAli Nazari

MohammadAli Nazari¹, Maryam Taghavi Jeloudar², Hasan Shahrokhi³

1. Cognitive Neuroscience division, University of Tabriz
2. Department of psychology, Alzahra University
3. Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences

Background and Aim : Based on the cortical hypoarousal model, one of the causes of Attention Deficit/Hyperactivity Disorder (ADHD) is that the disorder results from a dysfunction of the arousal. the present study compared the effects of two kinds of computer games, with high and low stimulating rate on the arousal levels, in matched groups of children with and without ADHD, using physiological index.

Methods : Autonomic hypoarousal, indicated by low skin conductance level (SCL). SCL were recorded during eyes-open resting and playing computer games. This was recorded for 15 males, meeting the DSM-IV criteria for ADHD and 15 age- and gender matched controls.

Results : Computer games produced an increase in SCL, and this increase did not differ between the groups. However, across conditions, mean SCL was lower in the ADHD group than controls.

Conclusion : These SCL results agree with behavioral findings suggesting a primary deficit associated with autonomic hypoarousal in ADHD.

Keywords : ADHD, Arousal, Computer Games, Skin Conductance Level, Children

Count: 208

Abstract ID: 446

subject: Emotion, Motivation
and Behavior: Motivation and Emotion

Presentation Type: Poster

Comparing emotional behavioral modes of applicants and non-applicants of nose surgery in ENT clinic, Farabi Hospital, Qom, Iran – 2016

Submission Author: Fatemeh Sadat Razavinia

Fatemeh Sadat Razavinia¹, Fatemeh Radmard², Ahmad Masoumi³, Siamak Mohebi⁴

1. . Ph.D. student of medical professionals, members of Student Research Committee, University of Medical Sciences, Qom, Qom, Iran.
1. . Ph.D. student of medical professionals, members of Student Research Committee, University of Medical Sciences, Qom, Qom, Iran.
2. Assistant Professor, Faculty of Public Health, School of Public Health, Tehran University of Medical Sciences, Qom, Qom, Iran.
2. Assistant Professor, Faculty of Public Health, School of Public Health, Tehran University of Medical Sciences, Qom, Qom, Iran.

Background and Aim : Reconstructive surgery is one of most common surgeries in Iran and different behaviors are observed in those interested and those uninterested in such surgeries. Thereby, the present paper is aimed at surveying emotional behavioral modes of applicants and non-applicant of constructive surgery in ENT clinic, University of Qom-2016.

Methods : The study was carried out as an analytical study on 100 participants consisting 50 applicants of constructive surgery who were elected through convenient method and 50 non-applicants who were elected through homogenization based on age, gender, and education level. The applicants of surgery had visited ENT clinic of University of Qom over the past five months. After securing their consent, the required data was collected using SCL-90-R and analyzed in SPSS. Mean and standard deviation were used for quantitative variables and definite and relative frequencies were used for qualitative variables. The hypotheses were examined using Squared Chi and independent T-test ($p < 0.05$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results showed a significant difference so that 24% of the applicants were men and 76% were women, which indicates women are more interested in constructive surgeries. Moreover, frequency of married individuals (52%) was higher than that of unmarried individuals (48%). The majority group of the applicants had bachelors' degree, with no history of using narcotics, and at age range 25-33. The results also showed that there were significant differences in all aspects of mental disorders between the applicants and non-applicants groups.

Conclusion : As the finding demonstrated, the applicants and non-applicants were significantly different in nine aspects of behavioral emotional modes.

Keywords : constructive surgery; mental disorders; sistical test

Count: 209

Abstract ID: 310

subject: Emotion, Motivation
and Behavior: Motivation and Emotion

Presentation Type: Poster

Urban Life Challenges for the Social Skills of Mothers with Disabled Children CP

Submission Author: HOSEIN SARAVANI

HOSEIN SARAVANI¹, MANIJE EZATI², REZA POUR BAHRAM³

1. Exceptional education
2. Exceptional education
3. Exceptional education

Background and Aim : The family is the first institution that is familiar with the child and family members of the first group are those who work with children. No doubt parents of disabled children more than others in building individual character of their children effectively are the family of a social system that interfere with each component and members of the interferes and this system is disrupted in turn related disorders Exacerbates members and creates new problems. With this attitude, the disability of one of the children, the whole family and its various functions, and on each other, often have a negative influence. These effects, unlike the disabilities that are affected, are not inevitable or at least highly compensable . In the process of urbanization has affected all aspects of life. This is directly related to mental and social health of individuals. Today, sociologists believe that life in the city has its own culture and frameworks, which leads to better life and social welfare through social skills. . In families with low-income children CP The conditions are the same way The aim of this study was to examine the challenges of urban life and social skills and gaining mothers with disabled children CP will pay.

Methods : The survey documents and gathering content type library

Results : The existence of a disabled child CP In a family, psychological and financial pressure, and, in general, overwhelm all aspects of family life in the community, which, after pregnancy, sought to end the life cycle of urbanization. From the findings of this study, one can identify the unwanted isolation of mothers with Disabled child CP He pointed out that the circle of communication between the family and the poor and the others is limited.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The conclusion that can be said is that, being in Sh society by the mother should to a degree at which to learn social skills and acquaintances correct healthy lifestyle should be the social environment itself is compatible with the role of mother for little children Power CP It should be preserved and strengthened with the family of the family.

Keywords : social skills: disabled CP : Urbanization: healthy lifestyle

Count: 210

Abstract ID: 431

subject: Emotion, Motivation
and Behavior: Motivation and Emotion

Presentation Type: Oral

A Neuroscience Approach to Cognitive and Emotional Interactions

Submission Author: Fazlollah Shahraki

Fazlollah Shahraki¹, Elham Seihei², Firoozeh Nasiri³

1. M.Sc. Cognitive Scientist- Educational Neuroscience; Zahedan University Of Medical Sciences. Email: shahraki.f@hotmail.com
2. Speech – language Pathologist
3. Educational Psychology

Background and Aim : LeDoux emphasized the separability and primacy of emotion by pointing out cases when subjects "evaluate" objects before identifying them. More important for the primacy of emotion is the fact, mentioned above, that connections from the subcortical emotional systems to the cognitive systems are stronger than connections from the cognitive systems to the emotional ones. LeDoux also stated that emotional feelings involved many more brain systems than thoughts. This is why emotions engulf and commit us so inflexibly while cognitively we can easily argue one position as well as another just for the sake of argument. Attempts at "emotion work," although sociologically important on the collective level, often meet with individual failure.

Methods : Science Direct, Pubmed, CINAHL, PsycINFO, ProQuest, Web of Science, and Google Scholar (2000 through 2017) were searched for English-language studies using a list of keywords. The books about Psychology, Neuroscience and medicine were studied too.

Results : LeDoux admitted to more confusion than consensus about the relation between emotion and cognition. He attributed much of this to the fact that neither term refers to real functions performed by the brain but, instead, to collections of disparate brain processes. However, earlier, LeDoux made clear that emotion and cognition are best thought of as separate but interacting mental functions mediated by separate but interacting brain systems. When certain brain regions are traumatized, animals, including humans, lose the capacity to evaluate the emotional significance of particular stimuli but retain the cognitive ability to perceive and identify them.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

These processes are separately processed in the brain. In line with the flexibility of cognition in contrast to emotion, systems involved in cognitive processing are not as closely connected with automatic response systems as those of emotion. Emotional meanings can begin formation before cognitive/perceptual mechanisms have completed their appraisals.

Conclusion : Emotional and cognitive memories are registered, stored, and retrieved by different brain processes. Damage to emotional memory processes prevents an object with learned affective meaning (the sight of one's children or lover) from eliciting emotion. Damage to cognitive mechanisms prevents remembrance of where we saw the object, why we were there in the first place, and with we were whom.

Keywords : neuroscience, emotion, cognitive

Count: 211

Abstract ID: 599

subject: Emotion, Motivation
and Behavior: Motivation and Emotion

Presentation Type: Poster

Prognostic Cognitive Flexibility Based on Mindfulness, Resilience and Distress Tolerance in Drug-Dependent.

Submission Author: Mehdi Yaghobi

Mehdi Yaghobi¹, Mohammad Abdekhoda², Reza Yazdani Mehr³

1. Kashan University of Medical Sciences
2. Tavalodi Dobare SUD center of Qom
3. Kashan University of Medical Sciences

Background and Aim : The aim of the present study was Prognostic Cognitive Flexibility Based on Mindfulness, Resilience and Distress Tolerance in Drug-Dependent.

Methods : The research design was descriptive-correlational. The statistical population of the study consisted of all males dependent on methadone in Qom in year 2017. A total of 213 subjects were selected through targeted sampling. Data collection was done by DTS_15 (2005), MI RSWB-48, CD-RISC_25 and Cognitive Flexibility (1998) by Adrian Wells (2010).

Results : The results of multivariate regression analysis showed that mindfulness, resilience and distress tolerance predicted the cognitive flexibility of drug-dependent ($p \leq 0.05$).

Conclusion : Therefore, it is concluded that mindfulness, resilience and distress tolerance predict the cognitive flexibility of drug-dependent and there is a positive and significant correlation between them. The high mindfulness, resilience and distress tolerance leads to high cognitive flexibility. Therefore, attention to the components of cognitive and emotional to achieve high cognitive flexibility and the use of cognitive-therapy and mindedness-based intervention is advisable to the Drug-Dependent.

Keywords : Cognitive Flexibility, Mindfulness, Resilience, Distress Tolerance, Drug-Dependent.

Count: 212

Abstract ID: 596

subject: Emotion, Motivation
and Behavior: Motivation and Emotion

Presentation Type: Poster

The Relationship between Mindfulness and Disaster Recognition, Acceptance and Severity of Pain in Migraine Patients

Submission Author: Mehdi Yaghobi

Mehdi Yaghobi¹, Reza Yazdani Mehr²

1. Kashan University of Medical Sciences
2. Kashan University of Medical Sciences

Background and Aim : The aim of the present study was to determine the relationship between the Relationship between Mindfulness and Disaster Recognition, Acceptance and Severity of Pain in Migraine Patients.

Methods : In this descriptive and analytical study, 143 object were selected via random sampling method. They completed the Chronic Pain Disaster Scale, Chronic Pain Questionnaire, Multivariate Logbook for Chronic Pain and Freibern's Mindfulness Questionnaire (FMI). Data were analyzed by SPSS Ver.21, utilizing descriptive statistics and the statistical tests of Independent t-test, ANOVA, Pearson correlation coefficient and regression analysis.

Results : Mindfulness was negative correlated with Disaster Recognition and Severity of Pain Migraine Patient. ($p < 0.05$). In addition, Mindfulness was associated with Acceptance of Pain in Migraine Patients.

Conclusion : The findings indicated that Mindfulness were, respectively, the most important Acceptance and Severity of Pain in Migraine Patients which may affect perceiving and tolerating the Severity of Pain in them.

Keywords : Mindfulness, Disaster Recognition, Acceptance, Severity of Pain, Migraine

Count: 213

Abstract ID: 587

subject: Emotion, Motivation
and Behavior: Motivation and Emotion

Presentation Type: Oral

The impact of educational motivation and self-acceptance on creativity among high school students

Submission Author: Sadegh Yoosefee

Sadegh Yoosefee¹, Seyyed Ali Seyyedi², Maryam Rahimi³, Morteza Heidari⁴

1. Neurology and Neuroscience Research Center, Qom University of Medical Sciences, Qom, Iran
2. Department of Psychology, Faculty of Humanities, Islamic Azad University, Saveh Branch, Saveh, Iran
3. Department of Psychology, Faculty of Humanities, Islamic Azad University, Saveh Branch, Saveh, Iran
4. Spiritual Health Research Center, Qom University of Medical Sciences, Qom, Iran

Background and Aim : The aim of this study was to investigate the impact of educational motivation and self-acceptance on creativity among high school students.

Methods : Three hundred and sixty one subjects out of high school students residing in Saveh, Iran, participated in this correlation study. Data were collected using the Ryff Scale of Psychological Well-being (RSPWB-18), Abedi Creativity Questionnaire, and Harter,s Classroom affect and Motivational Scale. SPSS-20 software was used for data analysis, and Pearson correlation and multiple regression analysis were used at the significant level of $P < 0.05$.

Results : There was a significant relationship between student's educational motivation and creativity ($P < 0.01$), but there was no significant relationship between self-acceptance and creativity.

Conclusion : According to the results of this study, creativity of students increases along with increasing academic motivation.

Keywords : self-acceptance, educational motivation, creativity, students

Count: 214

Abstract ID: 415

subject: Neuropsychiatry and Psychology: Evidence-Based Psychology

Presentation Type: Poster

G9055A substitution in mtDNA: An important variant in autism

Submission Author: Mansoureh Akouchekian

Mansoureh Akouchekian¹, Mitra Hakim Shoostari²

1. Department of Medical Genetics and Molecular Biology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran
2. Mental Health Research Center, Tehran Institute of Psychiatry- School of Medicine, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : Autism spectrum disorders (ASDs) are neurodevelopmental complex diseases with causative de-novo and inherited genetic factors. They contain a range of cognitive and behavioral conditions such as Asperger's syndrome, pervasive developmental disorder and autism.

Methods : Our study cases were children with autistic behaviors (15-60 CARS Score). The DNA extraction process was done by GeNet Bio DNA extraction kit, and the region of interest was amplified using independent PCR runs. After purification of PCR products, both strands were sequenced by a Big Dye Termination system. The automated sequencing on an ABI 3700 was directly determined with a capillary sequencer machine. Both primers sequencing results were analysed using bioinformatics' tool, Sequencher Software 5.

Results : In this study, 31 samples were examined which 14 unique variants were detected in genes related to ATPase6/8 and tRNA. One of the variants known as G9055A (CAAD>20 and PolyPhen is shown to be Probably damaging) seems pathogenic according to PolyPhen and CADD scores.

Conclusion : In the variant G9055A of ATP6, amino acid alanine converts to threonine. A to T substitutions induce accumulation of amyloid fibril in the brain because threonine prefers to form β sheet as a necessary stage in the amyloidogenic process. In our study of patients with autism, we found one case having an interesting association with amyloidosis. It is hoped that by finding such markers, the children will be treated with more certainty.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Autism spectrum disorders; mtDNA substitution; amyloidosis

Count: 215

Abstract ID: 739

subject: Neuropsychiatry and Psychology: Evidence-Based Psychology

Presentation Type: Poster

The Effectiveness of Presence at Kindergarten on with Persian pre-school children's Language development and Verbal intelligence

Submission Author: Sepideh Shamaei

Sepideh Shamaei¹, Sepideh², neda³, maryam⁴

1. -
2. shamaei
3. ferdosi
4. ghorbani

Background and Aim : Background and Purpose: The purpose of this study was to investigation the effectiveness of kindergarten attendance on the pre-primary school children's language development and verbal intelligence

Methods : . Method: The method used in this research was descriptive (non-experimental) and causal – comparative type. The target population of this study were all of 6- year- old pre-school children in Isfahan in the academic year of 1395-96. The Selected samples consisted of 60 pre-school children, including 30 children (15 girls and 15 boys) with kindergarten attendance, and 30 children (15 girls and 15 boys) without kindergarten attendance who were selected by available sampling method. The research tools, were included Newsha Persian Developmental Scale, for assessing the preschool children's language development and the children's Wechsler intelligence test for measuring the preschool children's verbal intelligence. The data were analyzed using the Spss-21 software of statistics by descriptive and inferential statistics, using covariance analysis, Wilcox lambda test, M box test and Levine test.

Results : . Result: The results showed significant increase in language development variables based on Newsha Persian Developmental Scale and also significant increase in the verbal intelligence score in children who passed kindergarten in compare with those who did not attend kindergarten.

Conclusion : Conclusion: The result of the previous studies has been quantified by the findings of the present study.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : . Key words: kindergarten, pre-primary school, Language development, Verbal intelligence,

Count: 216

Abstract ID: 753

subject: Neuropsychiatry and Psychology: Schizophrenia

Presentation Type: Oral

Catechol-O-MethylTransferase Gene Expression in Stress Induced and Non-Stress Induced Schizophrenia

Submission Author: Ziba Aghamaleki sarvestani

Ziba Aghamaleki sarvestani¹, Hamid Mostafavi Abdolmaleky², Mohammadreza Zarrindast³, Nasim Vousooghi⁴, Mina Tabrizi⁵

1. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran.
2. Department of Medicine (Biomedical Genetics), Boston University School of Medicine, Boston, Massachusetts, MA 02118.
3. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran.
4. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran.
5. Medical Genetics Department, School of Medicine, Tehran University of Medical Sciences, P.O. Box 14155-6447, Tehran, 14176-13151, Iran.

Background and Aim : Schizophrenia (SCZ) as a complicated mental disorder with prevalence of about 0.5% to 1% have several risk factors and hundreds involved genes. Regard to a scientific agreement in which SCZ is the outcome of gene-gene-environmental interaction and possibility of different pathophysiological mechanisms in the SCZ patients' subtypes, we examined one of the most likely of these interactions, dopamine and stress, to clarify a part of its probable pathophysiological mechanism. Significance of dopaminergic system in the SCZ and gravity of the stress in majority of its environmental risk factors was motivation of these election. Blast wave without brain injury, as the stress, was our chosen risk factor and Catechol-O-MethylTransferase (COMT) gene was our selected gene. Blast wave exposes relatively equal all patients and the COMT gene is one of the most documented genes of dopamine system.

Methods : We measured the COMT gene expression level in blood of seventy subjects in four groups which consist of, blast wave-exposed veteran SCZ patients as stress-exposed SCZ (S-SCZ), their healthy brothers as genetically nearest person, the other SCZ patients without history of significant stress (Non stress-exposed SCZ) (N-SCZ), and the control group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The COMT gene expression was difference between the S-SCZ and the N-SCZ but not significantly, however, the COMT expression level of three groups, the S-SCZ, their healthy brothers, and the N-SCZ groups were significantly down-regulated compared with the control group.

Conclusion : These results recommend the effect of COMT gene, and its stress susceptibility effect, in the pathogenesis of SCZ disease and stress induced SCZ. The studies like this could ultimately clear up the mechanism of this disorder and achieve to specific and effective individualize treatment.

Keywords : Schizophrenia, COMT, Dopamine, Blast Wave, Stress, Blood.

Count: 217

Abstract ID: 745

subject: Neuropsychiatry and Psychology: Schizophrenia

Presentation Type: Poster

Dopamine Receptor D4 Gene Expression in Stress Induced and Non-Stress Induced Schizophrenia

Submission Author: Ziba Aghamaleki sarvestani

Ziba Aghamaleki sarvestani¹, Hamid Mostafavi Abdolmaleky², Mohammadreza Zarrindast³, Esmail Fakharian⁴, Nasim Vousooghi⁵, Mina Tabrizi⁶

1. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran.
2. Department of Medicine (Biomedical Genetics), Boston University School of Medicine, Boston, Massachusetts, MA 02118.
3. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran.
4. Professor MD, Professor of Neurosurgery, Department of Neurosurgery, Kashan University of Medical Sciences, Kashan, Iran
5. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran.
6. Medical Genetics Department, School of Medicine, Tehran University of Medical Sciences, P.O. Box 14155-6447, Tehran, 14176-13151, Iran.

Background and Aim : Schizophrenia (SCZ) is a complex mental disorder with hundreds involved genes, several risk factors and prevalence of about 0.5% to 1%. There is scientific agreement in which SCZ is the result of gene-gene-environmental interaction and it has possibly different pathophysiological mechanisms in its diverse subtypes. These subtypes could be classified based on many different combinations of the involved genes and environmental risk factors.

Methods : We selected a specific type of stress, blast wave damage without brain injury, as the risk factor and Dopamine Receptor D4 (DRD4) gene as the interacting gene in this article. The reason for these selections was the centrality of the stress in majority of the environmental risk factors and relative similarity of patients' condition in the blast wave exposure. In addition, the DRD4 gene is one of the most investigated genes of the dopamine system, involved in SCZ. We enrolled seventy male subjects in four groups which consist of, blast wave-exposed veterans with SCZ as stress exposed SCZ (S-SCZ), their healthy brothers as genetically nearest person (S-SCZ's

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Brothers), other SCZ patients with no history of significant stress (N-SCZ), and control group. Next, we measured the DRD4 gene expression level in blood.

Results : The results showed a significant different in DRD4 gene expression among S-SCZ with their brothers, N-SCZ, and the control subjects.

Conclusion : The difference in DRD4 level in this study is compatible with this idea that DRD4 gene may mediate the impact of stress in SCZ pathogenesis. In general, the studies such as this is recommended as the steps for more effective and specific therapeutic strategies.

Keywords : Schizophrenia, DRD4, Dopamine, Blast Wave, Stress, Blood.

Count: 218

Abstract ID: 698

subject: Neuropsychiatry and Psychology: Schizophrenia

Presentation Type: Oral

The association of V427M missense mutation of the PRODH gene with schizophrenia in the Iranian population

Submission Author: Mohammad taghi Akbari

Mohammad taghi Akbari¹, Sara Karimian²

- 1- Medical Genetics Department, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, 1411513116, Iran
- 2- Tehran Medical Genetics Laboratory, Taleghani Ave, Tehran, Iran

Background and Aim : The location of a schizophrenia susceptibility locus at 22q11 was suggested by genomewide linkage studies and given additional support by the observation of a higher than expected frequency of 22q11 microdeletions in patients with schizophrenia and the demonstration that approximately 20 to 30% of individuals with 22q11 microdeletions develop schizophrenia or schizoaffective disorder in adolescence or adulthood. PRODH gene is located on chromosome 22q11.21 and has been previously reported as a risk factor for schizophrenia.

Methods : In this project the rs2238731 in the PRODH gene was genotyped in 100 schizophrenic patients whose disease was psychiatrically confirmed and also in 120 healthy individuals without any history of schizophrenia and bipolar disorder in their pedigree. For this purpose, peripheral blood was taken and PCR-RFLP approach was adopted in order to identify this variant. SPSS24.0 software was used in order to statistically analyze the association of variant among the two groups of affected and non-affected individuals.

Results : there was no association between V427M missense mutation and schizophrenia disorder in Iranian population

Conclusion : V427M missense mutation can not be a susceptibility factor for increasing risk of Schizophrenia in Iranian population

Keywords : Schizophrenia, PRODH, rs2238731, Iranian population

Count: 219

Abstract ID: 56

subject: Neuropsychiatry and Psychology: Schizophrenia

Presentation Type: Poster

VDR, CYP24A1, CYP27B1 gene expression analysis in schizophrenia patients

Submission Author: Fateme Asadzade

Fateme Asadzade¹, Seyed Mehdi Kalantar², Arezou Sayad³

1. Shahid Sadoughi University of Medical Sciences
2. Shahid Sadoughi University of Medical Sciences
3. Shahid Beheshti University Of Medical Sciences

Background and Aim : Schizophrenia is a devastating psychiatric disorder. It is now postulated that genetic predisposition along with environmental risk factors leaves individuals susceptible to this disorder. Low levels of vitamin D is a potential risk factor for developing schizophrenia. Vitamin D modulates neurodevelopment, neuroprotection, and immunomodulation. Its deficiency leads to aberrant neurodevelopment in schizophrenia patients.

Methods : In this case-control study, relative expression of vitamin D receptor (VDR), CYP27B1 and CYP24A1 in schizophrenia patients was compared with healthy individuals. Total RNA was extracted from whole blood of 50 patients with schizophrenia and 50 normal controls. Real-Time PCR was used to determine relative gene expression levels of VDR, CYP27B1, and CYP24A1.

Results : Schizophrenia patients revealed significant upregulation in both VDR (P=0.004) and CYP27B1 (P =0.002) gene expression. However, there was a decrease in expression level of CYP24A1 which was not statistically significant. Finally, there was not any significant expression correlation between the pair of genes

Conclusion : According to this study, we did not detect any significant change in expression level of CYP24A1 possibly because of small sample size. Although, VDR and CYP27B1 had a significant increase in expression in schizophrenia patients. Therefore, we hypothesized that this upregulation may happen in schizophrenia patients as a result of a compensatory mechanism to protect affected individuals against adverse consequences of this disorder. Furthermore, it seems

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

possible that vitamin D up-regulates or down-regulates many agents acting in various pathways through genomic mechanism to exert this compensatory effect.

Keywords : CYP27B1, CYP24A1, VDR, schizophrenia, Real time PCR

Count: 220

Abstract ID: 298

subject: Neuropsychiatry and Psychology: Schizophrenia

Presentation Type: Poster

Comparison of Brain/Behavioral Systems, Cognitive Emotion Regulation and Cognitive Failures in Patients with Schizophrenia Disorder, Major Depression Disorder and Normal Individuals

Submission Author: Mohammad Hafeznia

Mohammad Hafeznia¹, Asodollah Maleki², Hassan hasanzadeh³, hossein hassanzadeh⁴, toraj bahrami⁵, sareh masuodi⁶

1. azad university
2. azad university
3. azad university
4. azad university
5. azad university
6. azad university

Background and Aim : This study aimed to compare the inhibition/activation behavioral systems, positive and negative cognitive emotion regulation strategies and cognitive failures in patients with schizophrenia disorder, depression disorder and normal individuals.

Methods : The method was a descriptive and causal-comparative study and the statistical population included all male patients (n=45) with schizophrenia and depression in Razi Hospitals in Orumia city in 2016. Thirty schizophrenic patients and 25 depressed patients were sampled by the census method and were compared with 30 normal subjects. Data were collected using the Carver and White's behavioral inhibition and activation questionnaire (BIS/BAS), Garnefski's cognitive emotion regulation questionnaire (CERQ) and cognitive failures questionnaire (CFQ). Then, the data were analyzed using chi-square, multivariate analysis of variance and LSD by the SPSS18 software.

Results : The results showed that normal subjects had more sensitivity than depressed and schizophrenic patients in a behavioral activation system and also both depressed and schizophrenic patients had more sensitivity than normal people in a behavioral inhibition system ($P < 0.05$). However, no significant difference was found between depressed and schizophrenic patients in a

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

behavioral activation system and behavioral inhibition system sensitivity ($P > 0.05$). In the emotion regulation strategy, normal people used adaptive emotion regulation, and depressed and schizophrenic patients used maladaptive emotion regulation styles. Finally, schizophrenia patients had cognitive failures more than depressed patients, and depressed patients had deficits more than normal people ($P < 0.05$).

Conclusion : These findings show that brain/behavioral systems, emotion regulation and cognitive failures play an important role in pathology of schizophrenia and depression disorders and can be an important therapeutic target in the treatment and rehabilitation.

Keywords : Behavioral Activation System, Behavioral Inhibition System, Positive Emotion Regulation Strategies

Count: 221

Abstract ID: 268

subject: Neuropsychiatry and Psychology: Schizophrenia

Presentation Type: Poster

A review of the relationship between schizophrenia and vitamin d deficiency

Submission Author: Seyedeh mahdieh Jafari palatkaleh

Seyedeh mahdieh Jafari palatkaleh¹

1. Department of Pharmacy, Pharmaceutical sciences Branch, Islamic Azad University, Tehran, Iran

Background and Aim : Schizophrenia is one of the mental and neuropsychiatric diseases that estimates about one percent population of the world affected. many mechanisms and factors such as enviromental and genetic factors play role in the pathophysiology of schizophrenia. according to the studies one of them can be vitamin d deficiency. this artice is a review of the literature on the link between vitamin d deficiency and schizophrenia.

Methods : Selection of articles was made by searching the Pubmed, Medline and sciencedirect databases using specific keywords: schizophrenia, vitamin d deficiency, neurobehavior development, mechanisms

Results : Recent studies show developmental vitamin d (DVD) can changes the brain structure and adult behavior. the findings indicate that schizophrenia negative and possitive symptoms get exacerbated when vitamin d deficiency is increasing. while the mechanism is not clear, recent studies show that developmental vitamin d deficiency can change signaling of dopamin and regulate dopaminergic system development.

Conclusion : vitamin d deficiency can associated with severe symptoms of schizophrenia and alteration in developmental of dopamin neurotransmitter have been observed in DVD_deficient. thus vitamin d can play a useful role in improving symptoms. as a result taking vitamin d supplementation in these patients with vitamin d deficiency can be helpful in the process of recovery.

Keywords : schizophrenia; vitamin d deficiency; neurobehavior development; mechanisms

Count: 222

Abstract ID: 355

subject: Neuropsychiatry and Psychology: Schizophrenia

Presentation Type: Poster

Double-blind placebo -controlled trial of Memantine added to Risperidone or Olanzapine: Effects on cognitive impairment in schizophrenia

Submission Author: Golya Norouzzade Rahimi

Golya Norouzzade Rahimi¹, Dr Ali Talayi², Dr Mohamadreza Fayazi³, Dr Rahele Jahantigh⁴, Dr Afsane Mohamadzadeh⁵

1. Mashhad university of medical sciences
2. Ibn-e-Sina Hospital-Mashhad university of medical sciences
3. Ibn-e-Sina Hospital-Mashhad university of medical sciences
4. Ibn-e-Sina Hospital, Mashhad university of medical sciences
5. Ibn-e-Sina Hospital, Mashhad university of medical sciences

Background and Aim : The glutamatergic system is known to be involved in the development of schizophrenia and its cognitive dysfunction. Memantine (an uncompetitive antagonist of NMDA receptor) is approved for the treatment of Alzheimer's disease. Since the previous studies showed controversial benefits on the administration of Memantine in schizophrenia, the purpose of this study was to assess its efficacy.

Methods : The glutamatergic system is known to be involved in the development of schizophrenia and its cognitive dysfunction. Memantine (an uncompetitive antagonist of NMDA receptor) is approved for the treatment of Alzheimer's disease. Since the previous studies showed controversial benefits on the administration of Memantine in schizophrenia, the purpose of this study was to assess its efficacy.

Results : In the results of Stroop test (subscript C), Memantine demonstrated a significant and effective difference compared with the placebo-controlled treatment ($P=0.004$, Cohen's $D = 0.66$). An improvement in the scores of other tests was noted for Memantine but they were not significant ($P>0.05$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Memantine addition to atypical antipsychotics in the treatment of schizophrenia significantly and effectively improves the cognitive aspects of concentration, cognitive flexibility, processing speed and executive function measured by Stroop test C.

Keywords : Memantine; Schizophrenia; Cognition

Count: 223

Abstract ID: 449

subject: Neuropsychiatry and Psychology: Disorders of Neurobehavior

Presentation Type: Oral

Evaluation of Association between 3'UTR-rs27072 polymorphism and Attention-Deficit Hyperactivity Disorder susceptibility among children from Northwest of Iran

Submission Author: Adel Abdi

Adel Abdi¹, Narges Zeinalzadeh², Leila Mehdizadeh Fanid³, Gholamreza Nourazar⁴

1. Department of Biology, Faculty of Natural Sciences, University of Tabriz, Tabriz, Iran.
2. Department of Biology, Faculty of Natural Sciences, University of Tabriz, Tabriz, Iran.
3. Department of Biology, Faculty of Natural Sciences, University of Tabriz, Tabriz, Iran.
4. Psychiatry and Behavioral Sciences Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.

Background and Aim : Attention-deficit/hyperactivity disorder (ADHD) is a common neuropsychiatric disorder with onset in childhood. It affects 3–6% of school age children worldwide, is characterized by age inappropriate levels of inattention, hyperactivity and impulsivity. Pharmacological and biochemical studies have suggested that dysfunctions and polymorphisms of the dopaminergic system involved in the etiology of ADHD. DAT1 is a dopamine transporter gene. The purpose of the present study was to evaluate the association between DAT1 3'UTR-rs27072 polymorphism and Attention-deficit/hyperactivity disorder susceptibility amongst children from North West of Iran.

Methods : In this study we investigated 235 children with and without ADHD between 6 and 12 years old. DNA was extracted from peripheral blood using salting out method and then 3'UTR-rs27072 was genotyped using PCR-RFLP method. The results were analyzed with chi square test using the SPSS 20 software.

Results : Genotype frequency was GT 38.12%, GG 58.01%, TT 3.86 among ADHD patients and GT 38.88%, GG 51.85%, TT 9.25% among controls the statistical analysis showed no significant association between DAT1 3'UTR-rs27072 polymorphism and susceptibility to ADHD in our study (P value=0.6).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : DAT1 3'UTR-rs27072 polymorphism may not contribute to ADHD susceptibility among children from North West of Iran.

Keywords : Attention-Deficit Hyperactivity Disorder, DAT1 gene, 3'UTR-rs27072, North West of Iran, PCR-RFLP

Count: 224

Abstract ID: 34

subject: Neuropsychiatry and Psychology: Disorders of Neurobehavior

Presentation Type: Poster

Ritalin; a dual-edge sword

Submission Author: Akram Alizadeh

Akram Alizadeh¹, Majid katebi², Ronak Shabani³

1. Cellular and Molecular Research Center, Shahrekord University of Medical Sciences
2. Hormozgan University of Medical Sciences
3. Iran University of Medical sciences

Background and Aim : Ritalin is a methylphenidate and a stimulant of the nervous system. Its Pharmacological effects are similar to amphetamines. Ritalin is used in hyperactive children and in some cases of brain trauma usually in the form of tablets. It has been the most effective and common drug for treatment of attention-deficit hyperactivity disorder (ADHD) for years.

Methods : Ritalin has a high potential for abuse, particularly in some students use it to increase focus in order to success in exams. Use of high-dose Ritalin via intravenous and inhalation or intranasal administration can cause many complications similar to cocaine and amphetamine.

Results : These complications include violent behavior, hallucinations, hyperexcitability, irritability, panic, and psychosis. In some animal models, structural damage to the nervous system and other organs has been reported.

Conclusion : So, distribution and usage of Ritalin should accurately be controlled and monitored to prevent its abuse.

Keywords : Amphetamine, Methylphenidate, Substance abuse

Count: 225

Abstract ID: 793

subject: Neuropsychiatry and Psychology: Disorders of Neurobehavior

Presentation Type: Poster

The Effectiveness of Detached Mindfulness and Attention training technique in Neuropsychological Functioning

Submission Author: Hossein Farrokhi

Hossein Farrokhi¹, Kasra Sharifi², Zahra Rashid Tavallaie³, Faezeh Bahri⁴, Maryam Neghabi⁵

1. Phd student of psychology, Faculty of psychology and education, University of Ferdowsi, Mashhad, Iran
2. Phd student of psychology, Faculty of psychology and education, University of Ferdowsi, Mashhad, Iran
3. M.A Clinical Psychology, Scientific Research Center, Zahedan University of Medical Science, Department of Clinical Psychology, Zahedan, Iran
4. M.A Clinical Psychology, Faculty of psychology and education, Azad University Torbat-e Jam, Khorasan Razavi, Iran
5. M.A Clinical Psychology, Faculty of psychology and education, Azad University Torbat-e Jam, Khorasan Razavi, Iran

Background and Aim : Metacognitive therapy (MCT) is a relatively new psychotherapy focusing on altering unhelpful patterns of perseverative thinking (rumination and worry), enabling disengagement from unhealthy attentional deployment and coping strategies comprising the cognitive attentional syndrome (CAS), theorized to be an important maintaining factor in Disorders. A key constituent of MCT is the attention training technique (ATT) that is based, in part, on knowledge of the executive dysfunction believed to underlie Disorders. ATT is an auditory attention task involving practice of selective and divided attention and attention switching. Attention-control strategies in MCT aim to ameliorate deficits in executive function and attention processes by enhancing attentional capacity and cognitive flexibility—this enables disengagement from congruent stimuli. Detached mindfulness, one of MCT's other core strategies has been defined by Wells as “a state of awareness of internal events, without responding to them with sustained evaluation, attempts to control or suppress them, or respond to them behaviourally”. Detached Mindfulness and Attention training technique is an innovative treatment model addressing patterns of negative thinking seen in emotional disorders. MCT has strategies targeting dysfunctional cognitive and metacognitive processes underlying perseverative thinking patterns and attentional biases. The aim of this pilot study was to compare changes in neuropsychological

functioning related to executive function and attention in outpatients with Detached Mindfulness and Attention training technique MCT.

Methods : A randomized controlled comparative trial was conducted with pre-, post-, and 12-month follow-up assessments. Half of the patients were randomized to receive ATT and DM in addition to treatment as usual (TAU) (hereafter referred to as the treatment group). The remaining patients were randomized to a waiting list (WL) control group receiving TAU (hereafter referred to as the waiting list group). Thirty-eight participants referred for outpatient treatment were randomized to 12 weeks of MCT (n = 20) or CONTROL (n = 18). Mood severity and neuropsychological functioning were assessed at pretreatment, 6 weeks, and at end treatment (12 weeks).

Results : There were no significant group differences at pretreatment or 6 weeks on any neuropsychological test, although overall both groups showed a small improvement by 6 weeks. At end treatment, the MCT group demonstrated significantly greater improvement in performance on a task requiring spatial working memory and attention than the CONTROL group (P 0/005).

Conclusion : Detached Mindfulness and Attention training technique may have an advantage in improving aspects of executive function, including attention. MCT's emphasis on attentional training and flexible control of thinking may have a beneficial effect on neuropsychological functioning, consistent with the purported mechanism of action. This finding could be seen as being consistent with that of Siegle and colleagues of a specific benefit of a cognitive control strategy (including ATT and DM as a component) in improving executive function processes, compared to their active "treatment as usual" group.

Keywords : Detached Mindfulness, Attention training technique, Neuropsychological Functioning

Count: 226

Abstract ID: 221

subject: Neuropsychiatry and Psychology: Disorders of Neurobehavior

Presentation Type: Poster

evaluate the level of PDI activity in the hippocampus region following amyloidopathy in the entorhinal cortex

Submission Author: Azam Ghanbari

Azam Ghanbari¹, Shayan Aliakbari², Hamid Gholami Pournadiei³, Forozan Ghasemi-Rodesari⁴, Fariba Khodaghali⁵, Mahtab Daftari⁶

1. Department of Biology, Faculty of Sciences, University of Zanjan, Zanjan, Iran
2. Department of Physiology and Pharmacology, Pasteur Institute of Iran, Tehran, Iran.
3. Department of Physiology and Pharmacology, Pasteur Institute of Iran, Tehran, Iran.
4. Department of Biology, Faculty of Sciences, University of Zanjan, Zanjan, Iran
5. Neuroscience Research Center, Shahid Beheshti University of Medical Science, Tehran, Iran.
6. Neuroscience Research Center, Shahid Beheshti University of Medical Science, Tehran, Iran.

Background and Aim : Alzheimer's disease (AD) begins from entorhinal cortex and spreads to the neighbor regions and eventual entire brain. The hallmark of the disease is accumulation and deposition of beta amyloid (A β) in the brain parenchyma. Protein disulfide isomerase (PDI) is an oxidoreductase that is believed to be involved in the endoplasmic reticulum (ER) stress in AD. Calcium channel blockers have been shown to have a neuroprotection effect against amyloidopathy. The aim of this study was to evaluate passive avoidance memory using shuttle box apparatus and the level of PDI (protein disulfide isomerase) activity in the hippocampus region following amyloidopathy in the entorhinal cortex in rats.

Methods : Male Wistar rats were divided in groups of 10 and anesthetized to receive bilateral amyloid beta (A β) injections into the entorhinal cortex under stereotaxic surgery. Then, a cannula was implanted above the right ventricle. Isradipine, nimodipine and their vehicles were injected daily for one week in the right ventricle. They are received 2 μ g/2 μ l A β into their entorhinal cortex. One week later, passive avoidance learning and memory was evaluated by shuttle box apparatus and then, PDI activity was measured in the hippocampus.

Results : Analysis of data showed that PDI activity was decreased in the hippocampus following amyloidopathy in the entorhinal cortex which was reversed by isradipine and nimodipine. Passive

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

avoidance memory was impaired by beta amyloid injection. However, isradipine and nimodipine increased cognitive performance.

Conclusion : In conclusion, calcium channel blocker may prevent PDI activity decline and eventually memory deficit induced by A β in the early stage of AD.

Keywords : Alzheimer's disease, beta amyloid, entorhinal cortex, hippocampus, calcium channel blocker

Count: 227

Abstract ID: 208

subject: Neuropsychiatry and Psychology: Disorders of Neurobehavior

Presentation Type: Poster

A review of the effects of vitamin d deficiency on neurotransmitters system

Submission Author: Seyedeh mahdieh Jafari palatkaleh

Seyedeh mahdieh Jafari palatkaleh¹

1. Department of Pharmacy, Pharmaceutical sciences Branch, Islamic Azad university, Tehran, Iran

Background and Aim : Increasing of vitamin d deficiency has received many attentions in recent decades and is one of the worldwide problems. whereas developmental vitamin d (DVD) deficiency can be a risk factor for neuropsychiatric disorders such as schizophrenia, parkinson, depression and alzheimer. the aim of this study is to review the effects of vitamin d on neurotransmitters.

Methods : this study is the result of searching articles from scientific databases: Sciencedirect, Medline, Pubmed scine 2014-2017

Results : In most studies there is a relationship between occurrence of neuropsychiatric disorders and low level of vitamin d. the current studies show that vitamin d can be effective in synthesizing and regulating neurotransmitters system. therefore deficiency of vitamin d can lead to disturbance in neurotransmitters synthesis and can impacts on both stimulating and inhibitory neurotransmitters system.

Conclusion : Vitamin d is an important neurosteroid and has neuroprotective roles in the brain. one of the effects and roles of vitamin d is regulating neurotransmitters secretions. thus vitamin d deficiency can disrupt realising of neurotransmitters and then it can cause neuropsychiatric diseases.

Keywords : vitamin d deficiency; neurodevelopment; brain

Count: 228

Abstract ID: 300

subject: Neuropsychiatry and Psychology: Disorders of Neurobehavior

Presentation Type: Poster

comparative investigation of the neuropsychological profile and personality disorders in groups of people with and without experience of using unconventional music social

Submission Author: Soheil Jafarsalehi

Soheil Jafarsalehi¹

1. dr.Alireza Pirkhaefi

Background and Aim : the aim of this study is to compare the average loss of brain function ,mood disorders and personality and grups of people with and without experiance of using unconvetional music community.

Methods : the study was causal-comprative.for this purpos,among the whole population of people with and without musical experiance unusual number of 20 patients with available sampling,testing and control as a music center and a restaurant/coffe shop(nightly gathering place for those pepole using unconventional music)and a randome selection of a group of young people without experiance traditional music of tehran were selected. both brain scl_90 and Bender-Gestalt tests were evaluated. character(obsessive-compulsive,anxiety,paranoia,aggression,etc.)and the brain (brain hemisphere dysfunction and frontal areas etc.)there is significant difference.

Results : The results of multivariate analysis of variance showed that those affected by these music had a mean of mood and personality disorder and a shortage of brain function than the control group mean, and between the group with uncommon music experiance and the group without experiance in terms of symptoms of personality disorders (obsessive-compulsive disorder) , Anxiety, paranoia of aggression, and ...) and brain function (functional impairment of brain hemispheres and frontal and temporal areas, etc.) are significantly different.

Conclusion : based on the theoretical and literature studies,the resultsof this study showed that social unconventional music system and brain function,mood and personality a negative impact.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : mood and personality disorders, brain function, exotic music

Count: 229

Abstract ID: 494

subject: Neuropsychiatry and Psychology: Disorders of Neurobehavior

Presentation Type: Poster

Investigating psychological capital and its related domains in MS patients referred to MS Clinic of Alzahra Hospital in Isfahan, 2014-15

Submission Author: Zahra Karimi

Zahra Karimi¹, Zahra Baghersad², Maryam Shirazi³, Saeede Rahnama⁴

1. 2. Undergraduate Student of Nursing, Faculty of Nursing and Midwifery, Esfahan University of Medical Sciences, Esfahan, Iran.
2. 1. Master of Midwife, School of Nursing and Midwifery, Esfahan University of Medical Sciences, Esfahan, Iran.
3. 3. Instructor, Department of Community Health Nursing and Elderly, School of Nursing and Midwifery, Esfahan University of Medical Sciences, Esfahan, Iran.
4. 4. Department of Operating Room, School of Nursing and Midwifery, Esfahan University of Medical Sciences, Esfahan, Iran.

Background and Aim : Introduction: Multiple Sclerosis is a chronic illness of central nervous system which affects all economic, financial, social and emotional aspects of the individual' life, family and society. The findings indicated that in people with MS, psychological problems are the main source of inabilities, social harms and low quality of life. The present study aimed to investigate the psychological capital and its related domains in MS patients.

Methods : This is a descriptive analytical cross-sectional study, conducted on 95 MS patients referring to MS Clinic of Alzahra hospital in Isfahan, who were selected through convenient sampling. Data collection tools were including demographic characteristics, Luthans psychological capital. After data collection, the obtained data were analyzed by descriptive and analytical statistical tests through SPSS18.

Results : The average age of the patients was 32/6 8/5 years. 74.2% of them were female and 25.8% were male. Regarding the education, 22.6% of them had middle school degree, 41.9% had high school diploma, 16.1% had associate diploma, and 19.4% had a bachelor degree or higher. Regarding marital status, 68.8% were married, 22.6% single, 7.5% divorced, and 1.1% of them were widow. In terms of employment status, 18.2% were unemployed, 6.5% were self-employed,

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

and 75% were employees. Finally, 61.3% of them lived in Esfahan city and 38.7% lived in the suburbs of Esfahan. The average score of total psychological capital was $58/7 \pm 21/6$ and the highest average score belonged to self-efficacy ($25/2 \pm 6/4$), optimism ($25/2 \pm 6$), and the lowest average score belonged to resilience ($19/6 \pm 5/5$), and hope ($19/5 \pm 7/9$).

Conclusion : The present study showed, despite believing in their abilities to succeed in daily affairs, the subjects in the study lacked required perseverance to follow their goals and necessary solutions to achieve success. The results can be applied usefully regarding the importance of therapeutic interventions and improving the patients' quality of life.

Keywords : Psychological capital, Multiple sclerosis, MS Patients.

Count: 230

Abstract ID: 435

subject: Neuropsychiatry and Psychology: Disorders of Neurobehavior

Presentation Type: Oral

Evaluation of DRD4 rs1800955 polymorphism and Attention Deficit Hyperactivity Disorder susceptibility among children from Northwest of Iran

Submission Author: Nava Khalilinejad

Nava Khalilinejad¹, Narges zeinalzadeh², Leila Mehdizadeh Fanid³, Maedeh Alizadeh⁴

1. Department of Biology, Faculty of Natural Sciences, University of Tabriz, Tabriz, Iran
2. Department of Biology, Faculty of Natural Sciences, University of Tabriz, Tabriz, Iran
3. Department of Biology, Faculty of Natural Sciences, University of Tabriz, Tabriz, Iran
4. Maragheh University of medical Sciences, Maragheh, Iran

Background and Aim : Attention deficit hyperactivity disorder (ADHD) is the most prevalent and highly heritable neurodevelopmental disorder among children which affects 1-3% of them all around the world. ADHD symptoms are chronic and may continue into adulthood. Genetics plays a key role in the etiology of ADHD. Several studies have reported a strong association between dopaminergic pathway genes, especially dopamine D4 receptor gene (DRD4) variants, and the disorder. The goal of this study is to evaluate the association between DRD4 -521 C/T single nucleotide polymorphism (SNP) and the susceptibility to ADHD.

Methods : This study consisted of 241 patients and controls aged 6-12 years old from northwest of Iran. In order to determine genotypes of the samples, DNA was extracted from peripheral blood by salting out method and DRD4 -521 C/T polymorphism was amplified and genotyped by PCR-RFLP technique. The results were analyzed with chi square test using the SPSS 20 software.

Results : The frequencies of the genotypes were 6.28% TT, 25.12% CC, 68.59% CT in patient group and 52% TT, 6% CC, 42% CT in control group. The statistical analysis showed a significant association between DRD4 rs1800955 polymorphism and susceptibility to ADHD in the children of northwest of Iran (P value=0.00).

Conclusion : The present study showed that the DRD4 -521C/T polymorphism may affect the susceptibility of ADHD disorder in the children of northwest of Iran.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Attention-Deficit Hyperactivity Disorder, DRD4 gene, 5'UTR_rs1800955, North West of Iran, PCR-RFLP

Count: 231

Abstract ID: 100

subject: Neuropsychiatry and Psychology: Disorders of Neurobehavior

Presentation Type: Poster

EEG finding in Autism Spectrum Disorder: Narrative Review of the Literature

Submission Author: Saeid Sadeghi

Saeid Sadeghi¹, Hamid Reza Pouretamad², Reza Khosrowabadi³, Jalil Fathabadi⁴

1. PhD Candidate, Department of Clinical and Health Psychology, Shahid Beheshti University, Tehran, Iran.
2. Prof. Institute for Cognitive and Brain Sciences, Shahid Beheshti University, Tehran, Iran.
3. Assistant Professor, Institute for Cognitive and Brain Sciences, Shahid Beheshti University, Tehran, Iran.
4. Associate Professor, Department of Educational and Developmental Psychology, Shahid Beheshti University, Tehran, Iran.

Background and Aim : Autism spectrum disorders are a group of neurodevelopmental disorders associated with neural connectivity abnormalities at global and local of brain levels. Electroencephalography (EEG) is one-dimensional non-invasive technique that allows a highly accurate measurement of brain function and connectivity in persons with ASD. Encompasses the key finding of EEG application in persons with ASD is this study purpose.

Methods : This study is a narrative review of the literature. After searching relevant databases, 20 articles met the study's inclusion criteria that these articles were analyzed.

Results : EEG studies of ASD suggest a U-shaped profile of electrophysiological power alterations, with excessive power in low-frequency and high frequency bands, abnormal functional connectivity, and enhanced power in the left hemisphere of the brain.

Conclusion : EEG findings may help in detecting altered brain function and connectivity abnormalities, in linking behavior with brain activity, and subgrouping affected individuals within the wide heterogeneity of ASD. These findings could pave the way for the development of tailored intervention strategies.

Keywords : Autism Spectrum Disorder, EEG, Review

Count: 232

Abstract ID: 790

subject: Neuropsychiatry and Psychology: Disorders of Neurobehavior

Presentation Type: Oral

Functional connectivity and volumetric changes in HIV-infected patients

Submission Author: Ahmad Sohrabi

Ahmad Sohrabi¹, Shahin Fakhraei², Jamil Abdolmohammadi³

1. University of Kurdistan, Sanandaj
2. Zoonoses Research Center, Kurdistan University of Medical Sciences, Sanandaj
3. Kurdistan University of Medical Sciences, Sanandaj

Background and Aim : People affected by HIV virus show brain changes even after antiretroviral treatment, shown by using brain imaging methods such as resting-state fMRI (rs-fMRI) and Volumetric Brain Morphometry (VBM). Our aim in this study was to replicate previous findings, and provide evidence for a lateralized reduction in functional connectivity and volumetric measures in this population, while controlling factors such as CD4 and viral load.

Methods : We acquired structural and functional images (5 minute resting state) from 40 individuals, 20 HIV-infected patients and a comparison group of 20 participants in an Avanto Siemens 1.5 tesla MR scanner. All images were pre-processed (i.e., spatial normalization with modulation, segmentation, and smoothing, with DARTEL) using SPM12 and relevant toolboxes under Matlab software. The structural MRI images (axial, T1-weighted) were analyzed using VBM and LI toolbox (for anatomical lateralization). The BOLD images were analyzed for functional connectivities and lateralization using CONN toolbox. The pre-processed functional data were de-noised and checked for quality assurance.

Results : All T1 images were analyzed by a second-level analysis using VBM analysis (t-test) on gray matter ($p < 0.001$, corrected) and white matter (0.001, uncorrected). The results revealed a diminished volume in HIV-infected patients compared to Control. Also, a stronger left-lateralized decrease was found, especially in white matter. The ROI-to-ROI and seed-to-voxel maps (ALFF and fALFF, < 0.1 Hz frequency band) were compared between HIV-infected patients and the control group (applying $p < 0.001$, corrected). The results revealed decreases in functional connectivity especially from seed in right-lateralized fronto-parietal connections in patients

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

compared to control group. Also, lower connectivity was found in the patient group, mainly in default mode network.

Conclusion : The results of functional connectivity in HIV-infected patients compared to a comparison group revealed diminished connectivities in patients, but it was right-lateralized, especially in fronto-parietal connections. On the other hand, a decrease in patients' brain volume was seen, mainly left-lateralized, and involved white matter. Therefore, the lateralization was reversed in functional and structural measures.

Keywords : Functional Connectivity, Brain volume, Resting State, Lateralization, HIV, AIDS

Count: 233

Abstract ID: 311

subject: Neuropsychiatry and Psychology: Disorders of Neurobehavior

Presentation Type: Poster

Meta-analysis of comparing working memory in children with ADHD with normal children and to evaluate the effectiveness of various interventions on working memory in ADHD

Submission Author: Fateme Taaki

Fateme Taaki¹, Maryam Sharifi², Mahgol Tavakoli³

1. Student Research Committee, Faculty of Educational Sciences and Psychology, Isfahan University, Isfahan, Iran
2. PhD Student of Psychology, Faculty of Educational Sciences and Psychology, Isfahan University, Isfahan, Iran
3. PhD of Psychology, Department of Psychology, Faculty of Educational Sciences and Psychology, Isfahan University, Isfahan, Iran

Background and Aim : Attention-deficit hyperactivity disorder (ADHD) is one of the most common chronic-developmental disorders that has always been of interest to researchers and therapists. So far, many studies have been done to evaluate and improve cognitive problems such as working memory function in children with ADHD. The aim of the present study was to collect and combine the results of these studies and calculate their effect size using a meta-analysis research model in order to achieve a more comprehensive view on the difference between working memory function of ADHD with normal children, as well as the effectiveness of interventions on working memory.

Methods : We searched in the national databases (Magiran, Irandoc, Noormags, SID, Google Scholar and Civilica). We used a random effect model to combine the effect size reported in the studies. We conducted the meta-analysis using metan commender of Stata statistical software. Based on the investigation of several studies carried out in this field, 23 studies (10 comparisons and 13 interventions) that were methodologically acceptable were selected and a meta-analysis was performed on them. The tool was a meta-analysis checklist.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The meta-analysis findings showed that the effect size of the comparison of working memory in ADHD with normal children was 1.21 ($p < 0.00001$). Also, the effect size of the interventions on the working memory function of these children was 1.87 ($p < 0.00001$).

Conclusion : According to the Cohen's table, both of effect sizes obtained in this study were significantly high. These results confirm the difference between the working memory function of children with ADHD and normal children. It also indicates the effectiveness of interventions in this area.

Keywords : Meta-analysis; Attention-deficit hyperactivity disorder; Working memory

Count: 234

Abstract ID: 143

subject: Neuropsychiatry and Psychology: Aggression and Defensive Behavior

Presentation Type: Oral

Construction, standardization, validity and reliability of memory malingering

Submission Author: Yegane Derakhshan

Yegane Derakhshan¹, Dr. Mahgol Tavakoli²

1. Sina trauma and surgery research center, Tehran University of Medical Sciences
2. Assistant Professor of Department Psychology, college of psychology and Educational Sciences, University of Isfahan

Background and Aim : Malingering means producing physical and psychical signs in order to achieve a special goal. it is seen too much because of legal reasons, so it is necessary to be paid attention to. This research study aimed at establishing, normalizing and determining the validity and reliability of memory test in order to recognize memorial malingerer

Methods : by investigating and modeling the reliable tests in the field of recognizing malingering, the original version was prepared; and after investigating the probable validity by five specialists, some necessary modification was applied. They were reproduced in the visual form on the tablet. The test- retest test was used to investigate test validity. The participants of this study were selected randomly and they were put in three different groups; one hundred and fifty normal persons, forty malingering suspect persons, and forty dementia persons. They were ranged between sixteen to eighty one years old.

Results : According to the findings of the study the difference between the score average of picture recognizing in malingering test was meaningful. The effect of being member of a special group in reminding the pictures was equal to 73/1 percent. The hundred percent of statistical power shows the high accuracy of the test and the sufficiency of the samples. The obtained correlation coefficient of two administrations in two weeks in order to determine the test reliability equals 0.0481 in the specified level of significance (0.01). So this test has an acceptable reliability. Investigating of correlation coefficient in order to determine the test validity equals 0\855 in the specified level of significance ($p < 0.001$). The obtained findings of Chi-squared test equals to 300/808 which is meaningful, and it shows that the average of malingering memory is different in

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

three different groups- normal, malingering suspect and dementia group. Two different groups are recognizable through this variable.

Conclusion : The findings of this research study shows that the memorial malingering test is a very useful tool to reach the goal of the study.

Keywords : Malingering; Test of memory malingering; standardization; validity; reliability

Count: 235

Abstract ID: 493

subject: Neuropsychiatry and Psychology: Aggression and Defensive Behavior

Presentation Type: Oral

Proposing a biofeedback protocol for management of aggressive behavior in patients with major depression

Submission Author: Alireza Farnam

Alireza Farnam¹, Arezoo MehrAra², Hossein Dadashzadeh³, Golamreza Chalabianlou⁴, Salman Safikhanelou⁵, Shiva Taghizadeh⁶, Masumeh Zamanlu⁷

1. Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran
2. Department of Psychiatry, Tabriz University of Medical Sciences, Tabriz, Iran
3. Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran
4. Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran
5. Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran
6. Department of Psychology, University of Tabriz, Iran
7. Neurosciences Research Center (NSRC), Tabriz University of Medical Sciences, Tabriz, Iran

Background and Aim : Aggression associated with depression is common, increasing the notable burden of depression and particularly causing damage to the families. Thereupon, the prediction, early detection and effective treatment of aggressive behavior are essential.

Methods : The authors of the current paper have recently published a successful clinical trial of a pharmacologic treatment for aggressive behavior in patients with major depression. The current paper has converted the significant alterations of biofeedback parameters of the treated patients into a novel biofeedback protocol for management of aggressive behavior in patients with major depression. Twenty three patients with depression and aggression were included. Data were obtained as B_BVP_peak_freq, B_BVP_VLF_total_power, E_Skin_conductance, E_SC_as_of_value, C_Low_alpha, C_High_alpha, C_Alpha, C_SMR and other related parameters of biofeedback. For analysis of comparison, SPSS 23 software was used.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The pre- and post- treatment differences were significant or marginally significant for E_Skin_Conductance, E_SC_as_of_value, BVP- HF- Power, Theta/ Beta, BVP- LF- Total, Wide Band, Delta, SMR Beta and Theta.

Conclusion : Based upon the findings of the current investigation, a protocol aiming at altering the aforementioned parameters during biofeedback intervention of patients with depression and aggression is expected to efficiently and specifically reduce their aggression together with facilitating their pharmacologic therapy of depression.

Keywords : Major depression, aggression, biofeedback

Count: 236

Abstract ID: 199

subject: Neuropsychiatry and Psychology: Cognitive Disorders

Presentation Type: Poster

Correlation between Different Brain Channels' ERPs in Adults with Attention Deficit Hyperactivity Disorder (ADHD)

Submission Author: Golnaz Baghdadi

Golnaz Baghdadi¹, Farzad Towhidkhan², Reza Rostami³

1. Biomedical Engineering Department, Amirkabir University of Technology
2. Biomedical Engineering Department, Amirkabir University of Technology
3. Department of Psychology and Educational Sciences, Tehran University

Background and Aim : Attention deficit hyperactivity disorder (ADHD) is a neurocognitive disorder in which a person cannot focus and sustain his/her attention on a task, easily distracted, or may have impulsive and hyperactive behaviors. ADHD symptoms start from childhood and usually continue into adulthood. The reasons behind these symptoms are not fully understood. Thus, scientist tries to find out more about this disorder. In previous studies, EEG channels synchronization has been investigated in ADHD subject. In the current study, instead of EEG signals, we have focused on the correlation coefficient (CC) between event related potentials (ERPs) of EEG channels.

Methods : ERP data has been recorded from 19 channels during an auditory Go/NoGo task that has been done by 12 ADHD 24.7(4.1 years) and 12 normal 24.6(3.87 years). Subjects were requested to press a button as soon as hearing the Go signal (2000 Hz tone) that were presented in 80% of trials and to avoid pressing the button in NoGo trials (1000 Hz tone). The data used in this study was kindly shared by Fisher, Pratt, Aharon and Shahaf and are the same data analyzed in Fisher et al. (2011) and Shahaf et al (2015). The data consists of ERP signals of 19 EEG channels that were extracted from 300 msec before to 1000 msec after the Go and NoGo tones onset. The average CC between the ERPs of Frontal, Temporal, Central, Parietal, and Occipital channels have been calculated and compared between ADHD and normal groups in Go and NoGo condition separately.

Results : Statistical analysis showed that in response to Go signals the CC between Frontal and other channels in ADHD subjects was significantly lower than normal ones ($p < .05$). In NoGo

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

trials, the CC between the ERP of all channels in normal subjects was considerably higher than the ADHD group ($p < .01$).

Conclusion : Higher values of the CC indicate a higher time and amplitude synchronization between the activities of channels. A delay in the between channels signal transmission may cause a reduction in their time synchronization and consequently the CC. Myelin sheaths has important role in the speed of signal transmission. Therefore, the brain maturation delay in ADHD subjects may have role in reducing the CC between channels.

Keywords : ADHD; ERP; Correlation Coefficient; Go/NoGo tasks

Count: 237

Abstract ID: 532

subject: Neuropsychiatry and Psychology: Cognitive Disorders

Presentation Type: Poster

Brain Metabolic Alterations in Magnetic Resonance Spectroscopy and related Psychological disorders in methamphetamine users

Submission Author: Hamideh Bakhshinezhad

Hamideh Bakhshinezhad¹, Reza Ahadi²

1. Bakhshinezhad
2. Ahadi

Background and Aim : Methamphetamine (MA), a highly neurotoxic stimulant, use has been recognized as a global health concern and has increased substantially in Iran. Consumption of these substances may be associated with cognitive and brain structural deficits. The most important Cognitive impairments include disruptions in 1.working memory 2. Attention 3. Executive functions 3. Learning 4. Speed of processing information 5. Motor skills 6. Reaction time. The focus of this study was the population of methamphetamine users who have been using over 6 months and who are still using and have symptoms of psychological disorders.

Methods : In this study, the psychological status of these people were evaluated using Neuropsychological tests and instruments such as Stroop tests (complex attention), Wisconsin (executive functions) and Wechsler's memory. After performing these tests, the MA users (n= 30) and healthy control subjects (n= 20), underwent 2D-chemical shift imaging 1H-MRS, which included voxels in the anterior cingulate cortices (ACC), dorsolateral prefrontal cortices (DLPFC), Suprior temporal gyrus and Basal ganglia. We compared metabolite concentrations relative to creatine for N-acetylaspartate (NAA), glutamate (Glu), choline (cho), lactate (lac), and creatinine(Cr) across groups.

Results : The MA users showed significantly metabolic alterations included NAA, Glu, cho, lactate and Cr compared with control group.

Conclusion : The current findings suggest that neurochemical metabolic alterations are consistent with some Psychological disorders.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Methamphetamine, Psychological disorders, Magnetic Resonance Spectroscopy, Stroop test, Wisconsin test and Wechsler's memory

Count: 238

Abstract ID: 500

subject: Neuropsychiatry and Psychology: Mood Disorders

Presentation Type: Poster

Neuropsychological Aspects of Multiple Sclerosis: A Systematic Review

Submission Author: Hengameh Dortaj

Hengameh Dortaj¹

1. M.Sc, Anatomy and Cell Biology, Shahid Sadoughi University of Medical Sciences and Health Services, Yazd, Iran

Background and Aim : Multiple sclerosis (MS) is a chronic, progressive neurological disease that produces demyelination of the CNS nerve fibers. It is unpredictable and pleomorphic disease, with a variety of symptoms and diverse course, which changes the life of the patient and their family. Therefore, the analysis of psychological issues in MS has become an important aspect for health professionals. This literature review evaluated the impact of psychological interventions on the physiological symptoms associated with the illness.

Methods : A systematic literature search was conducted using the last decade Medline and Scopus Library databases. The search produced 100 articles, with 14 meeting inclusion criteria for the review.

Results : Results from the included studies indicate a general improvement in both psychological and physiological outcomes following psychological treatment. Depression is the predominant psychological disturbance with lifetime prevalence around 48% and annual prevalence of 16%. Depression is commoner during relapses, may exacerbate fatigue and cognitive dysfunction and no firm evidence. Anxiety, occurs in newly diagnosed patients. The relationship between stress and MS is an important issue because some studies pointed to an association between stressful life-events and MS. Other psychiatric illnesses, as pathological laughing and crying and bipolar disorder occur less frequently in MS.

Conclusion : Future research and clinical activities involving patients with MS and selection of tests for neuropsychological screening examinations are highlighted

Keywords : Multiple Sclerosis, Chronic Disease, Psychological Aspect

Count: 239

Abstract ID: 783

subject: Neuropsychiatry and Psychology: Mood Disorders

Presentation Type: Poster

Depression, anxiety-insomnia, somatic subscales and body-complaints in welders working in a factory in Tehran in 2016.

Submission Author: Meisam Fadaeikenarsary

Davood Hasanvand¹, Mohammadreza Ghotby Ravandy², Meisam Fadaeikenarsary³, Manoochehr Omidvary⁴

1. Student Research Committee, Kerman University of Medical Sciences, Kerman, Iran
2. Department of Occupational Health, Health Faculty, Kerman University of Medical Sciences, Kerman, Iran
3. Neuroscience Research Center, Kerman University of Medical Sciences, Kerman, Iran
4. Department of Industrial Engineering, Faculty of Mechanical and Industrial Qazvin Islamic Azad University, Iran

Background and Aim : Welding is one of the most hard and harmful jobs. There are only a few studies about simultaneous relationships of general health, physical and mental complaints in Iranian welders. We aimed to evaluate possible associations among general health subscales (Somatic, Anxiety-Insomnia, Social, Severe Depression) and body problems in different areas in welders working in a factory in Tehran in 2016.

Methods : This is a cross-sectional study with descriptive and analytical aspects that has been performed in 2016. Subjects included 100 welders working in Building Heavy Metal Structures Factory in Tehran. We used a census method containing General Health Questionnaire (GHQ-28 question, 4 Subscales) and General Nordic Questionnaire including questions about complaints in 9 distinct anatomic body areas was used. Nordic questionnaire contained questions about past 7 days (acute) and past 12 months (chronic) physical problems.

Results : There were significant differences in severe depression scale of welders who had acute elbow ((mean difference (MD): 1.14 ± 0.24 , $p=0.000$)), acute foot (MD: 1.04 ± 0.35 , $p=0.003$), chronic femur (MD: 8.75 ± 0.350 , $p=0.015$) and chronic foot (MD: 1.15 ± 0.513 , $p=0.032$) problems compared with welders who did not have these problems. Anxiety/insomnia scale had significant difference in welders with acute neck complaints (MD: 2.181 ± 0.571 , $p=0.005$) compared with welders who have not these problems. There were also significant differences in somatic sub-scale

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

of welders with acute neck (MD: 1.443 ± 0.487 , $p=0.013$), acute back (MD: 1.322 ± 0.508 , $p=0.018$) problems compared with welders who did not have these problems. Total GHQ score positively correlated (Pearson, correlation coefficient=0.242, $p=0.015$) with working duration. Also a significant positive correlation (Pearson, correlation coefficient=0.331, $p=0.001$) between working duration and anxiety/insomnia scale was observed.

Conclusion : We concluded that severe depression was the most affected subscale. Lower limb problems were the most important areas affecting depression. Acute and chronic foot problem, acute foot and chronic femur complaints are associated with severe depression. Acute neck problem was associated with anxiety-insomnia. Acute neck and back complaints enhanced somatic subscales. Reducing working duration may improve welder's general health and anxiety-insomnia.

Keywords : Depression; Anxiety-insomnia; Somatic; General Health Questionnaire; General Nordic Questionnaire; Welders

Count: 240

Abstract ID: 299

subject: Neuropsychiatry and Psychology: Mood Disorders

Presentation Type: Poster

Comparison of Brain/Behavioral Systems Activity in the Patients with Unipolar Major Depression Disorder, Bipolar Manic Disorder, and Normal Controls

Submission Author: Mohammad Hafeznia

Mohammad Hafeznia¹, Asodollah Maleki², hassan hassanzadeh³, hossein hassanzadeh⁴, sareh masuodi⁵

1. azad university
2. azad university
3. azad university
4. azad university
5. azad university

Background and Aim : The present study aimed to compare brain/behavioral systems activity in the patients with unipolar major depression disorder, bipolar manic disorder, and normal controls based on BAS dysregulation model.

Methods : This cross-sectional study was conducted on 19 patients with major depression disorder and 19 patients with bipolar manic disorder. The patients were selected from the psychiatric hospitals of ORUMIA through convenience sampling using DSM-IV diagnostic interview, Beck Depression-II, Young Rating Mania Interview, and Shugar Self-Rating Mania Inventory. The control group participants were also selected from the hospitals staff using the above-mentioned scales. These participants had to have normal performance in the diagnostic interview and to obtain standard scores in the screen scales. The data were collected using SPSR and BIS/BAS self-rating scales and were then analyzed by MANOVA and Toki post-hoc test.

Results : Bipolar manic patients showed higher levels of BAS and SR indexes compared to the two other groups. However, no significant difference was observed between the major depressive patients and the normal controls in this regard. Moreover, major depressive patients showed higher levels of BIS and SP indexes in comparison to the two other groups.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Vulnerability to bipolar spectrum disorders results from a dysregulated BAS.

Keywords : Unipolar major depression disorder, Bipolar manic disorder, Behavioral activation system Behavioral inhibition system

Count: 241

Abstract ID: 285

subject: Neuropsychiatry and Psychology: Mood Disorders

Presentation Type: Poster

Comparison of Alexithymia and loneliness among nurses with high and low occupational performance in private hospitals in Urmia

Submission Author: Hassan Hassanzadeh

Hassan Hassanzadeh¹, Asadollah Maleki², Mohammad Hafeznia³, Hossein Hasanzadeh⁴, Arezoo ghanizadeh⁵

1. Master of General Psychology, Researcher at the Center for Police Consultation and Studies A. Gharibi, Iran, Urmia, 09144436394, Hassanzadeh_hassan@yahoo.com
2. MSc Clinical Psychology, Researcher, Center for Police Consultation and Studies, A.Gharbi, Iran, Urmia, 09149418147, A.tahghigh93@gmail.com
3. MSc Clinical Psychology, Police Consultation and Police Studies Center, West Azarbaijan, Iran, Urmia, 09149746522, Mohammad_hafeznia@yahoo.com
4. Master of General Psychology, Police Advice and Police Studies Center, West Azerbaijan, Iran, Urmia, 09143889799, Hassanzadeh.phd@gmail.com
5. Master of General Psychology, Police Advice and Police Studies Center, West Azerbaijan, Iran, Urmia, 09147137797, arezughani767@gmail.com

Background and Aim : The aim of this study was to compare the Alexithymia and loneliness among nurses with high and low occupational performance.

Methods : This study was a causal comparison. The statistical population of this research is all nurses of private hospitals of Urumieh who were working in 2016. The sample of this study was 250 nurses from private hospitals affiliated to Urmia University of Medical Sciences who were assessed by quotas. The data were collected using the Alexey Timy Questionnaire (TAS, 1984) and the loneliness of Di Tomasso et al. (2004). For data analysis, SPSS software was used to analyze the data and Manua's statistical analysis (multivariate analysis of variance) was used to analyze the data.

Results : The results showed that the level of Alexithymia and loneliness in nurses with low job performance had mean and standard deviations (73.79 and 5.20), and (44.04 and 4.58), respectively, with nurses with performance The higher occupation was higher (57.53 and 5.69),

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

and (38.07 and 4.83), respectively. In this sense, nurses with low job performance at work had streaks of these disorders. ($P < 0/001$).

Conclusion : The results of this research can be considered in improving the nurses' job performance by being aware of the mental health status and other psychological factors in the priorities of the managers and planners of the medical university.

Keywords : Alexithymia, Loneliness, Job Performance, Nurses

Count: 242

Abstract ID: 330

subject: Neuropsychiatry and Psychology: Mood Disorders

Presentation Type: Poster

An Investigation of Critical Flickering Threshold (CFT) and Mood profile in Depressed patients treating with SSRI drugs

Submission Author: Narges Kazerooni

Narges Kazerooni¹, Karim Asgari²

1. Department of Behavioral Sciences, Faculty of Psychology, University of Esfahan , Esfahan , Iran
2. Department of Behavioral Sciences, Faculty of Psychology, University of Esfahan , Esfahan , Iran

Background and Aim : selective serotonin reuptake inhibitors (SSRIs) are a class of Antidepressants drugs that reduce symptoms of mental disorders by correcting chemical imbalances of neurotransmitters in the brain. Chemical imbalances may be responsible for changes in mood and behavior, So the aim of the present study is an investigation Critical Flickering Threshold (CFT) and Mood profile in Depressed patients treating with SSRI drugs.

Methods : The method of study was single case study with MBA design. In this study after the base line position, the participants were entered the single case study project. Three follows-up were applied. The assessment device were Critical Flickering Threshold device and Beck Depression Inventory (BDI)

Results : The results of this study based on visual analyses indicators and descriptive statistics showed that in the follow up phase compared to baseline, the intervention was Reduce Depressed mood and not have been affected on the Critical Flickering Threshold.

Conclusion : In conclusion the results of this study showed that SSRI drugs is effective on mood but not effective on CFT.

Keywords : Selective serotonin reuptake inhibitors (SSRI), Critical Flickering Threshold (CFT), Mood, Depression

Count: 243

Abstract ID: 57

subject: Neuropsychiatry and Psychology: Mood Disorders

Presentation Type: Poster

Chronic unpredictable stress exposure attenuates the hippocampal serotonin transporter mRNA expression and produce depressive like behavior in rats

Submission Author: Fatemeh Khojasteh

Fatemeh Khojasteh¹, Arezo Nahavandi², Shabnam Nadjafi³, Behnam Jamei⁴

1. Neuroscience Research Center, Iran University of Medical Sciences.
2. Neuroscience Research Center, Iran University of Medical Sciences.
3. Neuroscience Research Center, Iran University of Medical Sciences.
4. Neuroscience Research Center, Iran University of Medical Sciences

Background and Aim : Chronic stress is known as an important risk factor of depression. Stress induced molecular changes in the body that may cause depressive like behavior. Serotonin transporter (SERT) is a protein that modulates the serotonin level in the synaptic cleft. This protein is the target of many antidepressant medications of the SSRI and Tricyclic antidepressant classes.

Methods : In this study, we examine the effect of chronic stress, as a risk factor of depression, on SERT expression. Male Sprague-Dawley rats were randomly assigned to undergo 21 days of CUS or to stay non-stressed. One week after the last stressor, psychomotor retardation, a feature of depression-like behavior, was assessed using the forced swim test (FST) by measuring time spent on immobility. Hippocampus of the rats was removed 24 after FST for real time PCR.

Results : Results show that chronic unpredictable stress increased immobility in the FST group. In addition SERT mRNA expression decreased in stressed rats than control.

Conclusion : In conclusion, our findings show that chronic unpredictable stress may predispose to depression by reduction of SERT mRNA expression and consequently by changing the serotonin balance.

Keywords : Serotonin transporter; Stress; Depression

Count: 244

Abstract ID: 107

subject: Neuropsychiatry and Psychology: Mood Disorders

Presentation Type: Poster

Compare the styles of attachment and identity crisis Internet addiction in adolescents with and without oppositional defiant

Submission Author: Atefeh Mohammadi

Atefeh Mohammadi¹, Parvaneh Ghodsi², Roya koochak entezar³

1. Master of Psychology and Exceptional Education of Central University of Tehran
2. PhD in Psychology, Assistant Professor, Islamic Azad University, Tehran Branch, Faculty of Psychology and Educational Sciences
3. PhD in Psychology, Assistant Professor, Islamic Azad University, Tehran Branch, Faculty of Psychology and Educational Sciences

Background and Aim : Regarding the increasing spread of coping behavior in children and adolescents, and the long-term and irreparable effects of such behaviors such as low socio-emotional compliance, considering that coping disorder is usually the prelude to conduct disorder and passive personality disorder in adolescence, so studying in This field is necessary. Also, since adolescents with behavioral and emotional problems are parents of the next generation, their problems can have long-term consequences for the child and the adolescent, family and community themselves, and with regard to the high-risk population, the high prevalence of this disorder Many cases may start from the first years of primary school. The increased attention to this disorder and the study of the growth of the ability to understand the ideas and emotions of others in these adolescents seems to be a major issue. Therefore, the present study aims to comparison of Internet addiction and attachment styles and identity crisis in adolescents with / without coping disorder.

Methods : The aim of this study was to compare the Internet addiction and attachment styles and identity crisis in two groups of adolescents aged 18 to 14 with and without coping disobedience in Tehran's 2nd district. The research method is applied and in terms of controlling and manipulating variables is non-test and in terms of nature it is non-descriptive and causal type of comparison. The research population was all students aged 14-18 years old in Tehran, in the academic year 1394-1395, whose number was 1825. Students' sample size according to Morgan 's table using sampling method and selected 137 students . The tool for collecting data in this study , was

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Internet addiction testing questionnaire IAT, Ahmadi identity crisis questionnaire, coping disobedience questionnaire (Achenbach questionnaire), Hazen and Shawar's attachment scale, which was checked for its authentication by qualified professors. The reliability of the research instrument was determined using coefficient Cronbach's alpha as 0.82, 0.84, 0.79 and 0.91, respectively. To answer the research hypotheses, descriptive statistics and inferential statistics (independent t-test and multivariate analysis of variance analysis) were used through program 20 spss .

Results : The results showed that attachment styles is different in adolescents with / without coping disobedience. The identity crisis is different in adolescents with / without coping disobedience. Internet addiction is different in adolescents with / without coping disobedience ($p < 0/05$)

Conclusion : Teach you how to use the Internet to help people, especially teenagers, to prevent problems in the coming years. Due to the lack of knowledge of some people about the social, cognitive, and the stages of access to identity and attention to the meaning of the historical dimension in order to separate the concept of historical and ethnic identity with identity and psychological dimension, more information is provided to students, counselors and families To provide more effective strategies for adolescents in this field. Correct education for parents, especially the mother, to create a safe attachment style for children

Keywords : Identity crisis, Internet addiction, attachment styles, coping disobedience

Count: 245

Abstract ID: 24

subject: Neuropsychiatry and Psychology: Mood Disorders

Presentation Type: Poster

An In Silico Approach about Antidepressant Medication: Evaluation of Hypericin and Phenzelzine in Binding with Monoamine Oxidase A by Docking Method

Submission Author: Shabnam Nadjafi

Shabnam Nadjafi¹, Seyed Behnamedin Jameiea², Mona Farhadi³, Nasrin Hosseini⁴, Masoumeh Zahmatkeshan⁵, Vahid Pirhajati Mahabadi⁶, Raheleh Mollajani⁷, Fatemeh Khojasteh⁸, Masoomeh Mohamadpour⁹

1. Neuroscience Research Center, Iran University of Medical Sciences, Tehran, Iran
2. Neuroscience Research Center, Iran University of Medical Sciences, Tehran, Iran
3. Neuroscience Research Center, Iran University of Medical Sciences, Tehran, Iran; Department of Microbiology, Karaj Branch, Islamic Azad University, Karaj, Iran
4. Neuroscience Research Center, Iran University of Medical Sciences, Tehran, Iran
5. Neuroscience Research Center, Iran University of Medical Sciences, Tehran, Iran
6. Neuroscience Research Center, Iran University of Medical Sciences, Tehran, Iran
7. Neuroscience Research Center, Iran University of Medical Sciences, Tehran, Iran
8. Neuroscience Research Center, Iran University of Medical Sciences, Tehran, Iran
9. Neuroscience Research Center, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : Depression is a known psychiatric disorder and the number of patients with depression has remarkably increased recently. Several synthetic antidepressants are used in clinic to treat depression, but these drugs carries a high risk of relapse and side effects. Monoamine oxidase (MAO) is an extensively distributed mitochondrial enzyme and consists of two isoenzymes: MAO-A and MAO-B. In clinic, some inhibitors of MAO-A and MAO-B are used for treatment of psychiatric and neurological disorders, respectively. Phenzelzine is an irreversible MAO A and MAO B inhibitor that is used as antidepressant; its hepatotoxic side effect necessitates dietary control for limiting of tyramine intake. Also, because of the unwanted side effects of classic antidepressants, it seems that replacing safe and effective antidepressant drugs is requisite. St. John's wort (*Hypericum perforatum*) is one of the hrebs, which are the candidates for treatment of depression, and hypericin is one of the pharmacologically active constituents of St. John's wort.

In this study, we evaluate the hypericin and phenelzine in binding with MAO A by docking method.

Methods : Protein structure of MAO A was selected from Protein Data Bank with PDB Id: 2Z5X. The molecular structures of hypericin (CID_5281051) and phenelzine (CID_3675) were obtained from PubChem. Chimera 1.8 was used for protein editing and forming the PDB files. We used MGLTools 1.5.6, AutoDockTools-1.5.6 for presentation of input files and AutoDock4 for docking procedure.

Results : The minimum binding energy resulted from docking of hypericin with MAO A was -17.25 kcal/mol and this conformation had two atoms in hydrogen bonds. The minimum binding energy resulted from docking of phenelzine with MAO A and was -7.16 kcal/mol and this conformation had one atom in hydrogen bonds.

Conclusion : Hypericin is known as the most important active ingredient in St. John's wort extracts, is used to treat fatigue, weakness, and mild depression. According to the results of this in silico evaluation, the minimum binding energy resulted from docking of hypericin with MAO A shows a more negative value than phenelzine, which suggests a more strong binding for hypericin than phenelzine with MAO A. Hence, it seems that hypericin may be a proper candidate as an alternative in treatment of depression. Obviously, in vitro and in vivo studies are required to validate the results.

Keywords : Depression; Docking; Hypericin; Phenelzine; Monoamine oxidase

Count: 246

Abstract ID: 540

subject: Neuropsychiatry and Psychology: Mood Disorders

Presentation Type: Poster

Cis pT231-tau Is an Early Driver of Neurodegeneration in Bipolar I Disorder Examined Through Cellular Models

Submission Author: Roghayeh Naserkhaki

Roghayeh Naserkhaki¹, Koorosh Shahpasand²

- 1- Department of Developmental Biology, University of Science and Culture, ACECR, Tehran, Iran. 2- Department of Stem Cells and Developmental Biology, Cell Science Research Center, Royan Institute for Stem Cell Biology and Technology, ACECR, Tehran, Iran.
- 2- Department of Stem Cells and Developmental Biology, Cell Science Research Center, Royan Institute for Stem Cell Biology and Technology, ACECR, Tehran, Iran.

Background and Aim : Bipolar disorder is an episodic recurrent pathological mood disturbance that ranges from extreme elation or mania to severe depression. Recent studies indicate that tauopathy may have contribution in pathogenesis of bipolar disorder. Lithium as a first-line treatment for bipolar disorder has been identified as an inhibitor of GSK-3 β which is one of the main kinases of tau protein. Also argyrophilic grains composed of phosphorylated tau have been observed in postmortem brains of bipolar patients. Furthermore, recent studies have demonstrated that phosphorylated tau at Thr231 exists in two distinct cis and trans conformation in which cis pT231-tau is highly neurotoxic and acts as an early driver of tauopathy in several neurodegenerative diseases.

Methods : Although tau aggregation is detected in bipolar brain samples, its contribution to the disease etiology is not clear yet. In this study we established cellular models of mania episode of bipolar disorder by overexpressing GSK-3 β in SH-SY5Y cells through transfection and examined cell viability, cis p-tau and GSK-3 β expression in these models by immunofluorescence and Flow cytometry.

Results : We have found that cis p-tau increased in mania model of bipolar disorder as viability decreased. Furthermore, we showed that lithium treatment inhibits cis p-tau expression in these mania models.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : this study shows that Cis p-tau may contribute to pathophysiology of bipolar disorders and could be the cause of neural cell death upon the disease which in turn would suggest novel therapeutic strategies against the disease.

Keywords : Bipolar disorder; Cistauosis; GSK-3 β ;Tauopathy

Count: 247

Abstract ID: 209

subject: Neuropsychiatry and Psychology: Mood Disorders

Presentation Type: Oral

Glucocorticoid Receptor Genetic Variants and Response to Fluoxetine in Major Depressive Disorder

Submission Author: Hasti Nouraei

Negar Firouzabadi¹, Hasti Nouraei², Ali Mandegary³, Kamiar Zomorrodian⁴, Ehsan Bahramali⁵, Mohammad Reza Hooshangi Shayesteh⁶, Saham Ansari⁷

1. Department of Pharmacology & Toxicology, School of Pharmacy, Shiraz University of Medical, Noncommunicable Diseases Research Center, Fasa University of medical Sciences, Fasa, Iran
2. Department of Toxicology & Pharmacology, School of Pharmacy, Kerman University of Medical Sciences, Kerman, Iran
3. Pharmaceutics Research Center, Neuropharmacology Institute, Kerman University of Medical Sciences, Kerman, Iran
4. Department of Medical Parasitology and Mycology, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran.
5. Noncommunicable Diseases Research Center, Fasa University of medical Sciences, Fasa, Iran
6. Department of Pharmacology & Toxicology, School of Pharmacy, Shiraz University of Medical
7. Department of Medical Parasitology and Mycology, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

Background and Aim : Hyperactivity of the hypothalamic pituitary adrenocortical (HPA) axis is one of the main clinical findings in depression. The HPA axis is interrelated with glucocorticoid signaling via glucocorticoid receptors (GCRs). Thus, functional genetic variants on GCRs might influence therapeutic outcomes in depression. The aim of the present study was to investigate the association between three functional polymorphisms (rs41423247, rs6195, and rs6189/rs6190) on GCR and response to fluoxetine in a group of depressed patients

Methods : One hundred newly diagnosed patients completed 6 weeks of fluoxetine treatment. Response to treatment was defined as a 50% decrease in the Hamilton Depression Rating Scale score. Variants of rs41423247, rs6195, and rs6189/rs6190 polymorphisms were determined in extracted DNAs using PCR-RFLP method.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Regarding rs41423247 polymorphism, carriers of the CG and GG genotype responded significantly better to fluoxetine compared with CC carriers ($p=0.008$, $OR=3.3$, $95\% CI=1.35-8.07$). Moreover, the G allele of rs41423247 polymorphism was strongly associated with response to fluoxetine ($p=0.032$, $OR=2.2$, $95\% CI=1.09-4.44$).

Conclusion : There was no significant association between different genotypes and alleles of rs6195, rs6189/rs6190 variants, and response to fluoxetine ($p=0.213$ and 0.99 , respectively). In conclusion, rs41423247 polymorphism might be a predictor for better response to fluoxetine. These findings support the idea that some variants of the GCR might contribute to interindividual variability of response to antidepressants.

Keywords : Fluoxetine, Depression, Genetic polymorphism, Glucocorticoid

Count: 248

Abstract ID: 353

subject: Neuropsychiatry and Psychology: Mood Disorders

Presentation Type: Oral

Hypothalamic- pituitary-adrenal (HPA) axis and its relationship with Psychological index in stimulus dependents, a cross-sectional study

Submission Author: Bijan Pirnia

Bijan Pirnia¹, Dr Kambiz Pirnia², Rozita Ershad Sarahi³

1. PhD Student of Clinical Psychology, Department of Psychology, Faculty of Humanities, University of Science and Culture, Tehran, Iran. Email: b.pirnia@usc.ac.ir
2. Internal disease specialist, Technical Assistant in Bijan Center for Substance Abuse Treatment, Tehran, Iran.
3. M.A in Psychology, Faculty of Humanities, School of Psychology, Kharazmi University, Tehran, Iran.

Background and Aim : Stimulants addition and abuse can cause some functional and morphological changes in the normal function of glands and hormones. Methamphetamine as an addictive stimulant drug affects the Hypothalamic-pituitary-adrenal (HPA) axis and consequently makes some changes in the psychological state of the drug users. The present study aims to examine the relationship between plasma levels of cortisol with depression, stress and anxiety symptoms in chronic methamphetamine-dependent patients and normal individuals who have undergone the inguinal hernia surgery.

Methods : To meet the purpose of the study, 35 chronic methamphetamine-dependent patients in the active phase of drug abuse and 35 non-users (N=70) who were homogenized regarding the demographic features were purposefully selected from among the patients referred to undergo inguinal hernia surgery since March 15 to June 9, 2015. The participants were then divided into the control and experiment group. The changes in cortisol levels in plasma were measured using Radioimmunoassay (RIA) in three-time series including 0 (upon the induction of anesthesia), 12 and 24 hours after the surgery. Further, three behavioral indices of depression, anxiety and stress were measured using the Depression Anxiety Stress Scale 21 (DASS-21) and then the data were analyzed using t-test and Pearson Correlation coefficient.

Results : The plasma level of cortisol in the chronic methamphetamine-dependent patients (experiment group) had a significant increase in 24 hours after surgery ($p<0.05$). This study

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

showed that cortisol levels in chronic methamphetamine-dependent patients were significantly higher than non-dependent patients in response to alarming events such as inguinal surgery. Changes in cortisol levels were intensified due to a confrontation with the phenomenon of pain and anxiety. In addition, depression index was higher in the chronic methamphetamine dependent patients than that in the non-dependent patients. However, there was no significant relationship between the cortisol level and depression index ($p=0.001$).

Conclusion : The Hypothalamic-pituitary-adrenal (HPA) axis is considered as a key structure in the addiction to simulants, the reason which can explain the faster response of the chronic methamphetamine-dependent patients to the stressors such as surgery.

Keywords : Depression, Cortisol, Hypothalamic, pituitary, adrenal, Methamphetamine, Radioimmunoassay, Surgery, Addiction

Count: 249

Abstract ID: 249

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Poster

Psychological stress has a higher rate of developing addictive behaviors compared to physical stress in rat offspring

Submission Author: Iraj Aghaei

Iraj Aghaei¹, Nazeri Masoud², Ebrahimi Arezo³, Ghotbi Ravandi Samaneh⁴, Shabani Mohammad⁵, Shabani Mohammad⁶

1. Department of Neuroscience, Neuroscience Research Center, Poursina Hospital, Guilan University of Medical sciences, Rasht, Iran
2. NDepartment of Oral Medicine and Chronic Headache and Facial Pain Clinic, School of Dentistry, Kerman, Iran University of Medical Sciences, Kerman, Iran.
3. Neuroscience Research Center, Neuropharmacology Institute, Kerman University of Medical Sciences, Kerman, Iran
4. Neuroscience Research Center, Neuropharmacology Institute, Kerman University of Medical Sciences, Kerman, 76198-13159, Iran.
5. Endocrinology and Metabolism Research Center, Institute of Basic and Clinical Physiology Sciences, Kerman University of Medical Sciences, Kerman, Iran
6. Neuroscience Research Center, Neuropharmacology Institute, Kerman University of Medical Sciences, Kerman, Iran

Background and Aim : Prenatal stress could have great influence on development of offspring and might alter cognitive function and other physiological processes of children. The current study was conducted to study the effect of physical or psychological prenatal stress on addictive and anxiety-like behavior of male and female offspring during their adolescence period (postnatal day (PND)40).

Methods : Adult female rats were exposed to physical (swimming) or psychological (observing another female rat swimming) stress from day six of gestation for 10 days. Male and female offspring were assayed for anxiety-like behavior, motor and balance function and morphine conditioned place preference using the open field, elevated plus maze (EPM), rotarod and wire grip assay and conditioned place preference.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Offspring in both physical and psychological prenatal stress groups demonstrated significant increase in anxiety-like behavior in EPM paradigm, but no alterations were observed in motor and balance function of animals. Offspring in the psychological prenatal stress group had an increased preference for morphine in comparison to control and physical prenatal stress groups.

Conclusion : Results of the current study demonstrated that animals exposed to psychological stress during fetal development are at a higher risk of developing addictive behaviors. Further research might elucidate the exact mechanisms involved to provide better preventive and therapeutic interventions

Keywords : anxiety-like behavior; morphine preference; physical stress; prenatal stress; psychological stress

Count: 250

Abstract ID: 223

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Poster

Antidepressant and anxiolytic effects of troxerutin on a chronic mild stress model in male adult rats

Submission Author: Maryam Azarfarin

Maryam Azarfarin¹, Fereshteh Farajdokht², Shirin Babri³, Farzad Salehpour⁴, Milad Taghizadeh⁵, Gisou Mohaddes⁶

1. Drug Applied Research Center, Tabriz University of Medical Sciences, Tabriz, Iran-Higher Education Institute of Rab-Rashid, Tabriz, Iran
2. Neurosciences Research Center (NSRC), Tabriz University of Medical Sciences, Tabriz, Iran
3. Drug Applied Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
4. Neurosciences Research Center (NSRC), Tabriz University of Medical Sciences, Tabriz, Iran
5. Neurosciences Research Center (NSRC), Tabriz University of Medical Sciences, Tabriz, Iran
6. Drug Applied Research Center, Tabriz University of Medical Sciences, Tabriz, Iran-Neurosciences Research Center (NSRC), Tabriz University of Medical Sciences, Tabriz, Iran

Background and Aim : Chronic stress-induced anxiety disorders have developed significant public health concerns recently. Chronic stress has been linked to the pathophysiology of mood disorders including anxiety and depression. Troxerutin is found in tea, coffee, cereals and vegetables. Previous studies also showed that flavonoids can alleviate anxiety and fear response induced by posttraumatic stress disorders (PTSD) in animal models. In this study we aimed to investigate the effect of troxerutin (TRX), as a flavonoid, on stress induced anxiety and depression.

Methods : 56 animals were randomly divided into seven groups (n=8 per group) as following: control; saline; TRX 50, TRX 150, TRX 300, Diazepam, and Imipramine. Chronic mild stress (CMS) was induced by restraining animals in Plexiglas cylinders for 1 h each day for 25 consecutive days. Different doses (50, 150, and 300 mg/kg, p.o) of troxerutin was gavaged for 25 consecutive days. Diazepam (1 mg/kg), was injected intraperitoneally 30 min before the tests. Imipramine was injected intraperitoneally (i.p) at 20 mg/kg once a day for 14 days. At the end of treatments, anxiety- and depressive-like behaviors were tested using elevated plus maze (EPM), open field test (OFT), and forced swimming test (FST).

Results : CMS significantly increased immobility ($p<0.05$), decreased swimming time and percentage of open arm entrance (%OAE) ($p<0.01$), whereas troxerutin (50 mg/kg) significantly increased %OAT ($p<0.01$) and %OAE ($p<0.001$). Troxerutin (150 mg/kg, 300 mg/kg) significantly increased % OAE ($p<0.001$; $p<0.05$ respectively). Moreover, CMS significantly decreased time spent in the center ($p<0.001$) and the number of center crossing ($p<0.01$) in the OFT. However, troxerutin (50 mg/kg) significantly ($p<0.05$) increased time spent in the center, the number of center entries and troxerutin (150 mg/kg) significantly increased time spent in the center ($p<0.01$) and the number of center entries ($p<0.05$) as compared to the saline group. CMS significantly increased serum cortisol levels and troxerutin decreased it.

Conclusion : In the current study, exposure to chronic restraint stress produced characteristic anxiety-like behaviors, confirmed by the fact that stress-exposed rats demonstrated decreased number of entries and the time spent in the open arms in the EPM. Data from OFT demonstrated that stressed group showed significantly reduced preference for the center of the OF as measured by reduced number of entries into the center and the time spent in the center. Chronic administration of troxerutin significantly reduced anxiety-like behaviors both in the EPM and OF tests. Thus, these results suggest that troxerutin probably has an anxiolytic activity. troxerutin treatments significantly decreased immobility and also increased swimming time in the FST, suggesting an antidepressant-like activity.

Keywords : Chronic mild stress; Anxiety; Troxerutin; Cortisol

Count: 251

Abstract ID: 453

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Poster

The effect of Trans cranial direct current stimulation (tDCs) on psychosomatic symptoms

Submission Author: Mojgan Hamdami

Anahita Khorrami¹, Gholamreza Bandali², Mojgan Hamdami³, shahrzad Zhaeentan⁴

1. NEROPSUCHOREHAB IN BRAIN AND COGNITION CLINIC Department, Institute for Cognitive Sciences Studies, Tehran, Iran
2. Cognitive psychology Department, Institute for cognitive Science Studies, Tehran, Iran
3. Medical physiology Department, Iran University of medical sciences, Tehran, Iran
4. Anatomy Department, Iran University of Medical sciences, Tehran, Iran

Background and Aim : Psychosomatic disorder is a condition in which psychological stresses and anxiety effect physiological (somatic) functioning to the point of distress. The effects of Transcranial direct current stimulation (tDCS) on various cognitive functions are well described. Recently it has been shown that tDCS as a new option improve the symptoms of psychosomatic disorders.

Methods : In this study, we attempt to usepsychotherapy process in 63years old woman totherapeutic effectiveness for the long time depression, anxiety, and high blood pressure and psychosomatic with non-invasive method (tDCs) for 20 sessions every 2 days. This case was assigned to two channel brain stimulation the first channel Anodal stimulation over the left prefrontal (F3), and cathodal electrode over the left arm, and the second channel cathodal stimulation over the right prefrontal (F4) and Anodal electrode over the right arm, during the 10 weeks received 2mA for 15 minutes. Blood pressure monitoring has been accomplished a week before and during the brain stimulation session and by 2 month post-treatment.

Results : The blood pressure, stress level, depression and anxiety symptoms have been reduced significantly after first 3 sessions treating by tDCS stimulation.

Conclusion : Our case study suggest that the application of 2channel stimulation over the F3 and F4 might be an effective modulator for psychosomatic

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : high blood pressure; depression; psychosomatic disorder; brain stimulation.

Count: 252

Abstract ID: 257

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Poster

Anti-depressant and anti-anxiety effects of Rosa Canina L. in male mice

Submission Author: Mohammad reza Hojjati

Mohammad reza Hojjati¹, Sadegh Khalilian², Zahra Lori gooini³

1. Physiology department, Shahrekord University of Medical Sciences, Shahrekord, Iran
2. Medical faculty, Shahrekord University of Medical Sciences, Shahrekord, Iran
3. Medicinal plants research center, Shahrekord University of Medical Sciences, Shahrekord, Iran

Background and Aim : Depression and anxiety are of common psychiatric disorders that cause serious personal, social and economical problems in human. Due to the increasing trends towards complementary medicine, the aim of the present study was to investigate the anti-anxiety and anti-depressant effects of Rosa canina fruit extract in mice.

Methods : This experimental study was conducted on 220 male mice. Animals were randomly divided into 5 groups including: one control group, three Rose canina (RC) fruit extract groups (100, 200 and 400 mg/kg) and a positive control group (Fluoxetine for anti-depressant and Diazepam for anti-anxiety tests). Forced swimming test (FST) and tail suspension test (TST) were used for depression evaluation, elevated plus maze was used for anxiety evaluation and rotarod test was used for motor coordination. Finally, serum antioxidant capacity was measured on blood samples collected from all animals. Data were analyzed using one-way ANOVA followed by Tukey's test and $P < 0.05$ was considered as significant level.

Results : Rosa Canina extracts (100, 200 and 400 mg/kg) reduced the immobility time in FST and TST tests, but RC extracts increased the time spent in the open arms in the elevated Plus Maze test. In addition, serum antioxidant capacity was significantly increased in all RC extract groups. No significant effect of RC extract was observed on motor coordination ($p > 0.05$).

Conclusion : RC extract reduced depression and anxiety symptoms in mice which was similar to the effects of fluoxetine and diazepam. It seems that the anxiolytic and anti-depressant effects of RC extract is related to the antioxidant effects of Rosa canina. However, more mechanisms may also be involved in this phenomenon which require further investigations.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Anxiety, Depression, Rosa canina

Count: 253

Abstract ID: 699

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Poster

The impact of Mindfulness-based therapy on anxiety and stress level of Iranian students

Submission Author: Vahid Khosravi

Sadegh Khalkhali¹, Vahid Khosravi²

1. department of psychology ,Ardabil branch , Islamic Azad University ,Ardabil,Iran
2. department of psychology , Khalkhal branch , Islamic Azad University ,Khalkhal,Iran

Background and Aim : Students often experience anxiety, stress and decreased mindfulness which may decrease their academic performance and social relationships. Mindfulness-based stress reduction (MBSR) effectively reduced anxiety and stress in previous research with other populations, but there is sparse evidence regarding its effectiveness for students in Iran. The aim of the present study was to investigate the impact of Mindfulness-based therapy on anxiety and stress level of students.

Methods : Design of the present study was a randomized controlled trial. Fifty (50) high school students were randomly assigned to two groups. The MBSR group practiced mindfulness meditation for 2 hours every week for 8 weeks. The wait list (WL) group did not receive MBSR intervention. Standardized self-administered questionnaires of anxiety and stress were administered at the baseline prior to the MBSR program and at completion (at 8 weeks). Data from 44 students, MBSR (n = 21) and a WL control (n = 23) were analyzed.

Results : Result indicated that Mean anxiety in the MBSR group was reduced by 3.9 points, whereas scores in the WL group were unchanged; there was a statistically significant difference between the two groups ($F = 5.61$, $df = 1$, $p = .023$). Mean stress in the MBSR group decreased by 27.1, and stress decreased by 16.3 in the WL group; there was a statistically significant difference between the groups ($F = 15.31$, $df = 1$, $p < .001$).

Conclusion : A program of MBSR was effective when it was used with high school students in reducing measures of anxiety and stress level. MBSR shows promise for use with students to address their experience of mild anxiety and stress. warranting further study.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Mindfulness-based therapy , Anxiety ,Stress

Count: 254

Abstract ID: 346

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Oral

the effects of neurofeedback training on the alleviation of the symptoms of generalized anxiety disorder for the patients who refer to neurofeedback centers

Submission Author: Razieh Memari

Razieh Memari¹, Majid Torabi Nikjeh (MD) (Psychiatrist)²

1. Author
2. Supervisor

Background and Aim : This study aimed to determine the effectiveness of neurofeedback training on reducing symptoms of generalized anxiety disorder (GAD) in clients referring to neurofeedback centers.

Methods : The research method of the current study was quasi-experimental with pretest - posttest and control group design. The statistical population of the current study included all patients with generalized anxiety disorder referring to treatment centers in Tabriz city. 30 patients having the entry criteria for the study were chosen by available sampling method and randomly, out of the clients of statistical population, they were replaced into experimental group (n = 11) and control (n = 11). The instrument of this study was Generalized Anxiety 7-item Scale (Spitzer et al., 2006).

Results : The resulted data were analyzed by multivariate covariance analysis. The findings indicated that neurofeedback training was effective in reducing symptoms of generalized anxiety disorder (GAD). Also the results indicated that neurofeedback training was effective in reducing anxiety, a bad mood, the occurrence of the event factors and increasing the comfort in people with generalized anxiety disorder (GAD).

Conclusion : So neurofeedback training can be used along with other treatments or alone to treat generalized anxiety disorder (GAD).

Keywords : neurofeedback training, generalized anxiety disorder, bad mood, worry, restlessness

Count: 255

Abstract ID: 583

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Poster

The prevalence of social anxiety and its prediction based on the imagination of its body and perfectionism in students

Submission Author: Iraj Mirkhan

Iraj Mirkhan¹, Ozra Pourali², Nazila Abbasi³, Amirhosein Bahadivand⁴

1. MA of psychology and Lecturer of Payam Noor University of Urmia
2. Student of Payam Noor University of Urmia
3. Student of Payam Noor University of Urmia
4. MA of Clinical Psychology

Background and Aim : Social anxiety in students constrains academic activities and And creates a negative attitude towards them in relation to the course and the university. Therefore, the aim of this study was to investigate the prevalence of social anxiety and its prediction based on the imagination of its body and perfectionism in students of Payame Noor University of Urmia in 2017.

Methods : The present study is descriptive-correlational. The statistical population of the study consisted of all students of Payame Noor University of Urmia. 220 students (140 female and 80 male) were selected by available sampling method and completed social anxiety questionnaires, Hill perfectionism and self-body image questionnaire and.

Results : The results showed that 73.7 of students low social anxiety, 15.8 average social anxiety and 10.5 reported high levels of social anxiety. Also, there was a positive correlation between perfectionism and social anxiety (0.01), and a negative correlation between the overall score of the image of the body and social anxiety($p < 0.05$). Also, 0.52 of the variance of social anxiety predicted by perfectionism and imagination of its body.

Conclusion : According to the results, the perfectionism and the imagination of their body are of great importance in the prevalence and persistence of students' social anxiety.

Keywords : Social Anxiety, Perfectionism, Imagination of Body

Count: 256

Abstract ID: 101

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Poster

Deep brain stimulation in a rat model of post-traumatic stress disorder modifies forebrain neuronal activity and serum corticosterone

Submission Author: Mina Mokhtari hashtjin

Mina Mokhtari hashtjin¹, Gila Pirzad Jahromi², Seyed Shahabeddin Sadr³, Davoud Esmaeili⁴, Danial Javidnazar⁵

1. Electrophysiology Research Center, Neuroscience Institute, Tehran University of Medical Sciences, Tehran, Iran, Neuroscience Research Centre, Baqiyatallah University of Medical Sciences, Tehran, Iran
2. Neuroscience Research Centre, Baqiyatallah University of Medical Sciences, Tehran
3. Electrophysiology Research Center, Neuroscience Institute, Tehran University of Medical Sciences, Tehran, Iran
4. Applied Microbiology Research Center, and Microbiology Department, Baqiyatallah University of Medical Sciences
5. Electrophysiology Research Center, Neuroscience Institute, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Post-traumatic stress disorder (PTSD), one of the most devastating kinds of anxiety disorders, is the consequence of a traumatic event followed by intense fear. In rats with contextual fear conditioning (CFC), a model of PTSD caused by contextual fear conditioning (electrical foot shock chamber), deep brain stimulation (DBS) alleviates CFC abnormalities.

Methods : Forty rats (220-250 g) were divided into 5 groups (n=8) and underwent stereotactic surgery to implant electrodes in the right BLn of the amygdala. After 7 days, some animals received a foot shock, followed by another 7-day treatment schedule (DBS treatment). Next, freezing behavior was measured as a predicted response in the absence of the foot shock (re-exposure time). Blood serum corticosterone levels and amygdala c-fos protein expression were assessed using ELISA and western blot, respectively. Furthermore, freezing behaviors were evaluated.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : PTSD decreased serum corticosterone levels and increased both amygdala c-fos expression and dopamine-dependent behaviors. Moreover, DBS treatment significantly ($P < 0.001$) increased serum corticosterone levels and reduced both c-fos expression and freezing behaviors.

Conclusion : We argue that these outcomes might demonstrate the mechanism of DBS treatment, a complete therapeutic strategy, in PTSD patients.

Keywords : Brain Stimulation/TMS/DBS/VNS; contextual fear conditioning; anxious disorders; amygdala; life events/stress; treatment resistance, treatment

Count: 257

Abstract ID: 602

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Oral

Altered Neuro-Psycho-Physiological Dynamics Following 3 Months Yogic Meditation Practice in Comparison to F.G. Meditation at rest and during mental task (A Randomized Controlled Trial)

Submission Author: Farshad Nazaraghaei

Farshad Nazaraghaei¹, K. Krishna Bhat²

1. Research Scholar, Department of Human Consciousness and Yogic Sciences, Mangalore University, Karnataka, India
2. Professor, Department of Human Consciousness and Yogic Sciences, Mangalore University, Karnataka, India

Background and Aim : Meditation is described as uninterrupted flow of attention towards the object of concentration in which mind is focused on a single object for a longer period of time. When the stream of attention unaffected by any presented idea then this calm and peaceful mental state is called meditation. Tracing the various impacts of breathing process superposing to different parts of the body in the form of some geometric shapes is called Farshad's Geometric Meditation (F.G. Meditation). It is a new comprehensive style of meditation which mainly composed of concentrative, introspective and mindfulness techniques. F.G. Meditation is a multidisciplinary meditation approach, based on the principles of mathematics, geometry, psychology, physiology, neurosciences, cognitive sciences and philosophy of mind through which one can reduce physical, emotional and mental stress. It increases various forms of awareness including sensual-bodily awareness, emotional-mental awareness and existential awareness as a holistic form of meditation.

Methods : To assess neuro-psycho-physiological impacts of Ajapajapa Yogic Meditation (AYM) on the treatment of psychological stress and anxiety in comparison to F.G. Meditation, we initially recruited 72 St. Aloysius College students, mean age 18.8 years old, all right handed, with no prior meditation experience. Then they were randomly assigned into 3 groups including F.G. Meditation, AYM and control group. Before and after meditation course, various neuro-psycho-physiological data were collected by using Vilstus (DSU, 4 channels, UK) to register EEG, HRV index, RMSSD, PNN50 and GSR (Conductance) signals. Finally Beck Anxiety Inventory (BAI) and Perceived Stress Scale (PSS) were used to assess psychological stress and anxiety. Then

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

specialized Velistus Pro software, version 4.10.6 was applied for signal processing and SPSS version.17.0 was used for data analysis. The total number of volunteers from which post experimental data were collected was 62. For each meditation group we conducted a three month meditation program, 3 weekly one hour sessions.

Results : Statistically significant reduction of delta, theta and beta band amplitude and increment of alpha, SMR and high alpha-SMR band amplitude was found in both experimental groups but in addition to the abovementioned changes, significant reduction of high beta and gamma band amplitude was also seen in F.G. Meditation in comparison to control group. In both experimental groups statistically significant reduction of heart rate and GSR and increment of RMSSD, PNN50 and HRV index was seen. Statistically significant reduction of anxiety and psychological stress was also found which were assessed by BAI and PSS.

Conclusion : F.G. Meditation and AYM could be adopted in clinical populations and implementation of both methods for stress management is suggested.

Keywords : geometric meditation, yogic meditation, stress, anxiety, EEG, HRV, GSR

Count: 258

Abstract ID: 108

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Poster

Nitric oxide within the basolateral amygdala reduces stress-induced anxiety like behavior in rat

Submission Author: Esmail Nikkar

Esmail Nikkar¹, Esmail Nikkar, Hassan Ghoshooni², Hedayat Sahraei, Mohammad Mahdi Hadipour³

1. -
2. Department of Physiology and Biophysics, School of Medicine, Baqiyatallah University of Medical Sciences, Tehran, Iran.
3. Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.

Background and Aim : Nitric oxide (NO) is well known as a messenger molecule in the central nervous system. NO dysfunctions may alter hormones and neurotransmitters to influence anxiety-like responses. Moreover, exposure to stressors can trigger or exacerbate psychiatric illnesses like anxiety disorders. In this study, we investigated the effects of nitric oxide within the basolateral amygdala on anxiety like-behavior in male wistar stressed rats.

Methods : Male Wistar rats (250±20 g) were surgically implanted with bi-lateral stainless steel gauge 23 guide cannula using stereotaxic coordinates. Seven days after recovery, the animals were received different doses of L-arginine or L-NAME (N-nitro-L-arginine methyl ester) (1, 5, and 10 µg/rat) five min before exposure to electro foot shock for four consecutive days. The control group received sterile normal saline (1µlit/rat) instead on drugs. After the completion of stress paradigm, the animals were tested for anxiety in elevated plus maze (EPM). For this propose, each animal was placed on the maze such that the head of the animal was in front of the open arm of the maze. Total number of open arm entering (in percent) as well as the total time the animal spend in the open arm (in percent) was calculated by computerized equipment.

Results : Our data indicated that the stressed animals showed an anxiety-like behavior as they spend less time in the open arm. Moreover, the number of entering to the open arm by these animals was less than those whom did not exposed to stress. L-arginine (1µg/rat) pre administration reduces

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

the stress effect. This result was the same for L-NAME (10 $\mu\text{g}/\text{rat}$). However, the drugs by themselves did not show any effect on anxiety.

Conclusion : These finding indicated that stress can induce anxiety-like behavior and nitric oxide in the BLA may have a role on this phenomenon in the rat which must be evaluated in future experiments.

Keywords : Anxiety-Like Behavior ; Basolateral Amygdala ; Nitric Oxide ; Stress.

Count: 259

Abstract ID: 489

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Poster

Post weaning isolation stress and 5HTR2c

Submission Author: Somaye Soleimaniomid

Somaye Soleimaniomid¹, Mina Goudarzi², Arezo Nahavandi³

1. Department of physiology. Iran university, tehran, Iran.
2. Department of physiology. Iran university, tehran, Iran.
3. Department of physiology. Iran university, tehran, Iran.

Background and Aim : Serotonin is a key neurotransmitter that controls brainwide function. There are fourteen known 5HTR2c receptor subtypes. 5HTR2c gene modulates stress response level of anxiety and social behaviour, and stress sensitivity. There is an association between 5HTR2c polymorphism, temper and openness. Stress modulate brain epigenetic condition change in serotonergic receptors expression following stress has been claimed before. Because of the important mentioned roles of 5HTR2c, we tried to evaluate role of post weaning isolation stress, on 5HTR2c in adulthood.

Methods : Male rat pups, were isolated after 21 days postnatal. The control group were intact rat pups. At 60th days postnatal, rats went for EPM and then sample prepared for real-time PCR and corticosterone plasma level.

Results : Our results showed on increased corticosterone plasma level, compared with control group ($p < 0.01$). Real-time PCR showed increase in hippocampal 5HTR2c gene expression ($p < 0.01$)

Conclusion : This study showed that post weaning isolation stress, may increase 5HTR2c, which is believed to control stress response, stress sensitivity and anxiety.

Keywords : Post weaning, isolation, stress, sensitivity, anxiety

Count: 260

Abstract ID: 412

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Oral

Effectiveness of Cranial Electrotherapy Stimulation (CES) on anxiety symptoms in patients with Generalized Anxiety Disorder

Submission Author: Seyed Mahmoud Tabatabaei

Seyed Mahmoud Tabatabaei¹, Bakhtyar Moslemi²

1. Department of Physiology, Tabriz Branch, Islamic Azad University, Tabriz, Iran
2. Department of Psychology, Tabriz Branch, Islamic Azad University, Tabriz, Iran

Background and Aim : The aim of this study was the effectiveness of the treatment of Cranial Electrotherapy Stimulation (CES) in improving symptoms of anxiety in generalized anxiety disorder (GAD) patients.

Methods : In a clinical trial randomized study, 30 individuals according to the criteria of diagnosis (DSM-5) with generalized anxiety disorder were referred to counseling psychology in Saghez city randomly were divided into two groups of fifteen people, including case group and the control group (sham). People were examined for signs of anxiety three times in the pre-test, post-test and follow-up six weeks after treatment. Group therapy was administered in 10 sessions every day for 45 minutes, but no control group received any intervention.

Results : The results showed that CES is significantly more effective than the control group in terms of GAD scale and generalized anxiety questionnaire score ($p = 0.005$).

Conclusion : With regard to the effectiveness of significant therapeutic electrical stimulation of the brain compared to controls, this approach can be a treatment for GAD and treatment of electrical stimulation of the brain by targeting alpha waves characteristic which it is main caused of GAD symptoms.

Keywords : Cranial Electrotherapy Stimulation, generalized anxiety disorder, anxiety symptoms

Count: 261

Abstract ID: 175

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Poster

The relation between parent and peer attachment with anxiety sensitivity and GAD symptoms among students

Submission Author: Samira Yousefi Faal

Samira Yousefi Faal¹

1. Department of psychology , Ardabil branch , Islamic Azad University , Ardabil ,Iran

Background and Aim : The aim of the present study was to investigate the relation between parent and peer attachment with anxiety sensitivity and GAD symptoms among students of Islamic Azad University of Ardabil .The role of AS as a mediator between perceptions of alienation and GAD symptoms was also examined.

Methods : Participants were 94 (mean age = 19.02 years, SD = 2.07; age range = 18–36) undergraduate students from introductory psychology classes at Islamic Azad University of Ardabil. There were significantly more females than males, $\chi^2(N = 94) = 26.60, p < .001$, with 76.6% of the sample being female. Anxiety Sensitivity Index-Revised , Generalized Anxiety Disorder Questionnaire-IV and Inventory of Parent and Peer Attachment were used in order to gathering data. We also used Mean, standard deviation, Pearson correlation coefficient and regression analysis in order to analyzing data.

Results : Result indicated that mother alienation was significantly positively related to GAD symptoms($r(94) = .47, p < .001$). Similarly, peer alienation was significantly positively related to GAD symptoms ($r(94) = .52, p < .001$), no significant relations were found between the father alienation subscale and GAD symptoms and greater perceptions of alienation from mothers($r(89) = .32, p = .002$), fathers($r(89) = .27, p = .009$), and peers ($r(89) = .33, p = .001$) were significantly related to higher anxiety sensitivity symptoms. mediator regression analyses also showed that ASI-R Total scores fully mediated the relation between perceptions of alienation from mothers and GAD symptoms. The mediated effect was statistically significant (Sobel $z = 3.64, p < .001$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : According to the result , conclusion is that greater attention to the attachment of parent and peer in investigations of AS is warranted, with particular focus on understanding the role that peer alienation may have in the development of these symptoms.

Keywords : Parent and Peer Attachment , Anxiety Sensitivity ,GAD

Count: 262

Abstract ID: 177

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Poster

The relationship between attachment to God , anxiety, depression and life satisfaction : mediating role of self – compassion

Submission Author: Samira Yousefi Faal

Samira Yousefi Faal¹

1. Department of psychology , Ardabil Branch , Islamic Azad University ,Ardabil ,Iran

Background and Aim : Attachment theory posits that insecure attachment is a risk factor for the development of anxiety and depression and ample evidence supports this idea. Research has also demonstrated links between attachment to God and mental health, but little is known about the emotion regulatory mechanism that underlies this relationship. The present study explored the explanatory role of self-compassion in the relation between attachment to God and anxiety, depression, and life satisfaction.

Methods : Method of the present study was descriptive – correlation. Participants were 181 adults (73% of the sample were male and 27% of them were female). Participants ranged in age from 18 to 63 years (M= 28.49 years, SD = 9.20). Self-compassion , Attachment to God , Satisfaction with life and Mental health inventories were used in order to gathering data. We also used Mean, standard deviation, Pearson correlation coefficient and regression analysis in order to analyzing data.

Results : Result indicated that attachment anxiety and avoidance were associated with higher depression and anxiety, and lower life satisfaction. Self-compassion mediated these associations (in an inverse direction for anxiety and depression). There was no evidence that either attachment dimension had an effect on life satisfaction independent of their effect on self-compassion ($c'1 = -0.053$; $c'2 = -0.005$).

Conclusion : suggesting that people who feel uncomfortable depending on God, or who fear God's rejection, have difficulty extending kindness to themselves. Possible interventions are discussed in the context of these results.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Attachment to God ,Anxiety ,Depression ,Life Satisfaction, Self -Comassion

Count: 263

Abstract ID: 580

subject: Neuropsychiatry and Psychology: Anxiety Disorders and PTSD

Presentation Type: Poster

Neurobiology of Social Anxiety

Submission Author: Maryam Zadbar

Maryam Zadbar¹, Asghar Aghaei²

1. PhD Student of Psychology, Islamic Azad University, Isfahan (Khorasgan) Branch, Isfahan, Iran.
2. Faculty Member of Islamic Azad University, Isfahan (Khorasgan) Branch, Isfahan, Iran.

Background and Aim : Social anxiety is the fear of interaction with other people that brings on self-consciousness, feelings of being negatively judged and evaluated, and, as a result, leads to avoidance. Social anxiety is the fear of being judged and evaluated negatively by other people, leading to feelings of inadequacy, inferiority, embarrassment, humiliation, and depression. The amygdala has long been implicated in the mediation of emotional and social behaviors.

Methods : Because there are very few human subjects with selective bilateral damage of the amygdala, much of the evidence for these functional associations has come from studies employing animal subjects. Monkeys live in complex, highly organized social groups that are characterized by stable and hierarchical relationships among individuals who engage in complex forms of social communication, such as facial expressions.

Results : Understanding the role of the amygdala in animals that display a level of social sophistication approaching that of humans will help in understanding the amygdala's role in human social behavior and in psychopathology such as social anxiety. Selective bilateral lesions of the amygdala in mature macaque monkeys result in a lack of fear responses to inanimate objects and a "socially uninhibited" pattern of behavior. These results imply that the amygdala functions as a protective "brake" on engagement of objects or organisms while an evaluation of potential threat is carried out.

Conclusion : They also suggest that social anxiety may be a dysregulation or hyperactivity of the amygdala's evaluative process. Finally, recent data from developmental studies raise the possibility that, at least at some developmental stages, fear in social contexts may be sub served by different brain regions than fear of inanimate objects.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Social anxiety, amygdala, neurobiology

Count: 264

Abstract ID: 11

subject: Neuropsychiatry and Psychology: Obsessive Compulsive Disorders

Presentation Type: Oral

Effectiveness of exposure and response prevention (ERP) versus transcranial direct current stimulation (tDCS) in remission of obsessive-compulsive disorder

Submission Author: Vida Yousefi asl

Vida Yousefi asl¹, Mohsen Dadashi², Yousef Morsali³

1. MSc Candidate in Clinical Psychology, Department of Psychology, Zanjan University of Medical Sciences, Zanjan, Iran.
2. Department of clinical psychology, PhD in clinical psychology, Assistant professor of Zanjan University of Medical Sciences, zanjan,Iran. Social Determinants of Health Research center. Zanjan University of Medical Sciences, zanjan,Iran
3. Department of psychiatry, Assistant professor of Zanjan University of Medical Sciences, Zanjan,Iran

Background and Aim : Obsessive-compulsive disorder (OCD) is a mental dysfunction. The main characteristics of OCD are serious and continuous mental and functional obsessions that inflict severe suffering on the patients. The purpose of this study was to assess the effectiveness of exposure and response prevention (ERP) versus transcranial direct current stimulation (tDCS) in reduction of anxiety symptoms and increase of Global functioning in patients with OCD.

Methods : This study was based on a clinical trial with pretest, posttest and follow-up: 26 patients with OCD who were referred to psychology and psychiatry clinic of Shahid Beheshti Hospital in Zanjan were chosen according to purposive sampling and were randomly assigned to two treatment groups. At the baseline, post-treatment and follow-up (One month and two months after treatment) the subjects completed Beck Anxiety Inventory(BAI) and also Global Assessment of functioning (GAFS) was employed to evaluate global functioning. Eventually collected data was analyzed by SPSS-20 software. Results:The results indicated that although no considerable differences were seen between two groups regarding anxiety symptoms in the post-test, there were significant differences in terms of global functioning between ERP and tDCS in the post-test.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results indicated that although no considerable differences were seen between two groups regarding anxiety symptoms in the post-test, there were significant differences in terms of global functioning between ERP and tDCS in the post-test.

Conclusion : The findings confirm that although both ERP and tDCS methods with pharmacotherapy were considerably effective in reduction of anxiety signs and symptoms and increase of global functioning in patients with OCD, the effectiveness of ERP was more clinically significant than that of tDCS

Keywords : Exposure and response prevention (ERP), Transcranial direct current stimulation (tDCS), Obsessive-compulsive disorder (OCD), Anxiety

Count: 265

Abstract ID: 237

subject: Neuropsychiatry and Psychology: Eating Disorders

Presentation Type: Poster

The effect of tDCS on right Dorsolateral Prefrontal Cortex(R-DLPFC) on food craving In Binge Eating Disorder Patients

Submission Author: Amir Hossein Samani

Amir Hossein Samani¹, Reza Rostami², Javad Hatami³

1. University of Tehran
2. University of Tehran
3. University of Tehran

Background and Aim : Binge Eating Disorder (BED), bulimia nervosa and some forms of obesity are characterized by compulsive overeating that is often precipitated by food craving. Food Craving is a motivational state that comes with intense desire to eat. In BED, Food Craving and loss of control on food intake play a major role. This study was designed as a Randomized Controlled Trial to examine the effectiveness of Transcranial Direct Current Stimulation (tDCS) on food craving in BED Patients.

Methods : We aimed to assess whether modulation of the DLPFC with noninvasive brain stimulation, tDCS, modifies food craving in BED diagnosed subjects. Selection criteria include higher than subclinical cut off point in Binge Eating Scale (BES) and Diagnostic clinical interview based on DSM-5 BED criteria. We performed a randomized sham-controlled cross-over study in which 9 female BED patients received sham and active tDCS (anode right/cathode left) of the DLPFC. Food craving intensity was examined by Food Craving Questionnaires State (FCQ-S) before and after each tDCS or sham session.

Results : Single session of tDCS significantly reduced the intensity of current food craving (FCQ-S), and this change was higher in tDCS (23.7) versus Sham (11.56). 2x2 between-group analysis of variance shows that single session of tDCS significantly reduces the state food craving ($F=18.92$, $p<0.05$, Partial Eta Squared=0.703).

Conclusion : The results revealed that one 20-min session of 2mA tDCS targeting the DLPFC significantly reduced food craving state and desire to binge eat in BED patients. The results from

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

this study add to the growing body of evidence for neuromodulation techniques to ameliorate eating disorder symptom

Keywords : tDCS ; Food Craving ; DLPFC ;Eating Disorder ; Binge Eating Disorder ; BED

Count: 266

Abstract ID: 29

subject: Neuropsychiatry and Psychology: Addiction (Drug, Alcohol, Internet, Food) and Gambling

Presentation Type: Oral

Effectiveness of anodal transcranial direct current stimulation(tDCS) over left dorsolateral prefrontal cortex on drug craving and attentional bias symptoms in opium addicted males

Submission Author: Mohsen Dadashi

Mohsen Dadashi¹, Somaye Bastami², Zakaria eskandari³

1. M. Dadashi, Assistant Professor, PhD in Clinical Psychology, Social Determinants of Health Research Center, Department of Clinical Psychology, Faculty of Medicine, Zanjan University of Medical Sciences and Health Services, Zanjan, Iran
2. Dept. of clinical psychology, Faculty of psychology, Msc Student in clinical psychology, Zanjan Islamic Azad University ,Zanjan, Iran
3. Dept. of clinical psychology, Ph.D Student in study of Addiction, Zanjan University of Medical sciences, Zanjan, Iran

Background and Aim : Among the most challenging component of addiction are the craving and the cues related to the drug abuse which have made the treatment actions ineffective, thus resulting relaps.The aim of this study is to examine the effectiveness of anodal transcranial direct current stimulation(tDCS) over left dorsolateral prefrontal cortex on drug craving and attentional bias symptoms in opium addicted males

Methods : The method was Quasi-experimental with pretest-posttest designs with control group. 44 patients were selected through convenient sampling and were randomly assigned into two experimental and control groups. Before the treatment, both groups were tested through craving questionnaire and computerized emotional stroop test.The experimental group received a 20 minute electrical stimulation of the brain by stimulator with the intensity of 2 mA for 10 session.at the end, both groups were tested through craving questionnaire and computerized emotional stroop test and the data were analysed with MANCOVA and ANCOVA

Results : The results showed that tDCS anodic left dorsolateral prefrontal cortex decreased craving level and reduced attentional bias in the experimental group compared to the control group in

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

opium addicted males. ($p < 0/001$). There was a significant difference between control and experimental groups

Conclusion : The findings of this study could have important implications as regards drug craving reduction and attentional bias improvement in opium addicted males. Therefore, this treatment could be utilized in clinics for opium addicted males

Keywords : opium, transcranial direct current stimulation (tDCS), attentional bias, drug craving

Count: 267

Abstract ID: 829

subject: Neuropsychiatry and Psychology: Addiction (Drug, Alcohol, Internet, Food) and Gambling

Presentation Type: Poster

Detoxification effect of juniperus excelsa extract injection into the paragigantocellularis (PGi) nucleus under morphine deprivation condition in male wistar rats

Submission Author: Tahereh Ghorbandae pour

Tahereh Ghorbandae pour¹, Shahrbanoo Oryan², Delaram Eslimi³, Adel Salari*⁴

1. Department of Animal Science, Faculty of Biology Science, Kharazmi University, Tehran-Iran
2. Department of Animal Science, Faculty of Biology Science, Kharazmi University, Tehran-Iran
3. Department of Animal Science, Faculty of Biology Science, Kharazmi University, Iran
4. Department of Animal Science, Faculty of Biology Science, Kharazmi University, Iran

Background and Aim : Addiction and its withdrawal syndrome is one of the serious problems in human societies. Therefore, due to the chemical drugs side effects, much attention has been paid to the use of herbal medicines. paragigantocellularis (PGi) nucleus located in the ventrolateral medulla, play a key role in appearance of withdrawal syndrome. In the present study, effects of juniperus excelsa (JE) extract injection into PGi under morphine deprivation condition in male wistar rats, was investigated.

Methods : 56 Male wistar rats (200-250gr) were used. Following stereotaxic surgical implantation of cannula, animals were divided into two groups of control (receiving saline, 2 subgroups) and morphine-treated (5 subgroups). Morphine dependency was produced by incremental doses of morphine (10, 15, 20, 25 and 30 mg/kg) i.p. injection twice daily for 5 days. Control groups received similar injections of saline. The first morphine-treated subgroup received only morphine, while the remaining subgroups were administered with microinjection of JP extract (volume of 1 microlitr and 10, 25, and 50 microgr/microlit doses) into PGi on day 5, thirty minutes after the final injection of morphine. In all groups, except control, naloxane (3 mg/kg i.p.) was injected 30 minutes after the final injection of morphine. Then rats were kept in a metabolic cage for 24 hours and their urine was collected. HPLC (High-performance liquid chromatography) and elisa assays were used to measure morphine concentration.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results showed which microinjection of JE extract into PGI nucleus has a significant dose-dependent effect (particular 25 microgr/microlit) on morphine concentration in urine.

Conclusion : It seems which injection of JE extract into PGI nucleus (effecting on specific receptors in PGI) could be beneficial to detoxification of morphine in rats.

Keywords : Addiction, morphine, PGI nucleus, detoxification, juniperus excelsa.

Count: 268

Abstract ID: 15

subject: Neuropsychiatry and Psychology: Addiction (Drug, Alcohol, Internet, Food) and Gambling

Presentation Type: Poster

A review of the effects of methamphetamine toxicity on the nervous system

Submission Author: Sanaz Hadizade asar

Sanaz Hadizade asar¹, Maryam Yadegari², Malihe Rezaie Yazdi³, Maryam Rezaie Yazdi⁴

1. Msc, Departement of Anatomy and Cell Biology, Shahid Sadoughi University of Medical Science and Health Service, Yazd, Iran
2. PhD, Departement of Anatomy and Cell Biology, Shahid Sadoughi University of Medical Science and Health Service, Yazd, Iran
3. Msc, Departement of Medical physics, Shahid Sadoughi University of Medical Science and Health Service, Yazd, Iran
4. Msc, Departement of Medical physics, Shiraz University of Medical Sciences and Health Service, Shiraz, Iran.

Background and Aim : Methamphetamine (METH) is a drug which is highly addictive, psychoactive and hallucinogenic. Besides marijuana, it is the second widely-used drug all over the world, especially by young people and adolescents. The purpose of this review is to indicate a wide variety of toxic effects of METH abuse on the nervous system.

Methods : In the present review, we used scientific articles about the METH toxicity, indexed in the PubMed, Google Scholar, during 1998-2016.

Results : This review suggested METH consumption can damage the dopaminergic and serotonergic terminals in different parts of brain. Memory and learning disorders, anxiety and depression pathology as well as motor disorders such as Parkinson's disease, are among the toxic effects of the drug on the neuronal terminals. This compound can cause neuronal toxicity, followed by symptoms such as bacterial and viral infections, anemia, schizophrenia as well as cognitive and motor disorders in some consumers.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Findings obtained from this review provide sufficient knowledge and awareness on the catastrophic and irreversible side effects of METH and also can help create effective strategies to prevent serious harm to people's health.

Keywords : Methamphetamine, Toxicity, Review

Count: 269

Abstract ID: 145

subject: Neuropsychiatry and Psychology: Addiction (Drug, Alcohol, Internet, Food) and Gambling

Presentation Type: Poster

Treatment modalities for patients with gambling disorder

Submission Author: Sina Haghi

Sina Haghi¹, Azin Arab Khazaei², Azar Arab Khazaei³, Reza Mohebi⁴

1. Msc student of surgical technology, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran
2. Msc student of surgical technology, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran
3. Msc student of surgical technology, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran
4. surgical technology department, student research committee, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran

Background and Aim : Gambling disorder (GD) is defined as persistent and recurrent problematic gambling behavior leading to clinically significant impairment or distress. The prevalence of GD has been shown to be 1.2–7.1% in the general population. GD can severely impact on personal and vocational wellbeing as well as lead to financial problems. To address these problems and social costs, effective interventions for GD patients are necessary. Treatment modalities for GD have generally been classified into two categories: pharmacotherapy and psychosocial treatments. This review describes the available pharmacotherapy/psychosocial treatments for GD patients, and summarizes data on the effectiveness of these GD treatments.

Methods : The present study is a systematic review conducted in 2017. According to the published articles related to the subject from April 2011 to May 2017 , using the keywords “Gambling disorder, Pharmacotherapy, Psychosocial treatment, Opioid receptor antagonist, Cognitive behavioral therapy, Gamblers anonymous” in 4 databases (PubMed , ISI, Google Scholar, Scopus) were searched by two searchers individually. After evaluating different articles based on entry and exit criteria, among 67 papers, 31 articles were selected and after screening the second screen, 15 articles were analyzed.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The description of pharmacotherapy mainly focuses on opioid receptor antagonists, selective serotonin reuptake inhibitors, and mood stabilizers. Psychosocial treatments/strategies mainly include cognitive behavioral therapy, motivational interviewing, and Gamblers Anonymous. We also introduce relatively novel treatment modalities.

Conclusion : Despite significant advances in research, our understanding of treatment strategies for GD remains relatively poorer than for other major neuropsychiatric disorders. Our study provides various treatment options and related evidence and we therefore believe that our results can help clinicians to choose the best options. In addition, there are still not enough studies on GD treatment; thus, more studies—especially meta-analyses and randomized controlled trials—are needed.

Keywords : Gambling disorder; Pharmacotherapy; Psychosocial treatment; Opioid receptor antagonist; Cognitive behavioral therapy; Gamblers anonymous

Count: 270

Abstract ID: 802

subject: Neuropsychiatry and Psychology: Addiction (Drug, Alcohol, Internet, Food) and Gambling

Presentation Type: Oral

Epigenetic, gene expression profiling and neuroimaging features could predict the methamphetamine induced psychosis

Submission Author: Arvin Haghightafard

Arvin Haghightafard¹, Amir Hossein Ghaderi², Nooshin Nejati³, Mehrdad Hashemi⁴

1. Department of biology, Tehran North Branch, Islamic Azad university, Tehran, Iran
2. Cognitive Neuroscience Lab, Department of Psychology, University of Tabriz, Tabriz, Iran
3. Royan Institute
4. Department of genetic, Tehran medical branch, Islamic Azad university, Tehran, Iran

Background and Aim : Methamphetamine is a strong addictive neurotoxin that stimulates the central nervous system and affects several pathways and metabolisms in different organs. Methamphetamine abuse changes behavioral characteristic which in some cases includes psychotic symptoms. Different individuals, show different psychiatric symptoms and brain functions, after same period and dosage of methamphetamine abuse. The mechanism of psychosis in meth-induced psychosis is not clear. Present study aimed to shed lights on epigenetic, gene expression and neuroimaging features of methamphetamine abuse and meth-induced psychosis.

Methods : The study was included 750 chronic Methamphetamine abusers without psychoses, 750 chronic Methamphetamine abusers with Meth-induced psychosis, 750 first-episode, narcoleptic-naive schizophrenic patients and 750 non-psychiatric subjects. Genome-wide DNA methylation profiling of peripheral blood leukocytes conducted by using the Illumina Methylation 450K BeadChip platform. Genome expression profiling was conducted by using Affymetrix GeneChip Human Genome U133 plus 2.0 Array Platform. 5-minute conventional, eyes-closed, awake, digital Electroencephalography (EEG) after a 5-minute habituation to the experimental environment was recorded using 64-channel BioSemi Active-Two system (BioSemi B.V.). data were processed by the Brain Vision Analyzer package, version 2.0 (Brain Products GmbH, Munich, Germany).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Twelve CpG loci identified that their DNA methylation was significantly associated with Meth-induced psychosis. CpG loci associated with Meth-induced psychosis had neighboring sequences enriched for transcription-factor binding sites of genes related to memory formation (CREB1), synaptogenesis (NRXN1, NRXN2) and neural plasticity (SHANK3). Membership in two most methylated classes was associated with an eight fold increased risk of Meth-induced psychosis (95% CI, 4.8 to 9.8). Expression of five genes related to long term memory and long term potentiating were altered in Meth-induced psychotic patients. A model that included the methylation classification, and EEG features, especially Beta wave activity of subjects was a significant predictor of Meth-induced psychosis (area under the curve, 0.86; 95% CI, 0.60 to 0.86).

Conclusion : Methylation, gene expression pattern and EEG features of Meth-induced psychosis were different with non-psychiatric, meth abusers and schizophrenics. Results present epigenetic alterations in genes involved in memory formation, synaptogenesis and neural plasticity as new markers for prediction of meth induced psychosis. Finding may help to prognosis and development of better treatment strategies for methamphetamine psychotic patients.

Keywords : methamphetamine; meth-induced psychosis; DNA microarray; methylation

Count: 271

Abstract ID: 428

subject: Neuropsychiatry and Psychology: Addiction (Drug, Alcohol, Internet, Food) and Gambling

Presentation Type: Poster

Effects of BDNF receptor antagonist (ANA12) on the severity psychological dependence and VTA_NAc _ BDNF levels in morphine dependent rats

Submission Author: Masoumeh Khalil_ Khalili

Masoumeh Khalil_ Khalili¹, Hossain Miladi- Gorji², Ali Rashidy_pour³, Ahmad Reza Bandegi⁴

1. Research Center and Department of physiology, School of Medicine, Semnan University of Medical Sciences
2. _Research Center and Department of physiology, School of Medicine, Semnan University of Medical Sciences
3. _Research Center and Department of physiology, School of Medicine, Semnan University of Medical Sciences
4. Research Center and Department of physiology, School of Medicine, Semnan University of Medical Sciences

Background and Aim : Drug addiction is a model of neuronal plasticity that perhaps mediated through brain derived neurotropic factor (BDNF). The mesocorticolimbic area and especially Ventral tegmental area (VTA) and Nucleus accumbens (NAc) play an important role in morphine dependency and other drug addiction. In this study we examined the effects of BDNF receptor antagonist (ANA12) on the severity psychological dependence and VTA_NAc _ BDNF levels in morphine dependent rats.

Methods : Rats were injected with bi_ daily doses (10 mg/kg) at 12h intervals of morphine for 10 days. Then rats were tested for anxiety levels in the elevated plus maze (EPM) after the last morphine injection and ip injection of ANA12. Also VTA_NAc _ BDNF levels measured in several days with ELYSA method.

Results : We found that reductions in time spent in, and entries into the EPM closed arms in the morphine dependent rats that receiving an ANA12 injection than control group. In addition, BDNF levels in VTA and NAc decreased and ANA12 had no effect on it.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : We conclude that increased BDNF in opiate addiction might mediate the enhancement of psychological dependence.

Keywords : Morphine dependency; BDNF receptor antagonist; Anxiety

Count: 272

Abstract ID: 610

subject: Neuropsychiatry and Psychology: Addiction (Drug, Alcohol, Internet, Food) and Gambling

Presentation Type: Poster

The adverse effect of Morphine-dependency on depression-like behaviors and memory; the possible involvement of Dopaminergic D2 receptors and lysosomal activity.

Submission Author: Afshin Kheradmand

Afshin Kheradmand¹, Mehran Shabanpour², Solmaz Khalifeh³

1. Department of Toxicology and Pharmacology, School of Pharmacy, International Campus, Iran University of Medical Sciences, Tehran, Iran
2. Cognitive and Neuroscience research Center (CNRC) and School of Advanced Sciences in Medicine, Islamic Azad University, Tehran Medical Sciences Branch, Tehran, Iran;
3. Cognitive and Neuroscience research Center (CNRC) and School of Advanced Sciences in Medicine, Islamic Azad University, Tehran Medical Sciences Branch, Tehran, Iran;

Background and Aim : Morphine, an alkaloid found in Opium has been used clinically for pain reduction. There is no evidence about the possible effect of lysosomal activity along with Dopaminergic system in Morphine addiction. In this study, we evaluated the effect of Dopaminergic D2 inhibition and lysosomal inhibition in Morphine dependence rats.

Methods : Male albino Wistar rats have received Morphine in their drinking water for 21 days, and some of them also received Sulpiride (one injection in their dorsal third ventricle (D3V) at day 21) alone or with Chloroquine, as a lysosomal inhibitor, (four injections in their D3V from day 18 till day 21). Depression and anxiety like behaviors were examined by Force Swim Test and Shuttle box, respectively

Results : Depression like behaviors was increased in rats which received Morphine. Sulpiride (0.25 µg/rat) and Chloroquine (50 mM) microinjection did not have any effect in non-addicted rats, but Sulpiride increased Morphine effects on depression while Chloroquine decreased it. Morphine decreased latency time to the entrance to the dark part of shuttle box. Chloroquine injection decreased time spends in the dark part of shuttle box apparatus and increased latency

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

time, but it was not able to reverse adverse effect of Morphine on latency time. Also, Sulpiride injection decreased the latency time in normal and addicted rats.

Conclusion : Data stated above suggested the possible role of lysosomal and dopaminergic D2 receptors activity in memory deficiency and depression-like behaviors induced by Morphine dependency.

Keywords : Morphine, Dopamine, Chloroquine, Lysosome, Depression, Memory

Count: 273

Abstract ID: 343

subject: Neuropsychiatry and Psychology: Addiction (Drug, Alcohol, Internet, Food) and Gambling

Presentation Type: Poster

The effectiveness of transcranial direct current stimulation of the brain (tDCS) on craving in substance abusers

Submission Author: Behrooz Khosravian

Behrooz Khosravian¹, esmail soleymani²

1. cognitive science and Technologies
2. cognitive science and Technologies

Background and Aim : The aim of this study is to investigate the effectiveness of direct electrical stimulations of the brain (tDCS) on craving among substance Users.

Methods : This research is a experimental study, in which the subjects were randomly assigned to control and experimental groups. These groups were accompanied by pretest, posttest. 40 opiate dependent patients who were referred to methadone treatment centers selected using a random sampling and after completing a craving Questionnaire, randomly assigned into two experimental (n=20) and control (n=20) groups. The treatment sessions with a direct electrical stimulation of the brain (tDCS) included 20 sessions 20-min anodal stimulation of F3 region, and Kathodal stimulation of F4 region with a current of 2 mA. Finally, the participants in both groups completed craving Questionnaire for the second time. Data were analyzed using analysis of covariance.

Results : Analysis of the data using analysis of covariance showed that there is a significant difference between experimental and control groups in the rates of craving in the post-test phase.

Conclusion : The results showed that electrical stimulation of the brain (tDCS) can reduce the in substance Users. Hence, the recommend psychotherapists to use direct electrical stimulation of the brain (tDCS) as an intervention method to treat addicted people.

Keywords : tDCS, craving

Count: 274

Abstract ID: 619

subject: Neuropsychiatry and Psychology: Addiction (Drug, Alcohol, Internet, Food) and Gambling

Presentation Type: Poster

The Effects of Repeated Transcranial Direct Current Stimulation (tDCS) of Dorsolateral Prefrontal Cortex (DLPFC) on Methamphetamine Craving: a Randomized, Sham-Controlled Study

Submission Author: Mahsa Rohani anaraki

Mahsa Rohani anaraki¹, masoud nosratabadi², behrouz dolatshahi³

1. university of social welfare and rehabilitation science
2. university of social welfare and rehabilitation science
3. university of social welfare and rehabilitation science

Background and Aim : modulation of dorsolateral prefrontal cortex (DLPFC) activity using transcranial direct current stimulation (tDCS) has been shown to have a significant effect on the craving of patients with substance use disorder.

Methods : in this randomized, double-blinded, sham-controlled study we assessed the effect of repeated tDCS of DLPFC on drug craving in 30 abstinent male methamphetamine users. The participant underwent 5 sessions of 20 minutes bilateral real or sham 2mA tDCS (anode right/cathode left) of DLPFC. The Desire for Drug Questionnaire (DDQ) used for assessing instant craving. cue-induced craving assessed by visual analog scale(VAS) after verbal induction of craving.

Results : We found a significant reduction of cue induce craving in tDCS related to sham ($p < 0.05$) but tDCS didn't alter instant craving significantly.

Conclusion : The results indicated that repeated bilateral tDCS over DLPFC was not effective in reducing self-report instant craving, but reduced self-reported craving in the craving induction condition

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : transcranial direct current stimulation (tDCS), Dorsolateral Prefrontal Cortex (DLPFC), Methamphetamine Craving

Count: 275

Abstract ID: 79

subject: Neuropsychiatry and Psychology: Addiction (Drug, Alcohol, Internet, Food) and Gambling

Presentation Type: Oral

the effect of maternal high fat diet on offspring's reward system

Submission Author: Neda Yazdanfar

Neda Yazdanfar¹, javad mahmodi²

1. school of advanced medical science tabriz university of medical science
2. neuroscience research center tabriz university of medical science

Background and Aim : An estimated 271 million people worldwide are afflicted with which 500 million are classified disorders associated with drug abuse¹ and an estimated 1.4 billion adults are overweight, of as obese. humans using PET and functional magnetic resonance imaging have supported the idea that mechanisms of abnormal eating behaviors, including those observed in obese subjects, may have similarities to those underlying addiction to drugs of abuse

Methods : Two powerful circuits in the central nervous system regulate feeding behavior: the homeostatic and the hedonic systems. Deregulation of either can lead to overeating, accumulation of fat stores and ultimately obesity. The hedonic circuit, often called the natural reward circuit, regulates the motivation to accomplish something desirable, such as seeking or consuming rewarding stimuli such as illegal drugs or palatable foods. The causes of both addiction and obesity are multifactorial and are thought to reflect an interplay of genetic and environmental factors. Maternal diets appear to contribute to the formations of mood disorders and impulse control disorders, in addition to dysfunction of the DA system in offspring

Results : The mesocorticolimbic dopaminergic pathway has been shown to play a major role in food reward and obesity. In addition, opioid signaling plays an important role in reward signaling pathways, such as the control of food intake Mu opioid receptor (MOR) activation in the striatum enhances high fat diet intake, while MOR activation in the cortex enhances carbohydrate intake these two systems interact extensively, as the consumption of high calorie food leads to an increased concentration of endogenous opioids, which stimulates dopamine (DA) release by binding to opioid receptors in the ventral tegmental area.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : that maternal overnutrition predisposes the offspring to develop hedonic-like behaviors to both drugs of abuse as well as palatable foods and that these types of behaviors may share common neuronal underlying mechanisms that can lead to obesity

Keywords : reward, maternal high fat diet, obesity, addiction

Count: 276

Abstract ID: 788

subject: Neuropsychiatry and Psychology: Other

Presentation Type: Poster

The Effectiveness of Response Inhibition Training on Improve of Memory Planning in Schoolchildren

Submission Author: Mahdi Babrian

Mahdi Babrian¹

1. ISLAMIC AZAD UNIVERSITY Naien BRANCH

Background and Aim : The purpose of this study was evaluation of the effectiveness of instructive inhibition response to memory improvement and planning for elementary school children

Methods : The present study was a pilot study with pre-test-posttest design with control group. The statistical population of this study includes all primary school children who were studying in the schools of Falavarjan in the first 3 months of 1396. The sample of this study was 30 primary school children selected from among all children studying in Falavarjan schools & then they were assigned to two groups of 15 (control group 15 and experimental group 15) and all participants in experiment group were evaluated by active memory planning and planning before the implementation of retention inhibition training (post-test) And also after the implementation of the treatment (pre-test) , were again evaluated by the mentioned tests. Data were collected based on the Children's Active Memory Test (WMTB-C, 2001) and the planning test (CANTAB, 2009). Data analyzed covariance by analysis and spss software (Version 23).

Results :). The results of the Analyze of Covariance showed that the training of rehabilitation program on memory and planning improvement and its components is effective

Conclusion : it can be said that Analyze of Covariance (Response inhibitor) can help improve their academic performance of the memory and scheduling of elementary school students.

Keywords : Inhibition of response, Memory, Planning, Primary school children

Count: 277

Abstract ID: 759

subject: Neuropsychiatry and Psychology: Other

Presentation Type: Poster

the impact of general self - efficacy on mechanisms of coping with difficult situations and stress of Iranian nursing students

Submission Author: Farzad Bagheri

Farzad Bagheri¹, Farshad Bagheri²

1. department of psychology , Ardabil branch ,Islamic Azad University , Ardabil ,Iran
2. Ahar Branch , Islamic Azad university ,Ahar ,Iran

Background and Aim : During their first practical classes at a clinical ward nursing students face a new environment; they take on new roles which is associated with stress and a need to handle it. The aim of this study was to evaluate the effect of a sense of self-efficacy on the level of stress and the ways of coping by Iranian nursing students during the first practical classes at a clinical ward.

Methods : The study included 394 undergraduate subjects studying nursing at two universities in Ardabil city. The study used the method of diagnostic questionnaire and estimation. The research tools included: an original questionnaire, Stress Scale (PSS10), Inventory to measure coping with stress (Mini Cope) and Generalized Self-efficacy Scale (GSES). Data analysis was performed using the IBM Statistical Package for Social Sciences, version 21 for Windows. The verification of differences between variables was performed using χ^2 independence test, Kruskal-Wallis test, and Spearman rank correlation coefficient. The level of significance was accepted at $\alpha=0.005$.

Results : The level of stress and a sense of self-efficacy in majority of tested nursing students were high. The people with low levels of perceived stress had a significantly higher sense of self-efficacy (rhoSpearman=-0.196; $p=0.0001$). The people with a higher sense of self-efficacy significantly more often used active strategies in stressful situations, such as Active coping (rhoSpearman = 0.284; $p < 0.0001$), Planning (rhoSpearman = 0.318, $p \leq 0.0001$), Positive reevaluation (rhoSpearman = 0.228, $p < 0.0001$), Acceptance (rhoSpearman = 0.188; $p = 0.0002$), Seeking Emotional Support (rhoSpearman= 0.123; $p = 0.0143$).

Basic and Clinical 6th NEUROSCIENCE Congress 2017

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The process of teaching in Iran nursing universities should strengthen a sense of self-efficacy, activate the ways of coping with stressful situations, improve communication skills with patients and smooth away the differences between theory and practice. It is a need to assist future generations of nurses survive the rigors of nursing university and thrive in the face of challenges presented in the nursing profession.

Keywords : Self-Efficacy - Coping ways ,stress

Count: 278

Abstract ID: 658

subject: Neuropsychiatry and Psychology: Other

Presentation Type: Poster

The impact of Acceptance and Commitment Therapy (ACT) on psychological flexibility and mental health of the university students

Submission Author: Maya Bakaram

Maya Bakaram¹, Mahya Bakaram², Salman Vaseghi³

1. -
2. Department of psychology , Ardabil branch , Islamic Azad University , Ardabil ,Iran
3. Department of psychology , Ardabil branch , Islamic Azad University , Ardabil ,Iran

Background and Aim : ACT interventions are effective at helping students deal with stress, anxiety or depression issues and represent a promising avenue for promoting mental health in colleges and universities campus. The aim of the present study was to investigate the impact of Acceptance and Commitment Therapy on psychological flexibility and mental health of the university students.

Methods : One hundred and forty-four (n = 144) students took part in this study. Their mean age was 31.72 (SD = 9.22). they were randomly assigned to either the intervention group (n = 72) or the control group (n = 72). Students in the intervention group took part in four 2.5-hour workshops during a four-week period and were asked to do exercises at home (e.g., meditation, observation grids). Wait-list students received the intervention soon after the post measurements. multivariate analysis of covariance (MANCOVA) and univariate analysis of covariance (ANCOVA) models were used in order to examine the effect of randomization on mean levels of all outcomes measures at post intervention controlling for these measures at baseline.

Results : MANCOVAs and ANCOVAs revealed that students in the intervention group showed greater psychological flexibility at post-intervention than those in the control group. They also reported greater well-being and lower stress, anxiety and depression symptoms.

Conclusion : MANCOVAs and ANCOVAs revealed that students in the intervention group showed greater psychological flexibility at post-intervention than those in the control group. They also reported greater well-being and lower stress, anxiety and depression symptoms.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : acceptance and commitment therapy, psychological flexibility, mental health

Count: 279

Abstract ID: 295

subject: Neuropsychiatry and Psychology: Other

Presentation Type: Poster

the effect of “HAMKA” program on maternal sensitivity of mothers' of Autistic children

Submission Author: Mahdieh Ghorbani

Mahdieh Ghorbani¹, Hamid Reza Pouretamad², Saeed Ghanbari³, Seeed Akbari-zardkhaneh⁴, Maryam Mohammadi⁵, Golnoosh Soroor⁶

1. M.A, Department of Clinical and Health Psychology, Shahid Beheshti University, Tehran, Iran.
2. Prof. Institute for Cognitive and Brain Sciences, Shahid Beheshti University, Tehran, Iran.
3. Assistant professor, Department of Educational and Developmental Psychology, Shahid Beheshti University, Tehran, Iran.
4. Assistant professor, Department of Educational and Developmental Psychology, Shahid Beheshti University, Tehran, Iran.
5. M.A, Department of Family Research Institute, Shahid Beheshti University, Tehran, Iran.
6. M.A, Department of Clinical and Health Psychology, Shahid Beheshti University, Tehran, Iran.

Background and Aim : In the early stages of life, mother-child interaction is the foundation of cognitive, social and emotional development. One of the important aspects of this interaction, is maternal sensitivity; meaning the mother's ability of understanding and responding to child's signals. Increase in maternal sensitivity improves mother-child interaction and some growth aspects of the child. Despite of increase in interventions based on maternal sensitivity in mother-child relationship field, effectiveness of such interventions in Autism population is not clear yet. Current research aims to investigate the effectiveness of an educational package, named “HAMKA” on increasing of maternal sensitivity in mothers' of Autistic children.

Methods : This study was conducted in two stages. In the first stage, educational program of maternal sensitivity for mothers' of Autistic children “HAMKA” was prepared. This package is an Attachment-based program focusing on improving mother-child interaction in seven group sessions. In the second part, by a quasi-experimental design, effectiveness of this program on maternal sensitivity on a group of mothers' of Autistic children (n=14) and a control group (n=15), was investigated. To evaluate this variable, 20 minutes videos of mother-child interaction were recorded in three stages (pretest, post test and 1.5 month follow up) and were analyzed by two

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

clinical psychologists based on maternal behavior Q-sort (MBQS) (Pederson, Moran & Bento, 2015).

Results : After the intervention, significant changes with minimum effect size were observed in maternal sensitivity (0.22).

Conclusion : The significant improvement in maternal sensitivity was occurred in mothers who have participated in experiment group. So by educating this program to mothers' of Autistic children, we can improve mother-child interaction.

Keywords : Autism; Maternal Sensitivity; HAMKA Program

Count: 280

Abstract ID: 523

subject: Neuropsychiatry and Psychology: Other

Presentation Type: Oral

Event related potential modulation related to timing and predictability in taekwondo players

Submission Author: Simin Jafari

Simin Jafari¹, Mohammad Ali Nazari², Roohollah Talebi³

1. PhD in Sport Psychology
2. Associate Professor of neuropsychology, Tabriz University
3. PhD in motor behavior

Background and Aim : Today, many differences have been reported in brain waves of athletes while doing different tasks; although a few studies have been adopted in field of modulation of event related potentials on timing and prediction tasks in athletes. In the present study, we tested the hypothesis that the neural synchronization estimated in visual cortex during timing and predictability demands shows different features in elite taekwondo athletes when compared to non elite taekwondo athletes.

Methods : EEG recordings (19 channels) were performed from 18 elite taekwondo athletes attended in National Team camp and 18 non-elite taekwondo athletes from club members in Tehran. They have been selected using available sampling method and P100 component has been analyzed in parietal areas while doing timing tasks in predictable and unpredictable conditions. Data analysis has been conducted using multivariate variance analysis. Results: according to obtained results, skill level of taekwondo players on the timing precision & related ERPs (VEPs) has been significant in confidence level of ($p=0.005$).

Results : These results support the hypothesis that peculiar mechanisms of occipital neural synchronization can be observed in elite athletes during timing and predictability tasks, possibly to underlie sustained temporal processing attention and self-control. Also VEPs amplitude differences may be related to more efficient neural pre attentive and visual processes, focused attention capacity and declining demand in the primary processing of elite's brain.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Therefore, elite's taekwondo players perceptual-motor variables such as; prediction and timing precision were significantly better compared to non-elite taekwondo players.

Keywords : timing, prediction, event-related potential, taekwondo

Count: 281

Abstract ID: 169

subject: Neuropsychiatry and Psychology: Other

Presentation Type: Oral

The Effects of Mental Disorders and the Cognitive Distortions' Severity On the Impulsivity

Submission Author: Mahboobeh Javid

Mahboobeh Javid¹, Nourolah Mohamadi², Changiz Rahimi³, Habib Hadianfard⁴, Ahmad Ghanizadeh⁵

1. phd student, Department of psychology, Shiraz University
2. PhD, Professor, Department of clinical psychology, Shiraz University
3. PhD, Associate Professor, Department of clinical psychology, Shiraz University
4. PhD, Associate Professor, Department of clinical psychology, Shiraz University
5. Professor of Child and Adolescent Psychiatry, Shiraz University of Medical Science

Background and Aim : Researchers consider impulsivity as acting without thinking or considering individual and social consequences. Impulsivity symptom as a major component of some disorders leads to aggravation of disorders and resistance to treatment. As Impulsivity Behaviours have devastating consequences for person and community, investing impulsivity and finding its cognitive documents in mental disorders seems necessary. The aim of the present study was to examine the effects of mental disorders and the cognitive distortions intensity on the Impulsivity among patients with Major Depressive disorder, Bipolar Mood disorder, Obsessive-Compulsive disorder, comorbidity of Major Depressive disorder with Obsessive Compulsive disorder, and normal individuals.

Methods : This investigation recruited 111 patients including 30 patients with Major Depressive disorder (15 females, and 15 males), 30 patients with bipolar Mood disorder (16 females, and 14 males), 23 patients with Obsessive Compulsive disorder (17 females, and 4 males), and 28 patients with comorbid Major Depressive disorder with Obsessive Compulsive disorder (20 females, and 8 males), who presented to Ebne-Sina, Hafez and Moharreri hospitals, using the convenience sampling method. Our control group comprised 28 healthy participants (14 females, and 16 males) matched for age, education and marital status to patients group. To collect data, Barratt Impulsiveness Scale (BIS-11) and Cognitive distortion Scale (DAS) were administered.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results indicated that the Impulsivity in Major Depressive disorder, Bipolar Mood disorder, Obsessive Compulsive disorder and comorbid Major Depressive disorder with obsessive compulsive disorder groups was more than normal group ($F=2/03$; $p= 0/02$). Also, levels of cognitive distorsion have a significant effect on non planning, motor, and total impulsivity ($F=1/44$; $p= 0/00$).

Conclusion : These findings reemphasize on the importance of the role of the impulsivity and cognitive distortion in Major Depressive disorder, Bipolar Mood disorder, Obsessive Compulsive disorder and comorbid Major Depressive disorder with Obsessive Compulsive disorder groups. The effect of cognitive distortion intensity indicates that the level of cognitive distortion as an important factor can predict impulsivity.

Keywords : impulsivity, cognitive distorsion, major depressive disorder, Bipolar Mood disorder, obsessive- compulsive disorder

Count: 282

Abstract ID: 112

subject: Neuropsychiatry and Psychology: Other

Presentation Type: Poster

Association study of the vesicular monoamine transporter 1 (VMAT1) gene with autism in an Iranian population.

Submission Author: Rezvan Noroozi

Rezvan Noroozi¹, Saude Ghafouri-Fard², Mir Davod Omrani³, Mohsen Habibi⁴, Arezou Sayad⁵, Mohammad Taheri⁶

1. Department of Medical Genetics, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Phytochemistry research center Shahid Beheshti University of Medical Science, Tehran, Iran.
2. Department of Medical Genetics, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
3. Department of Medical Genetics, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran; Urogenital stem cell research, Shahid Beheshti University of Medical sciences, Tehran, Iran.
4. Department of Medical Genetics, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
5. Department of Medical Genetics, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
6. Department of Medical Genetics, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran; Urogenital stem cell research, Shahid Beheshti University of Medical sciences, Tehran, Iran. Electronic address: mohammad.taheri@sbmu.ac.ir.

Background and Aim : Autism Spectrum Disorders (ASD) (MIM 209850) are a group of neurodevelopmental disorders distinguished by destructed social interaction and communication abilities along with peculiar repetitive behavior. Several genetic loci have been linked to this disorder. Vesicular monoamine transporter 1 (VMAT1/SLC18A1) is an attractive candidate gene for psychiatric disorders because of its participation in regulation monoamines.

Methods : In the present case-control study, we evaluated the link between three non-synonymous single nucleotide polymorphisms (SNPs) (rs2270641 [Pro4Thr], rs2270637 [Thr98Ser] and rs1390938 [Thr136Ile]) and one intronic SNP (rs2279709) across the VMAT1 gene and ASD in a group of Iranian patients.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Allele frequency analyses showed significant over-presentation of rs1390938-G allele in cases compared with controls ($P < 0.001$). The analysis under different genetic models showed that the AA genotype of the rs1390938 was protective against ASD under dominant and recessive models. The rs2270641 SNP was associated with ASD risk only in over-dominant model. Other SNPs showed no significant difference in allele or genotype frequencies between two groups. Haplotype analysis revealed that C A T T and C A T G haplotypes (rs2270637, rs1390938, rs2279709 and rs2270641 respectively) have a protective effect against ASD. Consequently, the functional rs1390938 SNP in VMAT1 is associated with ASD in Iranian population.

Conclusion : Considering the role of VMAT1 in the regulation of monoamines, the dysregulated expression of this protein during early stages of brain development might be implicated in ASD.

Keywords : Autism; Polymorphism; VMAT1

Count: 283

Abstract ID: 524

subject: Neuropsychiatry and Psychology: Other

Presentation Type: Poster

Autism: Elephant in the Dark.

Submission Author: Sattar Norouzi Ofogh

Sattar Norouzi Ofogh¹

1. Neuroscience Department, School of Advanced Technologies in Medicine, Iran University of Medical Sciences. Tehran, Iran

Background and Aim : Autism spectrum disorders today are known as mysterious abnormalities in essential cellular pathways involved in basic neuronal processing such as neuronal migration, synapse formation, apoptosis and also proper functioning of the mitochondria. Therefore, previous studies reveals abnormalities such as wrong migration and subsequent ectopic neuronal synaptogenesis, excessive increasing in number of the neurons in childhood and problems in distribution of energy in the nervous system in affected people.

Methods : In this review, we investigate all genome wide association studies, meta-analysis, original studies and also convergent functional studies which carried out and published in PubMed between 2009 and 2017. STRING and Gene Ontology tool kit were used to analyzing and investigate the potential interactions between the candidate genes.

Results : Results demonstrate strong association between autism risk and four genes (Inter-Alpha-Trypsin Inhibitor Heavy Chain 3 (ITIH3), Sidekick Cell Adhesion Molecule 1 (SDK1), Potassium Voltage-Gated Channel Subfamily D Member 2 (KCND2) and Solute Carrier Family 25 Member 12 (SLC25A12) which can be classified at least in one of the basic theories of autism.

Conclusion : Investigation of genes involved in neuronal migration, synaptogenesis, neuronal apoptosis and mitochondrial activities in neurons and also their interactions can provide more precise and general perspective for understanding of complex central nervous system disorders.

Keywords : Autism; Neuronal migration; Synaptogenesis; Apoptosis; Mitochondrial.

Count: 284

Abstract ID: 136

subject: Neuropsychiatry and Psychology: Other

Presentation Type: Poster

The efficacy of Defeat Digital Nannyng (DDN) program on autistic symptoms of children exposed to digital nannyng

Submission Author: Yasamin Rahmati

Yasamin Rahmati¹, Hamidreza Pouretamad², Jalil Fathabadi³

1. M.A in Clinical Child and Adolescent Psychology at Shahid Beheshti University
2. Dean of the Institute for Cognitive and Brain Sciences (ICBS) at Shahid Beheshti University
3. Associate Professor of the Department of Psychology and Educational Sciences at Shahid Beheshti University.

Background and Aim : Change in the style of living in the modern era and increase in using of digital devices by the children cause the decrease in their interaction with caretakers and may affect their cognitive, verbal, emotional, behavioral and social development in a negative way. The cases in which the digital devices replaced active relations with the others are called “Digital Nannyng”. Deficiency in social interaction, speech, and the occurrence of repetitive and stereotyped behaviors are the negative consequences of Digital Nannyng, which all of them are features of Autism spectrum disorders.

Methods : Parent-mediated interaction-focused treatment program has been written for the enrichment of these children’s communicational environment in the first phase of the current research, which include activities that the parents should execute daily with their child in which the child can be in the active interaction with them. Then in the second phase of the research with a quasi-experimental designs without control group, the effectiveness of this program on the autistic features of child, has been put into study. For this matter a group consisting of 12 couples (mother and the child with autistic features) that the child was exposed to Digital Nannyng was selected with the purposive sampling from the patients of center for treatment of autistic disorders. autism treatment evaluation checklist (ATECT) Rimland & Edelson (1999) has been completed by mothers and childhood autism rating scale-second edition (CARS-2) Schopler, Robert, Reichler & Rothen Renner (2010), has been completed by researcher in 3 phases of pre-test, post-test and follow-up. Data were analyzed by the repeated measures ANOVA.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The finding of the research has shown meaningful changes ($P < 0.05$) in large scales of autistic features (with effect size of 0.937 in CARS-2 which has been done by the researcher and effect size of 0.916 in the autism treatment evaluation checklist which has been done by the parent)

Conclusion : It was concluded that, the defeat digital nannying program has caused decreased in autistic features of the child. Therefore, this program has clinical application for researchers and experts in autism field. In a way that they can decrease the autistic features by teaching this program to the parents of the child with autistic features. Also these results can be used in the research facilities for explanation of autism outbreak in the recent years.

Keywords : autism, parent-mediated interaction-focused treatment program, digital nannying.

Count: 285

Abstract ID: 544

subject: Neuropsychiatry and Psychology: Other

Presentation Type: Oral

A review of theories of Autism Spectrum Disorder

Submission Author: Hassan Shahrokhi

Hassan Shahrokhi¹

1. Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran

Background and Aim : Several theories have been proposed to comprehensively explain autistic symptoms. This article critically examines some of these theories including Theory of Mind theory, Weak Central Coherence theory, Extreme Male Brain theory and Intense World theory.

Methods : Relevant articles were identified by searching electronic databases and bibliographies. The examination is done in respect to the origins, characteristics, and evidences in support and against of the each examined theory. Also limitations of any individual theory in explaining autistic phenotypes are reviewed. Then we discuss clinical implications of each theory and the future direction in the field.

Results : It appears that none of these theories are capable of complete explanation of autism; maybe this problem is at least partially attributable to the heterogeneity of Autism Spectrum Disorder per se.

Conclusion : We think that adopting a more individualized, flexible and multidimensional approach for explaining autistic symptomatology, instead of a reductionistic view, is more appropriate way for explaining autism. Obviously this opinion needs more discussion and especially a deeper assessment through robust studies.

Keywords : Autism Spectrum Disorders, Theories, Implications

Count: 286

Abstract ID: 116

subject: Neuropsychiatry and Psychology: PTSD

Presentation Type: Oral

Effect of saffron (*Crocus Sativus*) on plasma Corticosterone concentration and genes expression involved in Hypothalamic-Pituitary-Adrenal axis in Post-Traumatic –Stress- Disorder of adult rat

Submission Author: Sara Asalgoo

Sara Asalgoo¹, Pirzad jahromi Gila², Sahraei Hedayat³, Tat Mahdi⁴

1. Behavioral Sciences Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran
2. Neuroscience Research Centre, Baqiyatallah University of Medical Sciences
3. Neuroscience Research Centre, Baqiyatallah University of Medical Sciences
4. Applied Virology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran

Background and Aim : Post-traumatic stress disorder (PTSD) is a psychiatric disorder that can develop in people who witness traumatic events during their life. This disorder is associated with a reduction in corticosteroid levels and increases negative feedback of the hypothalamic–pituitary–adrenal (HPA) axis. Purpose: This study investigated the effect of saffron aqueous extract on HPA axis in animal model) male Wistar rats (180 to 250 g) of PTSD through electric foot shock.

Methods : Using Real-Time Polymerase Chain Reaction (RT-PCR) method to evaluate the effects of the saffron aqueous extract on the quantitative expression of some genes such as corticotrophin release hormone (CRH) and Arginine vasopressin (AVP) in the hypothalamus and glucocorticoid Receptor (GluR) in pituitary gland in rats. Methods: Forty rats were divided into two categories PTSD (3 group, n=8) and non PTSD groups (2group, n=8). PTSD groups received an electric foot shock during one stop. Two groups of PTSD underwent unilateral cannulation in left lateral ventricle and received Intracerebroventricular (ICV 10µg/ml) injection of either saffron extract or saline. After 21 days of being in the cage animals were returned to the stress box without receiving further stress. The plasma Corticosterone levels in the animals were studied. After 28 days, we have studied the impact of saffron aqueous extract on CRH, AVP genes expression in hypothalamus and GluR gene expression in pituitary.

Results : Onaway ANOVA and T-test results showed that PTSD decreased plasma Corticosterone level and CRH and GluR genes expression. Intracerebroventricular (ICV) injection of saffron

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

aqueous extract into left lateral ventricle of brain resulted in an increase in plasma Corticosterone level and reduced CRH and GluR gene expression in PTSD groups

Conclusion : Results showed that saffron aqueous extract could reduce some genes expression and increased Corticosterone levels in PTSD models.

Keywords : Post-traumatic stress disorder, CRH, GluR, Corticosterone, saffron aqueous Extract

Count: 287

Abstract ID: 366

subject: Neuropsychiatry and Psychology: PTSD

Presentation Type: Poster

The effect of electromagnetic waves on memory extinction in PTSD rat.

Submission Author: Mohammad ali Mohammad alizadeh

Mohammad ali Mohammad alizadeh¹

1. Damghan university

Background and Aim : The stress caused by traumatic events leads to disturbances in the physiology of brain structures such as the hippocampus. PTSD, is an anxiety disorder, which is accompanied by a traumatic memory impairment. Facilitating fear extinction is clinically important to improve the extinction problem in PTSD. The aim of this study was to determine if repeated EMF, as a neuroprotective factor, facilitates fear extinction in PTSD rats. Adult male rats were divided into four groups; Control+Sham EMF, Control+EMF, PTSD+ Sham EMF and PTSD+EMF. The Control groups were placed in fear conditioning chamber and were conditioned by foot shock administration. PTSD rats were conducted in the SPS procedures. EMF rats were submitted to daily magnetic stimulation (15 Hz, 16 min/day) for 14 days. Sham EMF were placed in Solenoid with no electromagnetic field. Fear extinction (fear conditioning system), sensitized fear response (open field), anxiety behavior (elevated plus maze), cell density in hippocampus (Nissl staining) and cell proliferation and survival rate of BrdU-labeled cells were evaluated. Freezing response of “PTSD + EMF” rats were significantly Lower ($P < 0.001$) than those of “PTSD + Sham’ EMF” rats. In the “PTSD + EMF” group, center crossing and total crossing, in open field test, also percent of “Open Arms Entry” and “Open Arms Time”, in elevated plus maze, increased significantly compared with the “PTSD + Sham EMF” group. Number of CA1 and CA3 pyramidal cells and DG granule cells in the “PTSD + EMF” and “Control + Sham EMF” groups were significantly more than “PTSD + Sham EMF”. There were more BrdU-positive cells in the dentate gyrus of the PTSD + EMF group as compared with the “PTSD + Sham EMF” group. Qualitative observations showed the increased number of surviving BrdU-positive cells in the “PTSD + EMF” group as compared with “PTSD + Sham EMF” group. Due to beneficial effects of EMF on extinction of traumatic memory, anxiety and sensitized fear, may be via the neuroprotection, it could be a target for therapeutic strategies.

Methods : single prolonged stress(SPS)-open field-plus MAZ-histological staining-

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : 1. Freezing response of “PTSD + EMF” rats were significantly Lower ($P < 0.001$) than those of “PTSD + Sham’ EMF” rats. 2. center crossing and total crossing, in open field test, also percent of “Open Arms Entry” and “Open Arms Time “, in elevated plus maze, increased significantly compared with the “PTSD + Sham EMF” group. 3. Number of CA1 and CA3 pyramidal cells and DG granule cells in the “PTSD + EMF” and “Control + Sham EMF” groups were significantly more than “PTSD + Sham EMF”. 4. There were more BrdU-positive cells in the dentate gyrus of the PTSD + EMF group as compared with the “PTSD + Sham EMF” group.

Conclusion : Due to beneficial effects of EMF on extinction of traumatic memory, anxiety and sensitized fear, may be via the neuroprotection, it could be a target for therapeutic strategies.

Keywords : Electromagnetic field, PTSD, Hippocampus, Fear extincio

Count: 288

Abstract ID: 65

subject: Neuropsychiatry and Psychology: PTSD

Presentation Type: Poster

Ethanollic extract of *Rosmarinus officinalis* decreases signs of post-traumatic stress disorder (PTSD) induced by electric shock in rat

Submission Author: Seyede Zahra Mousavi

Seyede Zahra Mousavi¹, Sahel Molaei², Leila Abuali³

1. Shahid Ahmadi Roushan Student Research Center, Baharestan 1 education office, Baharesta, Tehran, Iran
2. Shahid Ahmadi Roushan Student Research Center, Baharestan 1 education office, Baharesta, Tehran, Iran
3. Shahid Ahmadi Roushan Student Research Center, Baharestan 1 education office, Baharesta, Tehran, Iran

Background and Aim : *Rosmarinus officinalis* is a medicinal plant which has been have various used in traditional medicine. Traditionally, this medicinal plant has been used to cure different diseases such as anxiety, migraine, blood pressure, kidney stone, etc. Besides, this herbal plant has antispasmodic, antioxidant, tranquilizer, anti-stress effects. The post-traumatic stress disorder (PTSD) is among the most important mental disorders of our century which causes great stress and several complications for the afflicted person. Nowadays, the definition of PTSD comprises not only those affected by the accident, but also those who have witnessed it. Therefore, in the current study, we aimed to investigate the effects of *Rosmarinus* extract on hormonal signs of PTSD caused by electric foot shock.

Methods : Male Wistar rats (250-300 g weight) were used in this study. The animals randomly received electric foot shock (0.1 mA) for 100 seconds over a period of 10 days. After returned to cages to repose for 21 days, the animals were put back into the stress box but received no stress. The animals received different doses of *Rosmarinus officinalis* extract (50, 100, 200 mg/kg) intraperitoneally 10 min before placing into the stress box (n = 7-9 rats/group). Control group received saline (1 mg/kg). Plasma corticosterone levels were assessed in control and treated animals.

Results : One-way ANOVA showed that stress elevated plasma corticosterone level (136 nmol/L) concentration in the control animals. Intraperitoneal administration of the *Rosmarinus* extract attenuated plasma corticosterone level (81 nmol/L).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : These findings indicate that Rosmarinus extract can attenuate hormonal signs of PTSD and can use as an agency for moderation of PTSD signs.

Keywords : Rosmarinus officinalis; Post-traumatic stress disorder; corticosterone

Count: 289

Abstract ID: 467

subject: Neuropsychiatry and Psychology: PTSD

Presentation Type: Oral

cognitive function deficits in post-traumatic stress disorder and the effect of these impairments on the therapeutic process

Submission Author: Leila Nategh

Leila Nategh¹, MD. Reza Daneshmand²

1. Institute for Cognitive Sciences Studies (ICSS)
2. Substance Abuse and Dependence Research Center, University of Social Welfare and Rehabilitation

Background and Aim : Post-traumatic stress disorder (PTSD) is one of the common disorder that being appear after traumatic events. Nowadays we see a lot of disaster in ever day life and most of this catastrophic have a potential to indicate their traumatic aspects. Moreover this calamity add a numerous toll on a governmental cost and put a personal and social inconvenience in their life. For all of these reasons, it seems vitally to create more effective approach for PTSD treatment.

Methods : In our preliminary review, 73 articles studied; PTSD patients have a serious problem in emotion regulation, judgment and re-experiencing. In these people judgments are ineffective and emotional control is defective. So we decided to focus on articles related to PTSD with a concentrate on cognitive parameters. Attention, memory and some parameters of executive functions. The 41 articles investigated in cognitive functions of PTSD patients and most of their target groups were veterans and battle saviors in various wars. In most of these studies, neuropsychological criteria have been used. Defectiveness was reported in 20 articles and had a great impacts on their essential abilities of every daily life.

Results : By disquisition a number of cognitive impairments in patients, we ascertainment the effect of these cognitive deficits on recovery steps of PTSD. It turns out that as long as these persistent persecution of re-experience being exist, the disease will progresses. With the advancement of the disease, cognitive impairment develops and, with increasing cognitive deficits, the person becomes more inefficient, and in fact, treatment will be more and more arduous. In such a situation, cognitive impairment causes the PTSD treatment protocols to fail. Due to the development of this faulty cycle, it seems that the creation of a therapeutic protocol for the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

rehabilitation of cognitive impairment in PTSD patients is necessary. In other words we should provide suitable mental and cognitive situations to expectant Progressive treatment.

Conclusion : It seems to be necessary to establish new protocols for PTSD patients that helps them to improve their cognitive functions and going to more success in their psychological treatment.

Keywords : Ptsd, Cognitive functions, Posttraumatic stress

Count: 290

Abstract ID: 684

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Neurotransmitters and Signaling Molecules

Presentation Type: Poster

The Effect of CART Neuropeptide on Regulation of Food Intake and Body Weight

Submission Author: Hamid AhmadianMoghadam

Hamid AhmadianMoghadam¹, Hamid Ahmadian-Moghadam², Mitra-Sadat Sadat-Shirazi³,
Mohammad-Reza Zarrindast⁴

1. -
2. Iranian National Center for Addiction Studies, Tehran University of Medical Sciences, Tehran, Iran.
3. Iranian National Center for Addiction Studies, Tehran University of Medical Sciences, Tehran, Iran.
4. Department of Pharmacology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Cocaine Amphetamine-Regulated Transporter (CART) was discovered by in a search for mRNA that up-regulated by psychostimulants in the striatum. This wide distribution of CART in the brain suggests that CART has been implicated in a various number of the physiological processes such as food intake.

Methods : Evidence suggest that anorexia may mediated by altered signaling at nucleus accumbens which associated with rewards. For instance direct stimulation of serotonin 4 receptor (5-hydroxytryptamine 4 receptor, 5-HT₄R) in the nucleus accumbens increases CART mRNA level and drive to eat. Moreover study on knockdown CART mRNA showed accumbal serotonin-4-receptors are involved in appetite-suppressing-effect of 3,4-methyendioxy-N-methyl-amphetamine (MDMA) and increase in CART mRNA expression. There is body of studies that shows CART peptides can regulate body weight. For instance mice with knockdown CART gene (CARTPT^{-/-}) gained weight and intracerebroventricular injection of CART mRNA suppressed the weight gain in obese rats. Reduction in CART expression contributed to excessive body gain weight in treated with neuroleptic drugs. Also administration of CART triggered mobilization of lipid from adipose tissues, increased expression of uncoupling protein in skeleton muscles and adipose tissues that consequently increased energy expenditure and weight loss. Experimental approaches indicate that intraventricular administration of CART peptides significantly inhibits food intake. Also the expression of arcuate nucleus CART peptides in food deprived and obese

rats significantly decreased. In other words antibody neutralization of endogenous CART increases food intake.

Results : In vagal afferent neurons, CART peptides are coexpressed with cholecystinin receptor in leptin dependent manner and enhances satiety effect of cholecystinin. Recent study suggest that glucocorticoids may modulate the interaction between leptin and CART. Leptin stimulates the expression of c-fos and suppressor of cytokine-signaling-3 as well as stimulating CART expression and it has been suggested that there is direct leptin stimulation by these neurons. Since CART colocalizes with thyrotropin releasing hormone and corticotropin releasing hormone, this suggested involvements of them in energy metabolism and regulation of pituitary hormone secretion. Another evidence shows thyrotropin-releasing-hormone and CART have similar effect in inhibition of depolarization-induced dopamine release. This effect confirms the decreased appetitive behavior induced by CART and thyrotropin-releasing-hormone Also CART present in population of melanin-concentrating-hormone synthesizing neuron in the lateral hypothalamous. Furthermore, CART peptides are involved in orexigenic effect of anandamide within endocannabinoid system. The endocannabinoid anandamide increases food intake by activating Cb-1-receptor while Cb-1-receptor antagonist blocks food intake Also another evidence on obese human subjects revealed that single-nucleotide-polymorphism at site -156 of CART gene may associated with genetic obesity.

Conclusion : In summary CART peptides have anorexigenic effect but the mechanism of this effect is not fully understood. Several evidence have been suggested different mechanisms for the effect of CART peptides on body weight and obesity. The lack of clone receptor for CART peptide has prevent development of small molecule antagonist that may be used to block or mimic the action of CART. Although successful binding was identified for AtT20 cells but it was low and variable.

Keywords : CART;Neuropeptide; Regulation; Food Intake; Obesity;

Count: 291

Abstract ID: 102

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Neurotransmitters and Signaling Molecules

Presentation Type: Oral

Multiple molecular signaling pathways involve in absence epilepsy

Submission Author: Fariba Karimzadeh

Fariba Karimzadeh¹

1. Cellular and Molecular Research Center, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : Spontaneous and synchronous spike-wave discharges are the main characteristics of the electroencephalogram in the absence epilepsy. Abnormal interconnection in different areas of cortico-thalamo-cortical network has the important role in the SWDs appearance. Some discrepancies in the WAG/Rij rats as the best animal model of absence epilepsy were assessed such as: NR2B receptor (a subunit of NMDA receptors), mGlu1 α (a subunit of metabotropic glutamate receptors), Notch signaling pathway and Neuregulin 1 (NRG-1) and its receptor ErbB4.

Methods : Male WAG/Rij and Wistar rats were divided into four groups of two- and six-month-old wistar and WAG/Rij rats. Somatosensory cortex and hippocampus were dissected. The gene and protein expression of NR2B, mGlu1 α , Notch and ErbB4 receptors were assessed.

Results : the gene expression as well as protein level of NR2B, mGlu1 α , Notch and ErbB4 receptors reduced in six-month old WAG/Rij rats (epileptic rats) compared to non-epileptic age-matched Wistar rats.

Conclusion : The alterations of several signaling pathways in the epileptic WAG/Rij rats suggest the involvement of multi genes in the pathophysiology of absence epilepsy.

Keywords : Epilepsy, Brain, Spike-wave discharges

Count: 292

Abstract ID: 287

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Neurotransmitters and Signaling Molecules

Presentation Type: Poster

Endogenous angiotensin II in the paraventricular nucleus regulates arterial pressure during hypotension in rat, a single-unit study

Submission Author: Mehrangiz Khanmoradi

Mehrangiz Khanmoradi¹, Ali Nasimi²

1. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
2. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

Background and Aim : The hypothalamic paraventricular nucleus (PVN) controls cardiovascular regulation through vasopressin and sympathetic system. The PVN contains angiotensin II (AngII) and AngII receptors. We have already shown that microinjection of AngII into PVN produced a pressor response concomitant with an increase in firing rate of some PVN neurons. This study was performed to find if PVN AngII plays a regulatory function during hypotension

Methods : Hypovolemic-hypotension was induced and the possible role of the PVN AngII in returning arterial pressure toward normal was assessed by monitoring cardiovascular response and single-unit activity of the PVN neurons

Results : Hemorrhage augmented the pressor, tachycardic and single-unit responses to AngII. After-hemorrhage injection of PD123319, an AT₂ antagonist, into PVN resulted in a significant decrease in firing rate of some neurons, indicating that AngII was released into the PVN due to hemorrhage. Using single-unit recording, we found that PVN receives electrical signals from baroreceptors and from circulating AngII through circumventricular organs. In addition, by producing hemorrhagic-hypotension and bilateral blockade of AT₂ receptors of the PVN, we found that AngII regulates arterial pressure toward normal during hypotension

Conclusion : brain renin-angiotensin system is also a major regulatory system of the cardiovascular system

Keywords : Angiotensin II Paraventricular nucleus Blood pressure Single-unit Hypotension AT₂

Count: 293

Abstract ID: 344

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Neurotransmitters and Signaling Molecules

Presentation Type: Poster

An Investigation of the Effect Mechanism of Paeonia lactiflora Root Extract on Epilepsy

Submission Author: Atiyeh Rezaei

Atiyeh Rezaei¹, Mehrnoosh Hashemi²

1. Pharmaceutical Sciences Branch, Islamic Azad University, Tehran-Iran
2. Pharmaceutical Sciences Branch, Islamic Azad University, Tehran-Iran

Background and Aim : Epilepsy is a complex neurological disorder that affects CA1 and CA3 and causes some behavioral disorders. Clinical symptoms are uneven and usually starts with an aura, and then the person loses consciousness. After the attacks, the nervous system is severely weakened. Tumor, trauma, meningitis, changes in brain waves, or hereditary factors can cause epilepsy. The use of medicinal herbs for the treatment of epilepsy has long been common, but these efforts have been less successful. The purpose of the study is to examine the effects of the root extract of Paeonia lactiflora on the basis of the experiments carried out and the existing theories.

Methods : Various experiments have been carried out on each of the root extract extracts of this plant that can be examined by referring to pubmed, scienceDirect, NCBI and proquest.

Results : The results of the experiments show that the albiflorin in this extract can be enhanced by inhibiting serotonin and norepinephrine absorption and increasing anti-depressant effects in the hypolimus. It can also increase the amount of intracellular calcium. The presence of paeoniflorin in this extract also increases the expression of the A20 gene

Conclusion : According to glutamate theory, the cause of epilepsy is the accumulation of glutamate produced from GABA metabolism in the extracellular domain and consequently the inability of the GLT-1 protein in the transfer of glutamate and as a result of impaired function of the nerve. Albiflorin can increase the flow of calcium from the gap junction of astrocytes, producing some ATP to the extracellular space, and the activity of the neurons at the same time increases the attack. Albiflorin can also be used by the patient to increase the serotonin and

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Norepinephrine levels in the hypothalamus, and the use of antidepressants. Paeoniflorin in this extract can inhibit cell death and stimulate neurons by increasing the expression of the gene A20 (a cell death inhibitory gene)

Keywords : epilepsy. paeonia lactiflora

Count: 294

Abstract ID: 678

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Channels, Receptors, Transporters,

Presentation Type: Oral

Blockade of p75 neurotrophin receptor reverses irritability and anxiety-related behaviours in a rat model of status epilepticus

Submission Author: Soraya Mehrabi

Soraya Mehrabi¹

1. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran.

Background and Aim : Background: Epilepsy is a neurological chronic disease affecting the health and lifestyle of patients. Many recent epidemiological studies have shown that epileptic patients are more likely suffer from depression, anxiety and irritability. However, the cellular mechanisms of epilepsy-induced psychotic behaviours are not fully elucidated. Neurotrophin receptors have been suggested to be involved in epilepsy and also in psychiatric disorders. Up-regulation of p75NTR expression and activation of p75NTR signalling cascades after the seizure has been shown. Its involvement in modulating behaviours related to anxiety has also been reported. However, the role of the P75 receptor in epilepsy-induced psychotic behaviours has not been documented so far. Therefore, present work aimed to investigate the effect of p75 receptor blockade on seizure activity, anxiety and irritability- like behaviours in a rat model of status epilepticus.

Methods : The rats were injected with pilocarpine (350 mg/ Kg, i.p.) to induce status epilepticus. Then, various behavioural tests were performed after blockade of p75NTR alone or in combination with p75 antagonist and phenobarbital, the seizure activity was monitored for a period of 20 hours. Molecular analysis by PCR was also performed to investigate the expression of p75 and pro-NGF.

Results : Molecular findings indicated high expression for both p75 receptors and pro-NGF mRNA in the epileptic model group. In addition, results also showed that either p75 antagonist alone or when applied in combination with phenobarbital was able to significantly influence the behavioural responses. Furthermore, 20-hours video monitoring showed a decrease in the frequency and duration of seizures in the rat group receiving p75 antagonist.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Taken together, the present study suggests that blockade of the p75 receptor may affect the irritability and anxiety-related behaviour in a rat model of status epilepticus.

Keywords : P75 receptor antagonist, Anxiety-like behaviour, Pilocarpine, Irritability; Epilepsy

Count: 295

Abstract ID: 342

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Synaptic Transmission and Synaptic Plasticity

Presentation Type: Poster

Synaptic plasticity and memory deficits in rat model of acute kidney injury

Submission Author: Maryam Arab Firouzjaei

Maryam Arab Firouzjaei¹, Masoud Haghani², Seyed-Mostafa Shid Moosavi³

1. Department of physiology, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of physiology, Shiraz University of Medical Sciences, Shiraz, Iran
3. Department of physiology, Shiraz University of Medical Sciences, Shiraz, Iran

Background and Aim : Recent evidence suggests that renal ischemia/reperfusion may have impairment effects on brain function. Therefore, the present study is aimed to investigate the effects of bilateral or unilateral renal ischemia-reperfusion on learning-memory and hippocampal synaptic plasticity.

Methods : The model groups were established by bilateral or unilateral renal ischemia for 60 and 120 min respectively and 24 hours of reperfusion. A shuttle box apparatus was used for passive avoidance learning and memory assessment. Moreover, the animals were evaluated for synaptic plasticity by field potential recording.

Results : The results of this study demonstrated that the 60 min bilateral or 120 min unilateral renal ischemia along with 24 hours of reperfusion resulted in impaired long term potentiation and the memory performance. Particularly, the field potential recording demonstrated that bilateral and unilateral renal ischemia led to extreme inhibition in long-term potentiation compared to control and sham groups; this inhibition was accompanied by a significant increase of the normalized PPR (PPR after HFS/PPR before HFS) as an index for release probability. The behavioral results verified the electrophysiological assessment data in which the renal ischemia groups showed significant increase in step through latency during passive avoidance task in comparison with the sham and control groups.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our data suggest that renal ischemia /reperfusion induce injurious distant effects on hippocampus associated with synaptic plasticity and memory deficits.

Keywords : renal ischemia/reperfusion; synaptic plasticity; memory

Count: 296

Abstract ID: 47

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Synaptic Transmission and Synaptic Plasticity

Presentation Type: Oral

Acute application of cholecystokinin and its effect on long-term potentiation induction at CA1 area of hippocampal formation in rat

Submission Author: Farzane Dehghani

Farzane Dehghani¹, Parham Reisi²

1. Department of Physiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran.
2. Biosensor Research Center, Isfahan University of Medical Sciences, Isfahan, Iran.

Background and Aim : It has been demonstrated that cholecystokinin sulfated octapeptide (CCK-8s) can affect synaptic transmission in the hippocampus. Because one of the major experimental models to understand the events happening in synaptic plasticity is To Study the long-term potentiation (LTP), we decided to investigate the effect of concomitant administration of CCK-8s and tetanic stimulation of Schaffer collateral path-CA1 synapses on LTP induction and maintenance.

Methods : Experimental groups were control, CCK-5min and CCK-30min. CCK-8s was injected 5 or 30 min (1.6 µg/kg; i.p.) prior to induction of LTP. The stimulating and the recording electrodes were placed in the Schaffer collateral pathway and hippocampal CA1, respectively. LTP was induced by 100 Hz tetanization and field excitatory postsynaptic potentials (fEPSP) slope, area and amplitude were measured and compared during 30 minutes Interval before, and 90 minutes Interval after LTP induction in each group.

Results : The results showed that maintenance of the induced LTP was significantly improved in the CCK-30min group comparing to the control group. This improvement was particularly visible in the fEPSP slope ($p < 0.001$) and the fEPSP area ($p < 0.001$). Seventy minutes after the LTP induction, fEPSP was similar in both the CCK-5min and the CCK-30min groups and there was Also a significant difference between the treated groups comparing to the control group ($p < 0.05$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : These results indicated that LTP induction and maintenance is carried out effectively, at higher levels of CCK in the brain. The data suggest that CCK-8s has pronounced effects on synaptic plasticity in the hippocampus and the consequent cognitive functions.

Keywords : Cholecystokinin sulfated octapeptide; CA1; Hippocampus; LTP

Count: 297

Abstract ID: 326

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Synaptic Transmission and Synaptic Plasticity

Presentation Type: Oral

The therapeutic potential of low frequency electrical stimulation against kindling-induced impairment in long-term potentiation in rats

Submission Author: Khadijeh Esmailpour bezenjani

Khadijeh Esmailpour bezenjani¹, Khadijeh Esmailpour², Vahid Sheibani³, Mohammad Shabani⁴, Javad Mirnajafi-Zadeh⁵

1. -
2. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
3. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
4. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
5. Department of Physiology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran

Background and Aim : Application of low-frequency stimulation (LFS) can improve learning and memory in kindled animals. Considering the critical role of long-term potentiation (LTP) in learning and memory, we postulated that improving effect of LFS on seizure-induced impairment in learning and memory is accompanied with its improving effect on LTP induction. Therefore, in the present study we tried to determine if application of LFS in fully kindled animals can lead to a rescue of LTP induction in hippocampal CA1 region and whether this effect is time dependent.

Methods : Animals were kindled via electrical stimulation of hippocampal CA1 area in a semi-rapid manner (12 stimulations per day). One group of animals received four trials of LFS at 30 s, 6 h, 24 h, and 30 h following the last kindling stimulation. Each LFS consisted of 4 packages at 5 min intervals; each package contained 200 monophasic square wave pulses of 0.1 ms duration at 1 Hz. The kindled, kindled + LFS and LFS groups were divided into four subgroups in which hippocampal slices were prepared at 48 h, 1 week, 2 weeks, and 1 month following the last kindling stimulation respectively. Extracellular evoked field excitatory postsynaptic potentials (fEPSPs) were recorded in the stratum radiatum of the CA1 area of the slice.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The present data showed that application of LFS in fully kindled animals could return the ability of LTP induction and overcome the kindling-induced impairment in LTP induction in CA1 area of the hippocampus. The durability of this effect can be increased up to one month by increasing the number of applied LFS packages.

Conclusion : application of LFS overcame the kindling-induced impairment in LTP generation in CA1 area of the hippocampus. This improving effect remained up to one week after the last kindling stimulation and extended to one month by increasing the number of applied LFS packages.

Keywords : Seizure Low frequency stimulation Long-term potentiation Hippocampus

Count: 298

Abstract ID: 64

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Gliology (Gliotransmission, Gliogenesis, Neuro-glia Cross Talk)

Presentation Type: Poster

Unilateral neurodegeneration of hippocampus in diabetes mellitus type 1 Unilateral Neurodegeneration in diabetes mellitus

Submission Author: Seyyed sadegh Alavi

Seyyed sadegh Alavi¹, Shahriar Ahmadpour², Sadegh Alavi³, Mohammad Montazami Sadeghi⁴, Khashayar Baghizadeh⁵

1. -
2. Anatomy Department, Medicine School, North Khorasan University of Medical Sciences, Bojnurd, Iran
3. Student research committee, Medicine School, North Khorasan University of Medical Sciences, Bojnurd, Iran
4. Student research committee, Medicine School, North Khorasan University of Medical Sciences, Bojnurd, Iran
5. Student research committee, Medicine School, North Khorasan University of Medical Sciences, Bojnurd, Iran

Background and Aim : Functional asymmetry of hippocampus has been investigated thoroughly. The aim of this study was to study the effects of diabetes mellitus on bilateral hippocampus.

Methods : Diabetes mellitus was induced by a single intraperitoneal (IP) injection of STZ at a dose of 60 mg/kg. Two months after uncontrolled diabetes, the animals were anesthetized. The harvested whole brains were stained with cresyl violet.

Results : The number of degenerated neurons in right side CA3 (600 ± 25) showed significant level of difference with left CA3 (0) ($P < 0.001$). The count of degenerated neurons in right side CA1 (90 ± 5) showed meaningful difference with left side CA1 region (5 ± 2) ($P < 0.001$).

Conclusion : Our study showed that experimental diabetes mellitus type 1 leads to unilateral neurodegeneration in pyramidal layer of CA3 and CA1 regions of right hippocampus.

Keywords : hippocampus; Diabetes mellitus; neurodegeneration

Count: 299

Abstract ID: 63

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Gliology (Gliotransmission, Gliogenesis, Neuro-glia Cross Talk)

Presentation Type: Poster

Hippocampus astrocytes reaction in chronic STZ-induced diabetes mellitus Type1: a study by Transmission Electron Microscopy

Submission Author: Mohammad Montazami sadeghi

Shahriar Ahmadpour¹, Mohammad Montazami sadeghi², Sadegh Alavi³, Khashayar Baghizadeh⁴

1. Anatomy Department, Medicine School, North Khorasan University of Medical Sciences, Bojnurd, Iran
2. Student research committee, Medicine School, North Khorasan University of Medical Sciences, Bojnurd, Iran
3. Student research committee, Medicine School, North Khorasan University of Medical Sciences, Bojnurd, Iran
4. Student research committee, Medicine School, North Khorasan University of Medical Sciences, Bojnurd, Iran

Background and Aim : Altered function of astrocytes has been noticed in the central nervous complications of diabetes mellitus type1. The aim of our study was to determine the effects of chronic uncontrolled hyperglycemia on ultrastructure of hippocampus astrocytes.

Methods : Experimental diabetes was induced in adult male wistar rats by streptozotocin (60mg/kg).8weeks after diabetes, the hippocampus of animals were removed and studied by transmission electron microscopy. The number and ultrastructure of astrocytes in the selected random fields were examined.

Results : Ultrastructure of astrocytes exhibited noticeable features including electronlucent nucleus, electro-lucent heterochromatin and vacuolated cytoplasm. The number of astrocytes per field in diabetic group (7 ± 2) showed a significant difference in comparison to those of control ($P<0.05$).

Conclusion : The results of this study showed that chronic diabetes mellitus type 1 is associated with increase in number and ultrastructure changes in hippocampal astrocytes.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : astrocytes; diabetes mellitus type1; hippocampus

Count: 300

Abstract ID: 522

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

The memory impairment induced by chemoconvulsant insult can be ameliorated by ethanol

Submission Author: Azam Alinaghypour

Azam Alinaghypour¹, Abolfazl Ardjmand²

1. Physiology Research Center, Kashan University of Medical Sciences, Kashan, Iran
2. Physiology Research Center, Kashan University of Medical Sciences, Kashan, Iran

Background and Aim : Brain injury induced by stroke, trauma, hypoxic conditions or epileptic seizures is the leading cause for mortality and long-term disability worldwide. Preconditioning, a phenomenon in which a minor noxious stimulus protects from a subsequent more severe insult, has emerged as a novel experimental strategy for the prevention of brain damage. Preconditioning can be induced by different stimuli like pharmacological agents, hypothermia, hypoxia, and toxic agents (e.g. ethanol). The aim of present study was to examine the effect of ethanol-preconditioning on pentylenetetrazole (PTZ)-induced inhibitory avoidance memory deficit.

Methods : The experimental groups were: Control, Ethanol (0.5 mg/kg), PTZ (60 mg/kg) Ethanol+PTZ (n=9, rats per group). Ethanol was administered 6 days before the injection of PTZ. After the ethanol pre-treatment (preconditioning) the animals were tested in a single trial step-through inhibitory test in two sessions (train and test) with a 24 hour interval. Moreover, the locomotor activity of rats was tested in an open field apparatus. One-way ANOVA was used for analyzing the difference between the groups in step-through and open-field experiments.

Results : One-way ANOVA revealed a significant effect for the ethanol treatment among the groups ($P < 0.001$). We found that administration of ethanol before PTZ abolished the PTZ-induced memory deficit. According to our findings the dose of ethanol that induced pre-insult protection is orders of magnitude lower than the dose that induced acute conventional effects of ethanol. In addition, One-way ANOVA for the locomotor activity showed no difference between the four groups ($P > 0.05$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our results suggest that a pre-conditioning treatment with low doses of ethanol, several days before brain injury, may provide safe and effective protection. A treatment with such low dose of ethanol may therefore have a potential to provide safe neuroprotection before brain injury without the undesired psychotropic effects of the conventional doses of the drug.

Keywords : Preconditioning, Ethanol, Memory, PTZ

Count: 301

Abstract ID: 182

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Determination of Biochemical effects of hydro-alcoholic extract of Lavandula stoechas aerial parts on temporal lobe epilepsy induced by pilocarpine

Submission Author: Shekoofeh Azimi

Shekoofeh Azimi¹, Batool Rahmati², Mehrdad Roghani³, Ladan Sedighnejad⁴

1. medical faculty, physiology department, Shahed University
2. Neurophysiology Research Center, Shahed University, Tehran, Iran
3. Neurophysiology Research Center, Shahed University, Tehran, Iran
4. medical faculty, physiology department, Shahed University

Background and Aim : Temporal lobe epilepsy (TLE) is one of the most refractory types of adult epilepsy, and treatment options remain unsatisfactory. The relationship between free radical and scavenger enzymes has been found in the epileptic phenomena and reactive oxygen species have been implicated in seizure-induced neurodegeneration. Although antiepileptic effects of Lavandula stoechas have been reported in the pentylenetetrazol model, There are any reports about its effects on pilocarpine induced status epilepticus (SE). The aim of this study is to evaluate the biochemical effects of Lavandula stoechas extract on pilocarpine induced epilepsy

Methods : 75 male rats were divided in to 5 groups: control saline, control extract (200 mg/kg), pilocarpine (380 mg/kg), extract treated pilocarpine, extract pre and treated pilocarpine. Treated, pre and treated groups received extract 1 h or 2 weeks before administration of pilocarpine respectively and both of them continued for 4 weeks after administration of pilocarpine. Injections were i.p with volume of 0.3 ml. Hippocampal oxidative stress markers were measured 24h, 2 and 4 weeks after pilocarpine injection.

Results : Pre and treated group could attenuate time dependently pilocarpine induced enhancement of nitrite and MDA. Also reduced glutathione (GSH) level and catalase activity increased in this group. Pilocarpine mediated neural loss also was not observed in these groups.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : It seems that *Lavandula stoechas* could protect SE outcomes by oxidative stress inhibition along with elevation of antioxidant activity in a time dependent manner.

Keywords : Epilepsy, *Lavandula stoechas*, Pilocarpine, Rat, Oxidative stress

Count: 302

Abstract ID: 191

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

The Anticonvulsant and Neuroprotective Effects of the Tanacetum Polycephalum Hydroalcoholic Extract Against the Experimental Pentylentetrazol Induced Model of the Seizures in the Male Wistar Rats

Submission Author: Vahid Azizi

Vahid Azizi¹, Abdolkarim Hosseini², Farzin Allahyari³

1. Faculty of Life Sciences and Biotechnology, Shahid Beheshti University, Tehran, Iran
2. Faculty of Life Sciences and Biotechnology, Shahid Beheshti University, Tehran, Iran
3. Faculty of Life Sciences and Biotechnology, Shahid Beheshti University, Tehran, Iran

Background and Aim : Tanacetum polycephalum (L.) Schultz-Bip is an important plant in Iranian traditional medicine which has been used in the treatment of neurological illnesses like pain and convulsion. In the present study, the effect of the hydroalcoholic extract of Tanacetum polycephalum (TP) on the animal model of seizure was studied.

Methods : In this experimental study, forty-two male Wistar rats weighing 220-250 g were randomly selected and were divided to experimental and control groups (6 rats per group). The experimental groups were treated by intraperitoneal (i.p.) single injection of 150, 300, 450, 600 and 750 mg/kg of hydroalcoholic extracts of TP. The control negative group received normal saline (0.9%) and the control positive group received phenobarbital (30 mg/kg, i.p.) pretreatment. 30 min after the treatments, the seizure behaviors were evaluated by pentylenetetrazole (PTZ) (70 mg/kg, i.p.) challenge. In addition, after experiment, the rats were put to death and brain was removed for the histological study.

Results : The ANOVA test was showed that compared to control group, all the TP doses delayed the initiation and duration of the tonic, colonic and tonic-colonic seizures and significantly reduced the tonic and colonic seizures ($p < 0.001$). Furthermore, the administration of all 5 doses of the extract significantly prevented the production of the dark neurons ($p < 0.001$) in different areas of the hippocampus compared to PTZ group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : We can conclude that the TP extract has beneficial effects on the prevention of the PTZ induced seizure.

Keywords : Tanacetum polycephalum; PTZ; Traditional medicine; Seizure; Neural damage

Count: 303

Abstract ID: 710

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Homocysteine and epilepsy

Submission Author: Niloofar Bagheri

Niloofar Bagheri¹, Neda Kalkatehchi², Mohammad Bagher Maljaei³

1. B.S nutrition sciences; Zahedan University of Medical sciences, Zahedan, Iran.
2. B.S nutrition sciences; Islamic Azad University of Medical sciences, Tehran, Iran.
3. Department of Nutrition, School of public health, Iran University of medical sciences, Tehran, Iran

Background and Aim : Epilepsy is one of the common diseases of the nervous system that is associated with inflammation and atrophy of the nervous system. So that 20-50% of people with epilepsy develop brain atrophy. Homocysteine is one of the intermediate amino acid metabolites that is significantly increased in some clinical conditions like MS, Alzheimer's and Parkinson's. The aim of this study was to determine the relationship between homocysteine and epilepsy and provide the appropriate treatment plan.

Methods : his review study was conducted with keywords: homocysteine, folate, B6, B12 and epilepsy. in PUBMED and ISI between 2008-2017.

Results : 12 studies were investigated. MTHFR gene polymorphism: Some studies believe that the MTHFR gene polymorphism in patients with epilepsy can change the structure of the folate metabolite enzymes which leads to an increase in the level of homocysteine. Homocysteine, inflammation and convulsion: observational studies have shown that increased homocysteine, in addition to inflammation, can reduce the convulsion threshold . Epilepsy treatment drugs: drug therapy with common epilepsy drugs can interfere with folate and vitamin B12, due to the importance of these two vitamins in converting homocysteine into other metabolites, drug-food interactions are of great importance in patients with epilepsy. Hemosicin, Oxidative Stress and Brain Damage: Other studies indicate that homocysteine is an oxidative stress and the important inflammatory factor , which can cause brain damage.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : considering the significant relationship between high levels of homocysteine with inflammatory diseases and nervous system breakdown and cardiovascular disease and on the other hand, food-drug interactions, supplementation with B vitamins and antioxidants is very important.

Keywords : homocysteine, folate, B6, B12, epilepsy

Count: 304

Abstract ID: 377

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

The effect of moderate treadmill exercise on the severity of pentylenetetrazol-induced seizures

Submission Author: Mitra Barzroodi pour

Mitra Barzroodi pour¹, Mansoureh Soleimani², Mina Eftekhazadeh³, Majid Katebi⁴, Mohamad Bayat⁵, Freshteh Golab⁶, Sirvan Hosseini⁷, Fariba Karimzadeh⁸

1. Department of anatomical sciences , Iran University of Medical Sciences, Tehran, Iran
2. Cellular and Molecular Research Center, Iran University of Medical Sciences, Tehran, Iran
3. Department of anatomy ,Iran University of Medical Sciences, Tehran, Iran
4. Department of Anatomy, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
5. Department of anatomy , Arak University of Medical Sciences, Arak, Iran
6. Cellular and Molecular Research Center, Iran University of Medical Sciences, Tehran, Iran
7. Faculty of rehabilitation, Arak University of Medical Sciences ,Arak, iran
8. Cellular and Molecular Research Center, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : Imbalance of excitatory-inhibitory function is the main mechanism involve in some neurological diseases including autism, migraine and epilepsy. The most antiepileptic drugs have serious side-effects, and patients are commonly reluctant to use these drugs. The beneficial effects of exercise such as improvement of quality of life, reduction of anxiety and depression and better social integration have been shown in many studies. In this study, we investigated the effect of moderate treadmill exercise on the severity of seizures induced by pentylenetetrazol (PTZ).

Methods : In this experimental study Sprague dawley rats were randomly divided into two groups: seizure and exercise groups. Seizure induced by intraperitoneal injection of 35 mg/kg PTZ each other day for 4 weeks. Exercise group were forced to run on a motorized treadmill consisted of running during experiment, 30 minutes daily 5 times per week. The frequency and severity of seizures were measured and analyzed by T-test analysis. Significance was established by $p \leq 0.05$.

Results : Our study demonstrated that moderate treadmill exercise during induction of seizure with PTZ significantly reduced the frequency and severity of seizures compared to seizure group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The finding of this study can open a new window to verify the beneficial contribution of moderate exercise in epilepsy. Further experimental and clinical investigations are necessary to explore the exact mechanism involve in the effect of exercise on seizure severity.

Keywords : Epilepsy. Exercise, Seizure, brain

Count: 305

Abstract ID: 322

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

A new candidate of Epileptiform Convulsions model by microinjection of Colchicine into the Striatum in male Wistar rats.

Submission Author: Zahra Fakhroleslam

Zahra Fakhroleslam¹, Manizheh Karami², Mehrdad Roghani³, Mohammad Reza Jalali Nadoushan⁴

¹ M.Sc student, Department of Biology, Faculty of Basic Sciences, Shahed University, Tehran, Iran.

² Associate Professor, Department of Biology, Faculty of Basic Sciences, Shahed University, Tehran, Iran.

³ Professor, Department of Physiology, Faculty of Medicine, Shahed University, Tehran, Iran.

⁴ Professor, Department of Pathology, Faculty of Medicine, Shahed University, Tehran, Iran.

Background and Aim : Epilepsy is a neurological disorder which is displayed with repeatedly epileptic convulsions. A seizure is a sudden rush of electrical activity in the brain which is occurred when clusters of nerve cells, neurons, in the brain send out the wrong signals. Colchicine, an alkaloid obtained from the plant *Colchicum autumnale*, can inhibit microtubule polymerization and disrupt the brain organization.

Methods : The subjects, rats (250 g), were anesthetized and placed in a stereotaxic apparatus, with the incisor bar set at approximately 3.3 mm below horizontal zero to achieve a flat skull position. After exposure of the skull, a burr hole was drilled over the striatum (AP: 0.5 mm; L: 3 mm; V: 3.6) according to the atlas of Paxinos. An injection cannula attached to a Hamilton syringe by polyethylene tubing guided 0.01-1 µg colchicine/rat per day for three-five consecutive days. Control group only received saline solution. At the end of each injection the behavioral signs of experiment animals were recorded. The treated brain samples were collected and used for the histopathological investigation. They were dissected out and fixed in a solution of 10% formalin. The striatum region was cut coronally into 3-4 mm thick slices, embedded in paraffin and processed by the step section technique. The slices (4 µm) were mounted and stained with both Hematoxylin-Eosin and Cresyl violet. Sections were examined under the light microscope for correct placement of injections and for lesions. The difference in neuronal density between vehicle and experimental groups was analyzed by analysis of variance (ANOVA).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results obtained by monitoring of behavior in rats illustrate epilepsy like generalized seizures in some animals treated by colchicine, intra-striatal, but, destruction lesion effect was not appeared in the brain of the animals passed the injection period.

Conclusion : Although colchicine neurotoxic effects have been previously mentioned, but this substance is rather a disturbance alkaloid of neural processes and it can be used to create an animal model of epilepsy.

Keywords : Epilepsy, Colchicine, Striatum, Rat.

Count: 306

Abstract ID: 132

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Cognitive Dysfunctions in Epilepsy

Submission Author: Nima Ganji

Nima Ganji¹, Soodabeh Bassak Nejad², Nasrin Arshadi³, Azam Noferesti⁴

1. Member of Cognitive Science Research Group of Academic Center of Education, Culture and Research, Alborz Branch
2. Faculty member of Shahid Chamran University of Ahvaz
3. Faculty member of Shahid Chamran University of Ahvaz
4. Faculty Member of Cognitive Science Research Group of Academic Center of Education, Culture and Research, Alborz Branch

Background and Aim : Epilepsy is a central nervous system disorder (neurological disorder) in which nerve cell activity in the brain becomes disrupted, causing seizures or periods of unusual behavior, sensations and sometimes loss of consciousness. Cognitive dysfunctions are common in epileptic patients. They may be present before the onset of epilepsy or occur – and even progress – during its course. Many variables contribute to cognitive dysfunction.

Methods : Recent findings show that Ideally, but not yet realistically, epileptogenesis is prevented to avert seizures and cognitive impairments in high-risk patients. New treatments of progressive epileptogenic disorders and precision medicine approaches in genetic epilepsies are increasingly applied. Cognitive outcome benefits from early diagnosis and treatment of epileptic encephalopathy. Ongoing seizures may cause permanent and progressive changes in brain structure and connectivity, suggesting that early seizure control optimizes eventual cognitive functioning.

Results : Frequent interictal epileptiform discharges justify treatment in patients with cognitive impairments that are otherwise unexplained. Cognitive adverse effects of antiepileptic drugs should be closely monitored and balanced against potential benefits. Finally, early surgical treatment in selected candidates will improve their cognitive outcome.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Although important determinants of intellectual functioning – including the genetic and environmental background and the epileptogenic pathology – may not be modifiable, several variables that contribute to cognitive impairment can be targeted to improve outcome. Early etiological diagnosis, personalized therapies, presurgical evaluation, and strict control of seizures – or in some patients interictal discharges – can prevent cognitive impairments.

Keywords : Cognitive Dysfunctions, Epilepsy, seizure

Count: 307

Abstract ID: 247

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

The evaluation of DHA-PPARs interaction against seizure induced by Pentylentetrazole in mice

Submission Author: Hakimeh Gavzandaroukola

Hakimeh Gavzandaroukola¹, Hakimeh Gavzan², Mohammad Sayyah³, Foruzan Hashemi,⁴
Nastaran Talebpour⁵

1. -
2. Department of Basic Sciences, Faculty of Veterinary Medicine, Amol University of Special Modern Technologies, Amol, Iran
3. Department of Physiology and Pharmacology, Pasteur Institute of Iran, Tehran, Iran
4. Department of Physiology and Pharmacology, Pasteur Institute of Iran, Tehran, Iran
5. Department of Basic Sciences, Faculty of Veterinary Medicine, Amol University of Special Modern Technologies, Amol, Iran

Background and Aim : Omega-3 polyunsaturated fatty acids (ω -3 PUFAs) have been proposed in recent years to treat epilepsy. Among the ω -3 PUFAs, DHA as the most abundant and the most bioactive fatty acid in the brain have considerable anticonvulsant effect. Although, several mechanisms have been proposed to explain the anticonvulsant properties of DHA as n-3 PUFA. But also, more studies are needed for finding of further mechanism of DHA anticonvulsant action. PUFAs are the selective ligands for peroxisome proliferator-activated receptors (PPARs). Furthermore, PPARs agonists have anticonvulsant effect. The aim of this study is evaluation of interaction between DHA and PPARs against seizures induced by pentylentetrazole (PTZ).

Methods : 6 groups of 10 male mice (20-30g) were used in this study. Groups 1, 2, 3, and 4 received PTZ alone (60mg/kg, i.p), DHA 300 μ M (intracerebroventricular (i.c.v., 15min before PTZ injection), and PPAR α antagonist (GW6471, 1 mg/kg, i.p., 4h before PTZ injection) and PPAR γ antagonist (GW9662, 2 mg/kg, i.p., 4h before PTZ injection), respectively. All doses obtained from last studies. For evaluation of interaction, groups 5 and 6 were co-administered respectively with GW6471(1 mg/kg4h before PTZ) or GW9662(2 mg/kg, 4h before PTZ) and DHA(300 μ M, 15min before PTZ). Then, all animals received PTZ. The incidence of clonic

seizures and latency of clonic seizures were recorded and analyzed by Fisher's exact probability test and One Way ANOVA, respectively.

Results : The percentages of clonic seizure incidence in groups (1-6) were 100, 38.9, 90, 100%, 90.9% and 63.6%, respectively. The pretreatment of GW6471 could completely reverse DHA anticonvulsant effect ($P \leq 0.01$ v.s DHA), but GW9662 could not. There was no difference in seizure latencies between groups.

Conclusion : In accordance with the last studies, we showed that PPAR α is a target molecule of DHA. Furthermore, our results for the first time indicated an interaction between DHA and GW6471 (a selective PPAR α antagonist) on suppression of seizures induced by PTZ. Moreover, no interaction was observed between PPAR γ antagonist (GW9662) and DHA against clonus seizure. Maybe the binding site of DHA on PPAR γ is different with GW9662. These results indicate an interaction between DHA and PPAR α on suppression of seizures induced by PTZ. Also, it is necessary to assess DHA-PPAR γ interaction in another animal seizure model.

Keywords : docosahexaenoic acid, PPARs, GW9662, GW6471, seizure

Count: 308

Abstract ID: 692

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Oral

Investigation the effect of Low Frequency Stimulation on Spontaneous Inhibitory and Excitatory Post-Synaptic Currents of Hippocampal CA1 Pyramidal Cells in Kindled Rats

Submission Author: Samireh Ghafouri

Samireh Ghafouri¹, Yaghoub Fathollahi², Saeed Semnanian³, Amir Shojaei⁴, Javad Mirnajafi-Zadeh, Ph.D⁵

1. Department of Physiology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
2. Department of Physiology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
3. Department of Physiology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
4. Department of Physiology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
5. Department of Physiology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran

Background and Aim : Low-frequency stimulation (LFS) exerts suppressive effects in kindled animals. It is believed that overstimulated glutamatergic and decreased GABAergic transmission have long been associated with seizure activity. In this study, we investigated the effect of electrical LFS on different parameters of spontaneous excitatory and inhibitory post-synaptic currents (sEPSCs and sIPSCs) in hippocampal CA1 pyramidal cells in kindled animals

Methods : In this experimental study, rats were kindled by electrical stimulation of the hippocampal CA1 area in a semi-rapid manner (12 stimulations/day). The animals were considered fully kindled when they showed stage 5 seizures on three consecutive days. One group of animals received LFS 4 times at 30 seconds, 6 hours, 18 and 24 hours following the last kindling stimulation. Each LFS consisted of 4 packages at 5 minutes intervals. Each package of LFS consisted of 200 pulses at 1 Hz and each monophasic square wave pulse duration was 0.1 millisecond. At 2-3 hours post-LFS, acute hippocampal slices were prepared and a whole cell patch clamp recording was performed in all animals to measure the different parameters of sEPSCs and sIPSCs

Results : In kindled animals, the inter-event interval (as an index of occurrence) of sEPSCs decreased, whereas sIPSC increased. In addition, the decay time constant of sIPSCs as an index of

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

the duration of its activity decreased compared to the control group. There was no significant difference in other parameters between the kindled and control groups. Application of LFS in kindled animals prevented the observed changes. There was no significant difference between the measured parameters in kindled+LFS and control groups

Conclusion : LFS application may prevent seizure-induced increase in the occurrence of sEPSCs and seizure-induced decrease in occurrence and activity duration of sIPSCs

Keywords : Seizure, Post Synaptic Potential, Low-Frequency Stimulation, Kindling

Count: 309

Abstract ID: 86

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Evaluation of metformin effects in the chronic phase of spontaneous seizures in pilocarpine model of temporal lobe epilepsy

Submission Author: Fereshteh Golab

Fereshteh Golab¹, Soraya Mehrabi², Mahmood Barati³

1. Cellular and Molecular Research Center, Iran University of Medical Science, Tehran, Iran
2. Cellular and Molecular Research Center, Iran University of Medical Science, Tehran, Iran
3. Cellular and Molecular Research Center, Iran University of Medical Science, Tehran, Iran

Background and Aim : Introduction: Temporal lobe epilepsy (TLE) is a common form of drug-resistant epilepsy that sometimes responds to dietary manipulation such as the 'ketogenic diet'. Here we have investigated the effects of metformin in the rat pilocarpin model of TLE.

Methods : Male rats were treated with intra peritoneal injection of pilocarpine hydrochloride, in dose of 360 mg/kg to induce status epilepticus (SE). At 45 day after induction of SE, metformin was injected intraperitoneally in dose of 250 mg/kg/day for 5 days.

Results : We show that metformin potently reduces the progression of seizures and blocks seizure-induced over-expression of brain-derived neurotropic factor (BDNF) and its receptor, Tropomyosin receptor kinase B (TrkB). We have shown that this reduced expression pattern is mediated by the transcriptional co-repressor CtBP (C-terminal binding protein). Moreover, metformin decreased mechanistic target of rapamycin (mTOR) activation through activation of AMP-activated protein kinase (AMPK) signaling pathway.

Conclusion : Our findings have been shown that metformin has anticonvulsant and antiepileptic properties, and suggesting that antiglycolytic compounds such as metformin may represent a new class of drugs for treating epilepsy.

Keywords : metformin, spontaneous seizures, pilocarpine, temporal lobe epilepsy

Count: 310

Abstract ID: 104

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

The antiseizure effect of five new 2-(1-(4-Methoxyphenyl)-2-phenylethylidene) hydrazine carboximidamide derivatives in rat pentylenetetrazole model of seizure

Submission Author: Elmira Heidarli

Elmira Heidarli¹, Hamid Irannejad², Nima Naderi³

1. Student Research Committee, School of Pharmacy, Shahid Beheshti University of Medical Sciences.
2. assistant professor, Department of Medicinal Chemistry Faculty of Pharmacy Mazandaran University of Medical Sciences
3. Associate Professor, Department of Pharmacology and Toxicology Deputy-Dean in Research School of Pharmacy Shahid Beheshti University of Medical Sciences

Background and Aim : Despite of recent improvements in pharmacotherapy of seizure disorder, almost 20-30% of patients still suffer from seizures that do not respond to available antiepileptic drugs. In this study, the antiseizure activity of some newly synthesized carboximidamide derivatives was evaluated by pentylenetetrazole (PTZ) induced seizure in rat.

Methods : Rats were randomly divided into seven groups (6 rats in each groups). One week before experiment, using stereotaxic surgery, a stainless steel cannula was inserted in rats' brain 1 mm above the left lateral ventricle, according to coordinates obtained from Paxinos and Watson atlas of rat brain. Five newly synthesized carboximidamide derivatives were dissolved in dimethylsulfoxide (DMSO) and were administered (100 µg/rat) by intracerebroventricul (i.c.v.) injection in a volume of 5 µl, to different groups. The control group received i.c.v. injection of DMSO (5 µl) and the positive control group received standard treatment with carbamazepine (100 µg /rat). Fifteen min later, seizure was induced in each rat by s.c. injection of PTZ (95 mg/kg) and the animal was observed for the next 30 min for seizure occurrence. Seizure scale was measured based on the method described by Velisek et al.

Results : The results showed a significant increase in latency of tonic-clonic seizure occurrence in rats pretreated with FA-72, FA-92, and FA-102 as well as rats pretreated with carbamazepine

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

compared with the control group. However, none of the treated group showed significant difference in myoclonic seizure latency of occurrence compared with the control group.

Conclusion : The results suggest that hydrazine carboximidamide compounds with strong electron acceptor group on one aryl ring and strong electron donor on the other aryl ring could have higher anti-seizure properties in acute pentylenetetrazole model of seizure.

Keywords : hydrazine carboximidamide derivatives; pentylenetetrazole-induced seizure; rat; antiepileptic

Count: 311

Abstract ID: 530

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Modulation of intrinsic neuronal properties in hippocampal CA1 pyramidal cells by alterations in the functional properties of intrinsic Ca²⁺- ion channels

Submission Author: Somayeh Heysieattalab

Somayeh Heysieattalab¹, Zohreh Ghotbedin², Seyed Javad Mirnajafi-Zadeh³, Saeed Semnianian⁴, Mahyar Janahmadi-Corresponding Author⁵

1. Department of Psychology, School of Psychology, Neuroscience Lab, University of Tabriz, Tabriz, Iran
2. Department of Biology, Shahid Chamran University, Ahvaz, Iran
3. Department of Physiology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
4. Department of Physiology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
5. Neuroscience Research center and Department of Physiology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Low frequency stimulation (LFS) has shown impressive seizure reduction in in vitro and in vivo animal models, as well as human patients with TLE. In addition, our previous study showed the protective effect of LFS in a rat model of amygdala kindling, however, the cellular mechanism of the effect on the intrinsic excitability was not fully determined. In recent published papers, changes in the normal intrinsic neuronal properties have been recognized as a prominent, pathophysiologically relevant feature of many central nervous system (CNS) disorders including epilepsy, which may reflect alterations in the functional properties of neuronal voltage- and Ca²⁺-gated ion channels. Therefore, here it was investigated whether LFS can preserve the intrinsic somatic neuronal electrophysiological properties in a rat model of epilepsy, with focusing on the possible involvement of voltage-gated Ca²⁺ channels.

Methods : Animals were kindled by electrical stimulation of amygdala in a rapid kindling manner. Both kindled alone and kindled plus LFS groups received 4 packages of LFS at intervals of 5 min (each package contained 200 monophasic square-wave pulses, 0.1 ms pulse duration at 1 Hz) immediately after termination of daily 12 rapid kindling stimulations at the kindling site. Then, whole cell patch clamp recordings were performed on CA1 hippocampal pyramidal neurons, under

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

current-clamp and voltage-clamp conditions and the intrinsic electrical properties and contribution of voltage-gated Ca²⁺ channels to the neuronal excitability were assessed.

Results : Findings showed that application of LFS increased the depolarizing current necessary to bring the pyramidal neurons to the firing threshold (rheobase current) and the latency to the first spike elicited by either depolarizing ramp current or after offset of the hyperpolarizing current pulses as compared to kindled group. In addition, application of LFS decreased the intrinsic instantaneous firing frequency as compared to kindled group and thereby dampened the intrinsic neuronal excitability. Voltage-clamp experiments showed that LFS prevented the increasing effect of epileptiform activity on Ca²⁺ currents as compared to kindled alone group.

Conclusion : It seems that application of LFS prevented the hyperexcitability of CA1 pyramidal neurons induced by kindling and conserved the normal neuronal firing possibly through decreasing Ca²⁺ channel currents.

Keywords : Amygdala kindling; Low-frequency stimulation; Electrophysiological Intrinsic Properties; CA1 Pyramidal Neurons; Ca²⁺ channels

Count: 312

Abstract ID: 380

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Vanillic acid gives protection against PTZ-induced convulsion, oxidative stress and pain in rats

Submission Author: Maryam sadat Jalali

Maryam sadat Jalali¹, Solmaz salehi², Yaghoob Farbood³, Alireza Sarkaki⁴

1. Phd student
2. Physiology Research Center, Department of Physiology, Medical School, Ahvaz Jundishapur University of Medical Sciences
3. Physiology Research Center, Department of Physiology, Medical School, Ahvaz Jundishapur University of Medical Sciences
4. Physiology Research Center, Department of Physiology, Medical School, Ahvaz Jundishapur University of Medical Sciences

Background and Aim : Epilepsy is a serious and common neurological disease which is characterized by recurrent seizures, resulting from excessive electrical activity of the brain. The aim of this study was to evaluate the effect of Vanillic acid in generalized convulsion in rats.

Methods : To assess the anticonvulsant activity of Vanillic acid, we used PTZ which is standard method for analysis of convulsion. Fifty six adult male Wistar rats (200±20 g) were divided randomly into 7 groups as: Control (received vehicles of PTZ and VA); PTZ (80 mg/kg, I.P); PTZ+VA25, 50, 100 and 200 (received Vanillic acid at doses of 25, 50, 100 and 200 mg/kg respectively) and PTZ+PHB (received Phenobarbital 80 mg/kg). Vanillic acid or normal saline were administered 30 minutes before PTZ-convulsion induction. Immediately after PTZ administration rats were noticed for: (1) start of convulsions (lapsed time from PTZ injection until convulsion happened), (2) length of convulsion (number of rats showing convulsions) and (3) death for the period of 60 min and convulsion behaviors. In each group the pain, and the MDA, SOD and GPx were evaluated.

Results : The results of the present study showed that Vanillic acid had anticonvulsant and analgesic activity in PTZ-induced convulsion rats. Also, the MDA level decreased after Vanillic

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

acid administration; and the GPx and SOD activities were increased by Vanillic acid in PTZ-induced rats

Conclusion : The findings of the current study, be likely to propose that Vanillic acid have anticonvulsant action might have inhibited and/or reduced PTZ -induced seizures of the rats used by increasing, or in some ways interfering with GABAergic neurotransmission.

Keywords : : Cognition, Convulsion, Oxidative Stress, Pain, Pentylentetrazol, Vanillic Acid

Count: 313

Abstract ID: 769

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Genistein protects against kainate-induced BDNF overexpression and ultrastructural damage in the hippocampus

Submission Author: Mehdi Khodamoradi

Mehdi Khodamoradi¹, Vahid Sheibani², Hamed Ghazvini³, Kaveh Shahveisi⁴

1. Substance Abuse Prevention Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran
2. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
3. Psychiatry and Behavioral Sciences Research Center, Mazandaran University of Medical Sciences, Sari, Mazandaran, Iran
4. Sleep Disorders Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran

Background and Aim : Soy phytoestrogens (SPEs) have been identified as neuroprotective compounds; however, far too little attention has been paid to the effects of SPEs on seizure. The purpose of this study, therefore, was to assess the extent to which genistein (one of the most important phytoestrogen) and soy extract containing genistein protect against kainate-induced brain-derived neurotrophic factor (BDNF) overexpression and neuronal damage in the CA1 area of the hippocampus in ovariectomized (OVX) rats.

Methods : Female rats were ovariectomized and, then, received genistein (0.5 or 5 mg/kg) or soy extract (2 or 20 mg/kg) or vehicle during four consecutive days. One h after the last injection, kainate (0.5 μ g/ μ l) or vehicle was perfused into the left lateral ventricle to induce generalized tonic-clonic seizures. Finally, hippocampal BDNF expression and ultrastructural characteristics of CA1 pyramidal neurons were examined one week later.

Results : Kainate-induced seizures resulted in BDNF mRNA and protein overexpression in the hippocampus and also neuronal damage in the CA1 area. Genistein only at the lower dose (0.5 mg/kg) and soy extract only at the higher dose (20 mg/kg) significantly reduced the above-mentioned negative effects of seizure; however, none of them affected seizure activity.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The results suggest that SPEs may have beneficial effects against seizure at the levels of mRNA and protein expression and histology in the hippocampus.

Keywords : Genistein; Soy extract; Kainate; Seizure; BDNF; Neuronal damage.

Count: 314

Abstract ID: 284

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

The effects of tamoxifen and soy on dark neuron production in hippocampal formation after pentylenetetrazole-induced repeated seizures in rats

Submission Author: Maryam Lal ataei

Maryam Lal ataei¹, Ali Reza Ebrahimzadeh Bideskana,² Maryam Lale Ataei³, Somaieh Mansouric,⁴ Mahmoud Hosseini⁵

1. -
2. aDepartment of Anatomy and Cell Biology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3. Neurogenic Inflammation Research Center and Department of Physiology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
4. Pharmacological Research Center of Medicinal Plants, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
5. Neurocognitive Research Center and Department of Physiology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : Regarding the similar modulatory effects of both soy and tamoxifen on the actions of estrogen which have previously reported, the aim of the present study was to investigate the effects of these two estrogen like compounds alone and in combination on dark neuron production in hippocampal formation of ovariectomized rats after pentylenetetrazole-induced repeated seizure.

Methods : The rats were randomly divided into six groups: control, sham, OVX, OVX-soy (OVX-S), OVX-tamoxifen (OVX-T) and OVX-soy-tamoxifen (OVX-S-T). The animals of OVX-S, OVX-T and OVX-S-T groups received the soy extract (60 mg/kg; i.p.), tamoxifen (10 mg/kg) or both for 2 weeks before induction of seizures. The animals of these groups were also treated by soy extract, tamoxifen or both before each injection of PTZ (40 mg/kg) for 6 days. The animals of sham and OVX groups received saline plus tween instead of tamoxifen and soy extract. The animals of control group did not treat by PTZ, tamoxifen and soy. The rats were placed in Plexiglas cages

separately and observed for 60 min. The brain tissues were then removed and subjected for histological studies.

Results : A significant decrease in the seizure score was seen in OVX group comparing to sham. The animals of both OVX-T and OVX-S groups had a significant higher seizure score compared to OVX group. Co-treatment of the ovariectomized rats by both soy extract and tamoxifen decreased the seizure score compared to OVX-S and OVX-T groups. The results of histological study showed that the dark neuron number in CA1, CA2, CA3 and dentate gyrus (DG) of hippocampus area in OVX-T and OVX-S groups was higher than that of OVX group ($P < 0.05$ – $P < 0.01$). In CA3, the produced dark neurons of OVX-S-T group were lower than that OVX-S group ($P < 0.01$).

Conclusion : The results of present study showed that treatment of the ovariectomized rats by either soy extract or tamoxifen increased the seizure score as well as dark neurons. Co-treatment with soy extract and tamoxifen did not potentiate the effects of each of them alone. Co-administration of the tamoxifen and soy extract inhibited the effects of the soy extract and tamoxifen when they administered alone.

Keywords : Soy; Tamoxifen; Seizure; Dark neuron; Hippocampus

Count: 315

Abstract ID: 83

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Oral

Acute administration of Docosahexaenoic acid with Lamotrigine inhibits drug resistance epilepsy in LTG resistant kindled rats

Submission Author: Melika Moezifar

Melika Moezifar¹, Mohammad Sayyah², Morteza Zendehtdel³, Vahab Babapour⁴

1. Department of Physiology and Pharmacology, Pasteur Institute of Iran, Tehran, Iran. Department of Basic Science, Faculty of veterinary Medicine, University of Tehran, Tehran, Iran
2. Department of Physiology and Pharmacology, Pasteur Institute of Iran, Tehran, Iran
3. Department of Basic Science, Faculty of veterinary Medicine, University of Tehran, Tehran, Iran
4. Department of Basic Science, Faculty of veterinary Medicine, University of Tehran, Tehran, Iran

Background and Aim : Epilepsy is a chronic neurological disorder with 1% global prevalence that more than 30% of patients are resistant to common AEDs. Polyunsaturated Fatty Acids (PUFAs) such as Docosahexaenoic acid (DHA) are commonly used as nutritional supplement. There is limited evidence that DHA can prevent resistance to anticancer drugs. Lamotrigine-resistant kindled rat is an experimental model of secondarily generalized seizure that represents resistance to AEDs, in which the sub-chronic exposure of rats to lamotrigine during kindling results in complete resistance of fully kindled animals. We evaluated the effect of acute administration of DHA with and without LTG on LTG resistant kindled rats.

Methods : After determination of AD threshold, rats received lamotrigine 5mg/kg/day i.p., 60min before daily electrical stimulation during kindling, until the rats became kindled. 48 h after the last kindling session animals were challenged with a higher dose of lamotrigine (15mg/kg, i.p.) and the kindled seizure parameters were recorded. In lamotrigine-resistant kindled rats, lamotrigine (15mg/kg) was injected. After 45min, DHA (300 μ M, 10 μ l) was administered via i.c.v injection and 15min later rats were stimulated. In control group, the resistant rats received lamotrigine 15mg/kg and solvent of DHA at the same time interval as test group and in another group DHA (300 μ M) was administered to lamotrigine-resistant kindled rats and 15min later rats were stimulated at AD threshold and kindled seizure parameters were recorded.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Acute administration of DHA alone, had no effect on controlling lamotrigine-resistant kindled seizures but acute co-administration of DHA with lamotrigine could inhibited seizures in lamotrigine-resistant kindled rats and decrease seizure parameters ($P < 0.001$).

Conclusion : Acute administration of DHA with LTG inhibits resistance to LTG. Consumption of DHA with antiepileptic drugs can be considered as a good candidate to overcome drug resistant epilepsy.

Keywords : Drug resistant epilepsy, Docosahexaenoic acid, LTG-resistant kindled model

Count: 316

Abstract ID: 227

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Frequency of Seizure in Patients Intoxicated with Tramadol

Submission Author: Saeed Nouri

Saeed Nouri¹, Najla Farhang², Hossein Pakdaman³

1. Brain Mapping Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Brain Mapping Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Brain Mapping Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Tramadol is a narcotic-like pain reliever which is used to treat moderate to severe pain. This study was performed to determine the frequency of seizure in people with tramadol poisoning.

Methods : This cross sectional and descriptive study was conducted on 306 patients with tramadol overdose referred to the Lohman hakim Hospital in Tehran, Iran, for 3 year during 2014-2017. Patients with positive history of co-ingestion of other drugs, convulsive disorders, renal diseases, or head trauma were excluded. For patients who had seizure, CT scan of the brain and EEG were performed, and frequency and type of seizure were identified. The collected data was analyzed in SPSS.

Results : Tramadol toxicity was more common in men 283 (92%). The mean age was 28 ± 6.2 (mean \pm SD) years old. Seizure was observed in 73 persons (24%) within 24 hours after tramadol ingestion. The majority of patients who had seizure were male (82% vs 18%). All seizures were generalized tonic-clonic seizure and 26 patients had abnormal EEG (35%).

Conclusion : Considering the high potential of tramadol abuse and the relatively high frequency of seizure following tramadol, the same studies with higher sample size recommended. Also Determination of the minimum dose of tramadol which induced seizure suggested.

Keywords : Tramadol, Seizure, Poisoning

Count: 317

Abstract ID: 228

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Effect of hydro alcoholic extract of *Artemisia dracunculus* on pentilentetrazol-induced seizures in male mice

Submission Author: Saeed Nouri

Saeed Nouri¹, Najla Farhang², Hossein Pakdaman³

1. Brain Mapping Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Brain Mapping Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Brain Mapping Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Current antiepileptic drugs are effective in controlling seizures in about 70% of patients, but their use is often limited by side-effects This study was done to evaluate the hydro alcoholic extract of *Artemisia dracunculus* on pentilentetrazol-induced seizures in male mice.

Methods : In this experimental study, 50 male mice randomly allocated into control and four experimental groups. Seizures in animals induced by 60 mg/kg/bw of pentilentetrazol (PTZ), interperitoneally. Animals in experimental groups were received 5, 10, 25 and 50 mg/kg/bw of hydro alcoholic extract of *Artemisia dracunculus* 30 min before each PTZ injection. The animals in control group were received saline, interperitoneally. After treatment, the behavior of animals and mortality rate were recorded.

Results : Seizure threshold of animals significantly increased in experimental groups which were received 25 and 50 mg/kg/bw of *Artemisia dracunculus* extract in comparison with controls ($P<0.05$). Mortality rate of animals significantly reduced in experimental group which were received 50 mg/kg/bw of *Artemisia dracunculus* extract in comparison with controls ($P<0.05$).

Conclusion : The hydro-alcoholic extract of *Artemisia dracunculus* increases seizure threshold in pentilentetrazol-induced seizures mice.

Keywords : *Artemisia dracunculus*, Pentylentetrazole, Seizure threshold, Mouse

Count: 318

Abstract ID: 226

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Effect of hydro alcoholic extract of Pimpinella on pentilentetrazol-induced seizures in male mice

Submission Author: Saeed Nouri

Saeed Nouri¹, Najla Farhang², Hossein Pakdaman³

1. Brain Mapping Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Brain Mapping Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Brain Mapping Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Pimpinella is a well known medicinal plant that is suggested as anticonvulsant in traditional medicine. This study was done to evaluate the hydro alcoholic extract of Pimpinella on pentilentetrazol-induced seizures in male mice.

Methods : In this experimental study, 50 male mice randomly allocated into control and four experimental groups. Seizures in animals induced by 60 mg/kg/bw of pentilentetrazol (PTZ), interperitoneally. Animals in experimental groups were received 5, 10, 25 and 50 mg/kg/bw of hydro alcoholic extract of Pimpinella 30 min before each PTZ injection. The animals in control group were received saline, interperitoneally. After treatment, the behavior of animals and mortality rate were recorded.

Results : Seizure threshold of animals significantly increased in experimental groups which were received 25 and 50 mg/kg/bw of Pimpinella extract in comparison with controls ($P<0.05$). Mortality rate of animals significantly reduced in experimental group which were received 50 mg/kg/bw of Pimpinella extract in comparison with controls ($P<0.05$).

Conclusion : The hydro-alcoholic extract of Pimpinella increases seizure threshold in pentilentetrazol-induced seizures mice.

Keywords : Pimpinella, Pentylentetrazole, Seizure threshold, Mouse

Count: 319

Abstract ID: 749

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Oral

The effects of prenatal exposure to ethosuximide on the morphology of pyramidal neurons and neuronal density in the cerebral cortex of adult rats

Submission Author: Sahar Rezaei

Sahar Rezaei¹, Jafar Vatanparast², Parisa Yarmohamadi-Samani³

1. Department of Biology, College of Sciences, University of Shiraz, Shiraz, Iran
2. Department of Biology, College of Sciences, University of Shiraz, Shiraz, Iran
3. Department of Biology, College of Sciences, University of Shiraz, Shiraz, Iran

Background and Aim : Ethosuximide (ESX) is a first-line clinical symptomatic treatment for absence seizures that reduces seizure activity by blocking T-type calcium channels. Calcium plays critical roles in many cellular processes involved in brain development including neuronal apoptosis and growing and shaping of dendritic barbarizations. So, in this study the effects of prenatal exposure to ethosuximide on the morphology of pyramidal neurons and neuronal density in the somatosensory and motor cortices were assessed.

Methods : Timely pregnant Wistar rats were randomly allocated into the treatment, sham and control groups. Rats in treatment group were given a daily dose of 20 mg/kg of ethosuximide dissolved in saccharine solution from 15th day of pregnancy until post-natal day (PND) 7. Animals in sham group were given 0.5 g/kg of saccharine solution with the same scheme, and in control group received tap water through the same time period. On PND 60 male and female rats were sacrificed for histological procedures of Golgi-Cox and Cresyl Violet staining, respectively for investigating morphological characteristics and density of neurons.

Results : Female rats in the treatment group (ETX) showed a significant loss of neurons in M1 region. Male ETX rats showed the neuronal loss in M2 region. A significant neuronal loss was also observed in S1BF area of the somatosensory cortex in ETX females in comparison with control rats, while male ETX rats showed a lower neural density in this region compared to the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

sham group. Significant increase in Sholl intersections with root segments of neurons was observed in M1 region of male saccharine rats compared with sham counterparts.

Conclusion : Prenatal exposure to ethosuximide has potential impacts on the important structures involved in the well-being of cognitive and behavioral performance and more caution should be taken in treatment with ETX especially through pregnancy.

Keywords : Ethosuximide ,Cerebral Cortex, Rat, Neuronal Density, Golgi-Cox Staining, Neuronal Morphology

Count: 320

Abstract ID: 133

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Biochemical effect study of hydro-alcoholic extract of lavender plant on temporal lobe epilepsy model of induced with intracerebral kainic acid in male rat

Submission Author: Ladan Sedighnejad

Ladan Sedighnejad¹, Sedighnejad ladan², Rahmati batool³, Roghani mehrdad⁴, Azimi Shokoofe⁵

1. -
2. MSc student, medical faculty, physiology department, Shahed University, Tehran, Iran
3. Neurophysiology Research Center, Shahed University, Tehran, Iran
4. Neurophysiology Research Center, Shahed University, Tehran, Iran
5. MSc student, Shahed University, Tehran, Iran

Background and Aim : Temporal lobe epilepsy (TLE) is widespread drug-resistance focal epilepsy, and treatment options remain unsatisfactory. Kainic acid is analog of glutamate and agonist of AMPA, NMDA receptors. It also result in activates the glutamate ionotropic receptors similar to those occurring in human temporal lobe epilepsy. Antiepileptic effects of *Lavandula stoechas* have been reported in the pentylenetetrazol experimental model. There is no report about its effects on kainic acid induced status epilepticus (SE). This study evaluates the effects of *Lavandula stoechas* extract on kainic acid induced epilepsy in regard to oxidative stress role.

Methods : 75 male wistar rats were divided in to 5 groups: sham, sham extract(200mg/kg), kainic acid (1µg), extract treated kainic acid, extract pre and treated kainic acid. Treated, pre and treated groups received extract 1 h or 2 weeks before administration of kainic acid respectively and both of them continued for 4 weeks after administration. Injections were i.p with volume of 0.3 ml. Hippocampal oxidative stress markers were measured 24h, 2 and 4 weeks after kainic acid administration.

Results : Extract Pretreatment along with treatment, as the same as kainic acid group, nitrite, reduced glutathione levels and catalase activity enhanced time dependently. Nitrite elevation was more than kainic acid group. Treatment and pre-treatment combined with the treatment of the extract, not only prevented the increase of malondialdehyde (MDA) from Kainic acid at any time

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

of 24 hours, 2 and 4 weeks after the administration of the Kainic acid, but was able to reduce it even in the sham group Keep it low

Conclusion : It seems that extract pretreatment could prevent SE outcomes such as through inhibition of MDA overproduction, and activation of antioxidant neutralizing systems.

Keywords : Epilepsy, Lavandula stoechas, Kainic acid, Rat, Oxidative stress

Count: 321

Abstract ID: 324

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

The effect of Microwave Wi-Fi Radiation at frequency of 2.4 GH on Epileptic Behavior of Rats

Submission Author: Manzar Banoo Shojaeifard

Manzar Banoo Shojaeifard¹, Mahmoudi Atefeh², Nematollahi S.³

1. Department of Physiology, Fasa University of Medical Sciences ,Fasa .Iran Ionizing and Non-ionizing Radiation Protection Research Center (INIRPRC) Shiraz University of Medical Sciences, Shiraz. Iran
2. Ionizing and Non-ionizing Radiation Protection Research Center, Shiraz University of Medical Sciences, Shiraz, Iran
3. Biostatistics Department, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

Background and Aim : Electromagnetic fields (EMF) with different intensities are used in many social places. The world has become concerned about their potential biological side effects. Epilepsy is one of the most common chronic neurological diseases, affecting 50 million peoples of all ages worldwide. We aimed to investigate the microwave Wi-Fi radiation on epileptic behavior of rats.

Methods : 147 male rats, weighing 200-250 g, were divided into seven groups; negative control (no intervention), sham 1(distilled water), positive control (pentylentetrazol [PTZ]), intervention group1 (PTZ+ “off” Wi-Fi), sham2 (distilled water+ “off” Wi-Fi), sham3 (distilled water+“on” Wi-Fi), and intervention group2 (PTZ+ “off” Wi-Fi). The rats were exposed to WiFi for 2 h at a distance of 30 cm from the device. Convulsive behaviors of rats were observed and scored based on intensity and type by measuring latency/threshold time, number of convulsions, sum of scores and durations of seizure, and duration of score 6 seizure. Kruskal-Wallis and Mann-Whitney U tests were used to analyze the data.

Results : Convulsion was observed in intervention 1 and 2, and positive control. The mean number of events, and sum of scores were significantly different in intervention 2 than the other two groups, but the difference in mean threshold, mean sum of durations, and time to show convulsion with score 6 were not statistically significant($P>0.05$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : EMFs have significant beneficial effects on the epileptic behavior. Therefore, it can be suggested as a treatment of seizures in epilepsy; however, it needs more investigation

Keywords : Electromagnetic Radiation; Epilepsy; Rat

Count: 322

Abstract ID: 624

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Optimal selection of seizure occurrence period and seizure prediction horizon for real time epileptic seizure prediction using intracranial EEG

Submission Author: Hesam Shokouhalaei

Hesam Shokouhalaei¹, Mohammad Ali Khalilzadeh²

1. Research Center of Biomedical Engineering, Mashhad Branch, Islamic Azad University, Mashhad, Iran
2. Research Center of Biomedical Engineering, Mashhad Branch, Islamic Azad University, Mashhad, Iran

Background and Aim : The uncertainty in determining the exact time of seizure onset is expressed by the definition of the period that the seizure is expected to occur at that interval. This period is called the seizure occurrence period (SOP). In addition, for preventive methods such as the patient having the opportunity to exit a dangerous situation, the seizure prediction horizon (SPH) is defined.

Methods : In this paper, the mean phase coherence index was used as a reliable indicator for identifying the preictal period of 9-patients Freiburg dataset. In order to predict the seizures in real time, an adaptive neuro-fuzzy model was used to classify the extracted features. It should be noted that increasing the duration of the SPH can be more useful for the subject in preventing the irreparable consequences of the seizure, and have enough time to deal with the seizure. On other hand, decreasing the duration of the SOP can reduce the patient's stress in SOP interval. In this study, according to the two points mentioned that in most papers they were ignored, we determined the optimal SOP and SPH using the Mamdani fuzzy inference system for each patient.

Results : Results showed that for optimal SOP and SPH values for each patient, last seizure with 14 hours interictal period, was predicted online without false negative alarms, yielding mean 100% sensitivity and mean 0.13 FPR.

Conclusion : Clinically, this approach can be used for home care applications, which a patient warning system can be designed that predicts safe time zone and hazard time zone with acceptable accuracy.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Seizure prediction, Neuro-fuzzy model, phase synchronization, Online classification, Mamdani fuzzy inference system

Count: 323

Abstract ID: 152

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Early Detection of Epileptic Seizures Based on Analysis of the Energy of EEG Sub Bands

Submission Author: Parastoo Soleimani

Parastoo Soleimani¹, Hossein Hosseini-Nejad², Javad Mirnajafi-Zadeh³

1. Faculty of Electrical Engineering, K.N. Toosi University of Technology, Tehran, Iran
2. Assistant Professor, Faculty of Electrical Engineering, K. N. Toosi University of Technology
3. Professor, Department of Physiology, Faculty of Medical Sciences, Tarbiat Modares University

Background and Aim : In the past few decades, electrical stimulation of the brain has been introduced as an alternative therapy for patients who suffer from refractory epilepsy. In the closed-loop system, stimulation is delivered to patient at the beginning of seizures which results in more effective seizure control and fewer side effects compared to the open-loop system. In this system early with high accuracy detection of seizures has significant influence on the stimulation performance. In this work, we propose a real-time, energy efficient, and patient-specific early seizure detection algorithm.

Methods : For seizure detection, we concentrated on maintaining a high detection rate algorithm with low detection latency and false alarm with concerning of low power consumption and minimum area for future implementation. Regarding the fact that during epileptic seizures, neurological signals oscillate in specific frequencies for each patient, we chose energy of the four frequency bands of brain waves, namely Delta, Theta, Alpha, and Beta as the features of our algorithm. Neurological signals of the brain were recorded from different EEG channels. We introduced an algorithm which was able to select four of the most discriminative EEG channels. Extracted features of each channel were used as the inputs of an SVM classifier with Gaussian Kernel. The seizure detection unit sets an alarm signal only if most of the classifiers' outputs label the input signal as a seizure.

Results : The proposed detection method was evaluated on 20 patients from CHB-MIT dataset. We divided recorded EEG data from each patient to three parts: training data, data used to train the classifiers; validation data, used for channel selection; and testing data used to evaluate our

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

algorithm. We achieved the average of 95% seizure detection rate, 0.6 False alarm per hour, and 2.2 second detection delay from EEG seizure onset which is enough to suppress clinical symptoms by electrical stimulation.

Conclusion : In this work, we proposed seizure detection algorithm with high detection accuracy and low false alarm and detection delay. Classifier and features used in this approach are suitable for hardware implementation. Furthermore, we introduced a channel selection unit to reduce computation which results in less power consumption and hardware usage as well as achieving higher detection rate.

Keywords : Seizure Detection; Feature Extraction; Support Vector Machine; Epilepsy

Count: 324

Abstract ID: 397

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Seizure and Epileptic Disorders

Presentation Type: Poster

Evaluation the efficacy of sodium valproate during CA1 hippocampal kindling on anxiety like behavior in adult male rat.

Submission Author: Raha Zalkhani

Raha Zalkhani¹, Ahmadali moazedi², Zohreh Ghotbeddin³, Mahdi Pourmahdi Borujeni⁴

1. PhD student of physiology, Department of Biology, Faculty of science, Shahid Chamran University of Ahvaz, Ahvaz, Iran.
2. Professor of physiology, Department of Biology, Faculty of science, Shahid Chamran University of Ahvaz, Ahvaz, Iran.
3. Assistant professor of physiology, Department of Basic Sciences, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran.
4. Associate professor of epidemiology, Department of Food Hygiene, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran.

Background and Aim : Since emotional disorders such as anxiety and depression is prevalent in many epileptic patient, therapy methods such as anticonvulsive drugs which are used for treatment of epileptic patient can be decreased psychiatric disturbance in these patients. So, in this study we have studied the efficacy of sodium valproate on anxiety like behavior during CA1 hippocampal kindling as a model of epilepsy induction in adult male rat.

Methods : The present study was designed to investigate the behavioral effects of 5-day sodium valproate injection during CA1 hippocampal kindling. To this aim, 56 male rats were randomly divided to 8 groups: Control, sham operated, kindled, drug groups only operated and daily treated with valproate (100 mg/kg) or (200 mg/kg), saline and drug - kindled groups which have received saline or drugs daily 15 minute before kindling stimulations. Behavior anxiety was assessed by using elevated plus maze apparatus on the 6thday of receiving kindling stimulations.

Results : Result showed that hippocampal kindling caused increase open arms (OAs) entries percentage and OAs exploration percentage with increasing jumping from apparatus compare to control and sham ($P<0.001$). Valproate increased open arms(OAs) entries percentage and OAs

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

exploration percentage compare to control group and decreased jumping from apparatus compare to saline-kindled group.

Conclusion : Valproic acid as an antiepileptic drug decreased the anxiety induced by kindling stimulation.

Keywords : Valproate, Hippocampal kindling, Anxiety like behavior, Elevated plus maze, Rat.

Count: 325

Abstract ID: 561

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Other

Presentation Type: Oral

The Role of NF-kB and ROS production on Apoptogenic Impacts of Purslane on Glioblastoma Multiforme Cancer Cell Line

Submission Author: Vahid Reza Askary

Vahid Reza Askary¹, Vafa Baradaran Rahimi², Seyed Hadi Mousavi³

1. Student Research Committee, Department of pharmacology, Faculty of medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Student Research Committee, Department of pharmacology, Faculty of medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Pharmacology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : Cancer is one of the important causes of death all around the world; so attention to prevention and its medication has high importance. Glioma is the most common of primary brain tumor and the malignant form of it is the most lethal of adult brain tumor, that glioblastoma covers about 50% of glioma tumors. Regarding to advances in sciences of cancers and understanding to the glioblastoma pathophysiology, the glioblastoma cancer is considered as non-curable disease.

Methods : In the present study, we aimed to evaluate the anti-proliferative effects of hydro-ethanolic extract of *Portulaca oleacea* on human glioblastoma cancer cell line (U-87) and the role of NF-kB. Cytotoxicity of the extract was measured using MTT assay. Moreover, the reactive oxygen species (ROS) and the level of NF-kB protein were evaluated. All tested were performed after 24, 48 and 72 h.

Results : The extract had cytotoxicity effects on U-87 cells with concentration and time dependent manners. The mechanism of cytotoxicity of the extract at the first hours of incubation and low concentrations were dependent on ROS. Our results indicated that the extract acts as NF-kB inhibitor with concentration and time dependent manners.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Present study may suggest the anti-NF-kB activity of *Portulaca oleracea* along with upstream ROS. Furthermore, the extract as ethnobotanical may be used as adjunctive anti-cancer activity against glioblastoma multiforme.

Keywords : Glioblastoma multiforme; ROS; NF-kB; U-87 cell; *Portulaca oleracea*

Count: 326

Abstract ID: 560

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Other

Presentation Type: Poster

The Cytotoxicity influences of Hydro-ethanolic extract of *Portulaca oleracea* on Glial Cancer Cell Line (U-87): The Forgotten Role of NO

Submission Author: Vafa Baradaran Rahimi

Vafa Baradaran Rahimi¹, Vahid Reza Askari², Seyed Hadi Mousavi³

1. Student Research Committee, Department of Pharmacology, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Student Research Committee, Department of pharmacology, Faculty of medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Pharmacology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : Glioma, the tumors caused by glia cells, is the most common type of primary brain tumors, in particular malignant glioma considered as the deadliest type of adult brain tumors. More than 50 percent of all kinds of glioma are dedicated to Glioblastoma. The overall incidence of glioblastoma is 2-3 people in a hundred thousand that is more common in men over sixty years old. It also includes 20 percent of total intracranial tumors. Despite advances in understanding about glioblastoma pathophysiology and its therapy, it is yet too considered curable. Therefore, new therapeutic methods and new drugs are quite necessary.

Methods : In the present study, we aimed to evaluate the cytotoxicity and apoptogenic effects of hydro-ethanolic extract of *Portulaca oleracea* on human glioblastoma cancer cell line (U-87) and the role of NO. Cytotoxicity of the extract was measured using MTT assay, and the following hypotonic PI and SubG1 peak were done to have better insight to apoptosis. Moreover, the NO, Urea and NO/Urea ratio were evaluated. All tested were performed after 24, 48 and 72 h.

Results : The extract had cytotoxicity and apoptogenic effects on U-87 cells with concentration and time dependent manners. The mechanism of cytotoxicity and apoptosis induction of the extract with time lapse and higher concentrations was with NO, U and NO/U ratio pathway. PO significantly raised NO level and markedly reduced urea level compared to control group. In addition, NO/urea ratio was notably augmented by PO.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Present study may suggest the cytotoxicity and apoptogenic effects of *Portulaca oleracea* along with upstream NO mechanism. Furthermore, the extract as ethnobotanical may be used as adjunctive anti-cancer activity against glioblastoma multiforme.

Keywords : Glioblastoma multiforme; U-87 cell; *Portulaca oleracea*; nitric oxide

Count: 327

Abstract ID: 557

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Other

Presentation Type: Poster

The Effect of TQ on Level of FOXM1 mRNA in Glioblastoma multiform

Submission Author: Elaheh Faezi

Elaheh Faezi¹, Seyed Mohammad Moshtaghioun², Raheleh Masoudi^{2,3}, Mohammad Reza Sarafraz ardakani⁴, Laleh Ranjbaran⁵

1. Department of Biology, Faculty of Science, Yazd University
2. Department of Biology, Faculty of Science, Yazd University
3. Department of Biology, Faculty of Science, Shiraz University
4. Department of Biology, Faculty of Science, Yazd University
5. Department of Biology, Faculty of Science, Shiraz University

Background and Aim : Glioblastoma is the most common type of malignant brain tumor. Since the tumors contain different types of cells, the treatment of glioblastoma is difficult. Thymoquinone (TQ), the main active constituent of *Nigella sativa*'s seeds, is one of the drugs that exhibits anticancer characteristics. The aim of this study was to investigate the effect of thymoquinone on the levels of foxm1 mRNA in U87MG glioblastoma cell line.

Methods : U87MG cells were treated with or without thymoquinone (50 μ M). The effect of thymoquinone on the expression of foxm1 was analysed by semi-quantitative polymerase chain reaction (Semi-q-PCR). TBP was used as housekeeping gene.

Results : TQ (50 μ M) is able to significantly reduce the mRNA levels of foxm1 after 20 hrs treatment.

Conclusion : According our results, TQ can affect the expression of foxm1 gene that involved in tumorigenesis and cancer progression. Therefore, TQ can be suggested as an effective drug for glioblastoma treatment.

Keywords : Thymoquinone; glioblastoma; foxm1

Count: 328

Abstract ID: 16

subject: Epilepsy, Neural Excitability, Synapses, and Glia: Other

Presentation Type: Poster

Methamphetamine administration alters dendritic morphology of hippocampal pyramidal and granular neurons

Submission Author: Sanaz Hadizade asar

Sanaz Hadizade asar¹, Maryam Yadegari², Maryam Rezaie Yazdi³, Malihe Rezaie Yazdi⁴

1. Msc, Departement of Anatomy and Cell Biology, Shahid Sadoughi University of Medical Science and Health Service, Yazd, Iran
2. PhD, Departement of Anatomy and Cell Biology, Shahid Sadoughi University of Medical Science and Health Service, Yazd, Iran
3. Msc, Departement of Medical physics, Shiraz University of Medical Sciences and Health Service, Shiraz, Iran.
4. Msc, Departement of Medical physics, Shahid Sadoughi University of Medical Science and Health Service, Yazd, Iran

Background and Aim : Methamphetamine (METH) is a growing public health problem in the worldwide and is the second most abused illicit drug after cannabis. This substance use leads to deficits in hippocampal function, perhaps by changing the hippocampal structure. So, the aim of this study was to investigate the sub-chronic effects of METH on the dendritic morphology of pyramidal cells of Cornu Ammonis (CA) and granular cells of Dentate Gyrus (DG) of the hippocampus.

Methods : Fifteen adult male mice, eight weeks old, were randomly divided into three groups: group I (control) received normal saline, group II and III received METH (2.5 and 25 mg/kg respectively, via intraperitoneally for one month. The qualitative Golgi staining was done for analyzing the dendritic morphology of pyramidal cells in hippocampal CA1 and CA3 regions and granular cells in the DG region of the hippocampus.

Results : Our results showed that the pyramidal neurons of CA1 and CA3 and also DG granular neurons in treated mice had more dendritic arborization and greater dendritic length than control mice.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our findings indicate that sub-chronic METH injection induces morphological changes in the structure of the hippocampus in adult mice. A neuroanatomical basis may be related to the primarily reported impairment of learning and memory abilities in the METH user.

Keywords : Methamphetamine, Hippocampus, Mice

Count: 329

Abstract ID: 81

subject: Novel and Cutting-Edge Technologies: Brain Mapping (MRI, fMRI, PET, Brain Mapping, EEG, EMG, QEEG, FNIRS)

Presentation Type: Poster

Application of Electrical Bioimpedance Spectroscopy (EBIS) in Clinical Status Monitoring , Diagnostic and Prediction of Diseases

Submission Author: Maryam Ahmadi

Maryam Ahmadi¹, Dr. Maryam Ahmadi²

1. -
2. Physical Chemistry (Electrochemistry)

Background and Aim : Increasing demands for accurate, cost effective and non-invasive systems for clinical status monitoring and diagnosis of diseases in healthcare, has accelerated the research endeavors to provide new methods and technologies to evaluate the health condition of human body. Body composition assessment tools has been considered a promising approach for the quantitative measurement of tissues characteristic over time, in addition to direct relativity between fluctuations in body composition equivalences and survival rate, clinical condition, illness and quality of life.

Methods : Biological material, tissue, and cells have electrical properties (conductivity σ and permittivity ϵ) that allow electrical current to flow in the presence of an electric field. These electrical properties depend on the constitutive elements and structure of tissue; therefore, changes in structure or biochemical composition modify the electrical properties, σ and ϵ , of the tissue, and consequently the electrical impedance changes. Therefore, each tissue can be characterized by its particular electrical impedance spectrum, and measurements of electrical impedance can be used to differentiate between tissues or to assess the state of the tissue.

Results : Bioimpedance analysis is a growing method for body compartments estimation in nutrition studies, sport medicine and evaluation of hydration rate. Fat mass, fat free mass including skeletal muscle mass, bone minerals, and total body water, which is composed of intercellular fluid and extracellular fluid, are compartments that can be predicted and analyzed using suitable bioimpedance measurements techniques, procedures and population, age, ethnic groups or disease-dedicated bioimpedance analysis equations. Current clinical applications of Bioimpedance include

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

lung function monitoring, skin cancer detection, and assessment of nutritional status in hemodialysis patients.

Conclusion : The noninvasive and safety properties of EBIS makes it an ideal diagnostic and monitoring tool where other options like X-ray or MRI examinations are not available, for instance bedside and/or for continuous monitoring.

Keywords : Electrical Bioimpedance Spectroscopy; Body Composition; Clinical Status Monitoring; Diseases Diagnostic and Prediction.

Count: 330

Abstract ID: 413

subject: Novel and Cutting-Edge Technologies: Brain Mapping (MRI, fMRI, PET, Brain Mapping, EEG, EMG, QEEG, FNIRS)

Presentation Type: Poster

Temporal overestimating and underestimating prediction using EEG signals

Submission Author: Soheila Hajizadeh

Soheila Hajizadeh¹, Mohammad Ali Nazari², Sajad Badalkhani³

1. Ph.D. student of cognitive neuroscience, University of Tabriz, Tabriz, Iran
2. Associate professor of cognitive neuroscience, University of Tabriz, Tabriz, Iran
3. Ph.D. student of electrical engineering, University of Birjand, Birjand, Iran

Background and Aim : Time is one of the fundamental concepts of life and almost all human activities, depend on the correct perception of time. Our brain, takes the responsibility of estimating the time, by learning the temporal patterns and reproducing them in daily applications. Depending on the occasion, one may feel that time passes quickly or slowly. So time can be overestimated or underestimated. Different time perceptions can be associated with differences in the way we perceive a temporal pattern. Understanding how the time is interpreted by the brain and recognized its functional differences during the “overestimation” and “underestimation” of a temporal pattern is of great importance in cognitive science.

Methods : To answer this question, the present study, evaluates the functionality of different brain regions, using time-frequency processing of EEG signals. Data of 12 healthy people (10 women and 2 men) were stored in a test with a 19-channel brain recording device. The experiment consisted of two separate tasks. Both tasks were a combination of temporal patterns with auditory components and also had two separate parts. In the first part of the task, the participants learned the temporal patterns and reproduced them in the second part. Power spectral density of the EEG, was used as a quantitative feature in statistical analysis. Different regions of the brain, were compared together during overestimation and underestimation responses to the temporal pattern. In order to measure the reliability of the results, a SVM classifier is applied.

Results : Results indicate that some regions of the overestimating and underestimating cases, act similarly, while there are significant differences in some areas. The details of the statistical results,

Basic and Clinical 6th NEUROSCIENCE Congress 2017

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

are reported for every region and for each frequency band. The accuracy of the classification, reveals the significant differences of the brain functionality in over estimators and under estimators.

Conclusion : It can be concluded that the regions of the brain, which take part in the time perception process, act differently in over estimators and under estimators. So the brain functionality in both cases are different. This reveals the fact that, time is a concept that humanity learn as a pattern and thus, each individual brain, might percept it based on the physical functionality and semantic background of the brain.

Keywords : Electroencephalogram (EEG); Power spectral density (PSD); Support vector machine (SVM) classifier; Time perception

Count: 331

Abstract ID: 414

subject: Novel and Cutting-Edge Technologies: Brain Mapping (MRI, fMRI, PET, Brain Mapping, EEG, EMG, QEEG, FNIRS)

Presentation Type: Poster

Empirical mode decomposition analysis of EEG signals during a time perception task

Submission Author: Soheila Hajizadeh

Soheila Hajizadeh¹, Mohammad Ali Nazari², Sajad Badalkhani³

1. Ph.D. student of cognitive neuroscience, University of Tabriz, Tabriz, Iran
2. Associate professor of cognitive neuroscience, University of Tabriz, Tabriz, Iran
3. Ph.D. student of electrical engineering, University of Birjand, Birjand, Iran

Background and Aim : Time perception is a subjective experience of the passage of time. Understanding how the time is interpreted by the brain and recognizing its functional differences during the “learning” and “reproduction” of a temporal pattern is of great importance in cognitive science. Several studies have been performed in order to determine the effects of time perception tasks on the EEG signals but no researches are reported to distinguish the differences of brain functionality between learning and reproducing a temporal pattern. This study has been conducted to address the question by using the EEG signals.

Methods : The present study, evaluates the functionality of different brain regions, using empirical mode decomposition (EMD) of EEG signals. EMD can decompose any complicated signal into a group of intrinsic mode functions (IMFs) through a sifting process. Data of 12 healthy people (10 women and 2 men) were stored in a test with a 19-channel brain recording device. The experiment consisted of two separate tasks. Both tasks were a combination of temporal patterns with auditory components and also had two separate parts. In the first part of the task, the participants learned the temporal patterns and reproduced them in the second part. Using fast Fourier transforms (FFT), maximum amplitude (MaxFFT), maximum frequency (MaxFreq) and sample entropy (SampEn) for each extracted IMF and their combinations were used as quantitative features in statistical analysis. Different regions of the brain, were compared together during learning and reproducing of the temporal pattern.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Results indicate that some regions of the brain have a relatively similar function in both cases, while there are significant differences of the brain functionality in some areas during learning a temporal pattern and reproducing it. The details of the statistical results, are reported for every region and for each frequency band.

Conclusion : Results indicated that the regions of the brain, which take part in the two process, are not the same. Therefore the proposed methodology can be useful to classify the differences between learning and reproducing stages in the brain.

Keywords : Electroencephalogram (EEG); Empirical mode decomposition (EMD); Fast Fourier transform (FFT); Sample Entropy; Time perception

Count: 332

Abstract ID: 458

subject: Novel and Cutting-Edge Technologies: Brain Mapping (MRI, fMRI, PET, Brain Mapping, EEG, EMG, QEEG, FNIRS)

Presentation Type: Poster

Effect of functional connectivity measures on characteristics of EEG based brain networks in MDD patients

Submission Author: Fatemeh Hasanzadeh

Fatemeh Hasanzadeh¹, Maryam Mohebbi², Reza Rostami³

1. Biomedical Engineering K.N. Toosi University of Technology Tehran, Iran
2. Biomedical Engineering K.N. Toosi University of Technology Tehran, Iran
3. Psychology University of Tehran Tehran, Iran

Background and Aim : Modelling human brain as a network to study brain functions and disorders attracts many researchers. From the brain network theory point of view, brain functions are result of connection of different brain regions and changes in topology of these brain networks is closely relevant to cognitive status and brain disorders. One of the prevalent brain disorder which is the leading cause of disability in the world is depression. Recent evidence demonstrates that depression is because of dysfunction in communication in brain networks. In order to study changes of brain networks in depressed individuals compared to normal ones, functional brain networks based on resting state EEG have been studied. Graph theory measures are applied to study topological characteristics of these brain networks. Information distribution in brain networks that can be local or global is one of the meaningful characteristics of these networks. Functional segregation and integration can be used to describe this local and global information in the brain respectively. They are quantified by two basic network metrics: average clustering coefficient (ACC) and characteristic path length (CPL). In previous studies, different functional connectivity measures have been proposed to investigate brain networks and connectivity. In this study, we aim to find network that its topological characteristics make more distinction between normal and depressed group. To this end, three functional connectivity measures including correlation, phase lag Index (PLI) and Imaginary part of coherence (ImC) have been used to construct functional brain networks of two groups.

Methods : EEG data was recorded from 16 right handed depressed and 16 healthy participants. Depressed patients met DSM-IV for major depressive disorder diagnosis and had BDI-II score ≥ 17 .

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

5 minutes EEG data was recorded with 19 electrodes. EEG artifacts including eye blinks, muscle movements are removed by applying FIR filter (1-42Hz), Independent component analysis and visually inspection. EEG data was partitioned by epochs with 4096 samples length. Each epoch was filtered to extract frequency bands including delta, theta, alpha and beta. The connectivity between each pair of EEG channels was calculated using correlation for each epoch in each frequency band and in total range of frequency. By averaging over epochs, mean correlation was obtained. The mentioned procedure has been done for PLI and Imaginary part of coherence as well. The EEG electrodes were considered as nodes of network and the connectivity value of each pair of them as the edges of the network

Results : Networks based on ImC of normal group have significantly higher ACC and CPL than depressed group in alpha frequency band. Moreover, Networks based on PLI show higher CPL for normal group in alpha band. There were no significant differences in CPL of two groups in brain network based on correlation coefficient

Conclusion : Applying graph theoretical analysis illustrated that network based on phase synchronization measures including ImC in comparison with correlation coefficient are more suitable candidate for study brain networks of depressed and normal individuals.

Keywords : Correlation Coefficient; Depression; EEG; Functional brain network; Imaginary part of coherence; Phase lag index

Count: 333

Abstract ID: 193

subject: Novel and Cutting-Edge Technologies: Brain Mapping (MRI, fMRI, PET, Brain Mapping, EEG, EMG, QEEG, FNIRS)

Presentation Type: Poster

Signal to Noise Ratio (SNR) Study in Neural Monitoring Image Sensors

Submission Author: Mohammad azim Karami

Mohammad azim Karami¹, Taha Haddadi-Fam²

1. Iran University of Science and Technology
2. Iran University of Science and Technology

Background and Aim : Image sensors are used in different separate forms of Charge Coupled Devices (CCDs), and Complementary Metal Oxide Semiconductors (CMOS) cameras for biomedical applications especially for the recent neural monitoring applications. Basically, the optical sensors can be used by three functions of transdermal, fiber-optics sensors, and semiconductor devices to be used for the inside body neural monitoring applications. Moreover, Photomultiplier Tubes (PMTs), and Silicon Photomultipliers (SiPMs) are professional detector arrays which are used by the means of Diffused Optical Imaging (DOI), in neuronal activity monitoring. The mentioned optical detectors are placed outside of the body for neural monitoring. The introduction of semiconductor devices for neural monitoring can benefit from the digital electronics advances. It is possible to integrate the optical imager with complex processing units in order to perform complex computations and signal processing.

Methods : The image sensor itself is fabricated in semiconductor technologies to be integrated with special designed optics. It is shown in the previous works that all of the abovementioned devices are used for the brain imaging applications. Although CMOS image sensors can also be implanted inside the animal body for the neural monitoring, PMTs and SiPMs are introduced outside of the animal body due to the high voltages and high power consumption. PMTs and SiPMs are very sensitive image sensors which can detect light even in single-photon amplitudes. The image sensors can be categorized by the means of dark noise, Signal to Noise ratio (SNR), dynamic range, power consumption, frame per second speed, crosstalk, quantum efficiency and the jitter performance. While all of the mentioned characteristics should be optimized for specified applications, some of them does not change the main performance of imager in neural monitoring applications.

Results : In this paper the need for the high amount of SNR is being demonstrated with the literature survey. High SNR is due to the low level of light which is present in the mentioned application high amount of photon shot noise and high dark currents present in the implantable image sensors. Moreover the main details of image sensor technology which affect the final SNR performance is being reviewed. It is shown that above 60dB SNR is needed to perform the neural monitoring appropriately.

Conclusion : The effect of photon shot noise, dark noise, pixel non-uniformities, and the process variation on the total SNR of the pixel is studied. In addition the effect of optical setups and lenses on shaping the SNR with integration with the electronics parts in being investigated. The paper gives a table which shows different parameters which affect the total SNR performance of the imaging system. The outcome of this research is used for the image sensor design and usage in the neural monitoring applications. Furthermore the SNR threshold for the image sensor is used for the deep-submicron image sensor design which is recently being used in biomedical applications, especially in implantable image sensors.

Keywords : image sensors, neural monitoring, CMOS, PMT

Count: 334

Abstract ID: 501

subject: Novel and Cutting-Edge Technologies: Brain Mapping (MRI, fMRI, PET, Brain Mapping, EEG, EMG, QEEG, FNIRS)

Presentation Type: Oral

Evaluation of Olfactory Activation patterns in anosmic patients with peripheral and central injuries as compared to healthy subjects with fMRI

Submission Author: Mohsen Kohanpour

Mohsen Kohanpour¹, Amir Hossein Batouli², Mohammad Ali Oghabian³

1. Neuroimaging and Analysis Group (NIAG)Research Center for Molecular and Cellular Imaging, Imam Khomeini Hospital, Tehran University of Medical Sciences
2. Neuroimaging and Analysis Group (NIAG)Research Center for Molecular and Cellular Imaging, Imam Khomeini Hospital, Tehran University of Medical Sciences
3. Professor Medical Center for Molecular and Cellular Imaging, Imam Khomeini Hospital, Tehran University of Medical Sciences

Background and Aim : Functional study of brain using fMRI as a method for evaluating important regions of brain and determining the exact locations of activities and their response to the different disorders is not only helpful in medical diagnosis of neurological diseases but also is substantial in studying the functions of different brain areas. Olfaction is a crucial sense in humans and fMRI has opened a new horizon in studying brain regions which play a role in olfactions. The effect of head trauma as well as peripheral damage to olfactory nerve and sense of smell is not well understood yet The aim of this study is twofold: Examining these effects and also trying to find the functional olfactory brain region in normal unaffected volunteers.

Methods : This is a clinical study on unaffected volunteers as well as patients who have a damaged olfaction after a head trauma. First, we performed fMRI on 20 healthy volunteers after olfactory stimulus using an Olfactometer device. At this stage we determined the active olfactory areas of normal brains. Then we performed fMRI on 60 head trauma patients. Of total 60 patients, 28 had confirmed anosmia using standard diagnosis tests. In pre-analysis step, noises and artifacts were removed and then signal to noise ratio was increased. Raw images were analyzed with GLM Analysis in FSL Software and functionality of each voxel was determined. Finally in individual-level analysis, we did statistical hypothesis testing and multiple comparisons error correction to

identify active brain regions during olfaction. In group-level analysis, the mean activity of voxels was calculated using linear regression analysis and linear mixed effects model to find core olfactory regions of the brain. In last stage, the images and located regions were compared to functional and anatomic atlas provided by other researchers and we also compared brain activity patterns in normal subjects to patients with Anosmia due to head trauma to recognize possible differences.

Results : Comparing the brain activity level in two groups revealed meaningful differences. The following images show regions controlling olfactory cognition in normal subjects which include piriform cortex, entorhinal cortex and amygdalae. There were also several secondary regions that olfactory projections seem to enter them over time. These secondary regions include orbitofrontal cortex, hypothalamus, thalamus, hippocampus and insular cortex. In patient's group, no activity noted on above-mentioned olfactory controlling regions of brain.

Conclusion : After comparing and studying functional images in patients with anosmia after head injury and healthy volunteers, it seems that brain activity patterns are significantly different in these two groups. This study shows brain's function in sensing smells is also different in patients with anosmia after head injury and healthy subjects. We also found that primary and secondary olfactory controlling regions are easily recognizable in normal healthy subjects.

Keywords : Olfactory system, Anosmic, fMRI, Boold Imaging,

Count: 335

Abstract ID: 386

subject: Novel and Cutting-Edge Technologies: Brain Mapping (MRI, fMRI, PET, Brain Mapping, EEG, EMG, QEEG, FNIRS)

Presentation Type: Oral

Differentiation of Oedematous, Tumoral and Normal Areas of Brain White Matter Using Diffusion Tensor and Neurite Orientation Dispersion and Density Imaging

Submission Author: Sadegh Masjoodi

Sadegh Masjoodi¹, Mohammad Ali Oghabian², Hasan Hashemi³

1. Department of Medical Physics and Biomedical Engineering, School of Medicine, Tehran University of Medical Sciences (TUMS), Tehran, Iran
2. Department of Medical Physics and Biomedical Engineering, School of Medicine, Tehran University of Medical Sciences (TUMS), Tehran, Iran
3. Advanced Diagnostic and Interventional Radiology Research Center (ADIR), Tehran University of Medical Sciences (TUMS), Tehran, Iran

Background and Aim : Since the introduction of diffusion tensor magnetic resonance imaging (DT-MRI)—a unique noninvasive tool capable to visualize brain white matter bundles—now 22 years ago, several clinical and research applications have been developed. DTI is the oldest and most common mathematical tool for modeling of Diffusion Weighted Magnetic Resonance Signals acquired from brain white matter. NODDI (neurite orientation dispersion and density imaging) is a more advanced diffusion imaging technique recently introduced that provides additional information about microstructural geometry of tissue, including intracellular volume fraction (ICVF) and orientation dispersion index (ODI). One of the major clinical usages of diffusion MRI is presurgical planning for patients with brain tumors. The goals of presurgical planning are guiding of the surgical procedure selection and assessing the risk of neurological deficits.

Methods : 12 patients with brain glioma underwent 3T scanner for diffusion imaging with b-values of 1000 and 2000 mm^{-2} in 30 and 64 gradient directions uniformly distributed on the unit sphere, respectively. Three different regions of interests (ROIs) were drawn within tumoral area, edematous and normal areas of specific areas of white matter. Two different models, DTI and NODDI models were fitted on the data. The extracted parameters from these two techniques were used to characterize and differentiate edematous, tumoral and normal zones of the brain.

Results : DTI parameters; fractional anisotropy (FA), mean diffusivity (MD), axial diffusivity (AD) and radial diffusivity (RD) differentiated edematous from contralateral normal brain white matter with $p= 0.005$, $p=0.007$, $p=0.001$, and $p=0.001$, respectively. Among four parameters of DTI model only FA can distinguish between edematous WM fibers and tumor invaded fibers ($p = 0.001$). Among NODDI parameters, intracellular volume fraction (f_{icvf}) had the best distinguishing power with ($p = 0.001$) compared to isotropic volume fraction (f_{iso}), orientation dispersion index (odi), and concentration parameter of Watson distribution (?), when comparing fibers inside normal, tumoral, and edematous areas.

Conclusion : The combination of two diffusion based methods, i.e. DTI and NODDI parameters can distinguish and characterize WM fibers involved in edematus, tumoral, and normal brain areas with a reasonable confidence. Further studies are required to improve the detectability of WM fibers inside the solid tumor if they hypothetically exist in tumoral parenchyma

Keywords : Diffusion MRI, Diffusion Tensor Imaging, Edema, Tumors, Brain, White Matter

Count: 336

Abstract ID: 82

subject: Novel and Cutting-Edge Technologies: Brain Stimulation Methods (ECT, rTMS, TDCS, DBS)

Presentation Type: Poster

Electrical Bioimpedance Spectroscopy (EBIS) for Assessment of Hemorrhage/Ischemic Stroke

Submission Author: Maryam Ahmadi

Maryam Ahmadi¹, Dr. Maryam Ahmadi²

1. -
2. Physical Chemistry (Electrochemistry)

Background and Aim : Electrical bioimpedance Spectroscopy (EBIS) is defined as the opposition of biological tissue to the flow of electric current. The passive electrical properties of biological tissue have been investigated for almost a century and electrical bioimpedance studies in neurology have been performed for more than 50 years. Electrical bioimpedance (EBIS) is a well-known, portable, affordable and non-invasive technology.

Methods : Since the 1950s and 1960s, EBIS studies of the brain have been used to study different pathologies, including spreading depression, seizure activity, asphyxia and the effects of cardiac arrest. Since Holder foresaw the development of electrical bioimpedance-based neurological applications in 1988, several bioimpedance research and clinical studies have been performed in the areas of brain ischemia, spreading depression, epilepsy, brain function monitoring, perinatal asphyxia, cerebral blood flow monitoring and stroke.

Results : Disturbance in the blood supply to the brain causes a stroke or cerebrovascular accident. This can be due to ischemia caused by blockage (thrombosis, arterial embolism) or a hemorrhage. EBIS is potential diagnostic and monitoring tool for occult traumatic injury. The devastating effects of most cases of brain damage could be avoided if it were detected and medical treatment initiated in time. Thus there is a need of a tool for non-invasively detecting and monitoring it.

Conclusion : In this work we aim to use EBIS to study changes in electrical properties of the cerebral tissues after an incident of hemorrhage/ischemic stroke. This method of imaging requires

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

hardware design as well as algorithms for reconstruction of complex images. In this study, the feasibility of electrical bioimpedance technique for monitoring such damage is investigated.

Keywords : Electrical Bioimpedance Spectroscopy; Hemorrhage; Ischemia; Stroke; Brain Monitoring, Impedance Measurements; Biomedical Instrumentation; Non-invasive Monitoring.

Count: 337

Abstract ID: 225

subject: Novel and Cutting-Edge Technologies: Brain Stimulation Methods (ECT, rTMS, TDCS, DBS)

Presentation Type: Oral

EFFECTS OF ANODAL TRANSCRANIAL DIRECT CURRENT STIMULATION ON THE ACQUISITION OF MORPHINE-INDUCED CONDITIONED PLACE PREFERENCE

Submission Author: Seyyed Saeid Anvari

Seyyed Saeid Anvari¹, Mohammad-Reza Zarrindast², Mohammad Nasehi³

1. Institute for Cognitive Science Studies (ICSS), Tehran, Iran
2. 1.Institute for Cognitive Science Studies (ICSS), Tehran, Iran 2.Cognitive and Neuroscience Research Center (CNRC), Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran
3. 1.Institute for Cognitive Science Studies (ICSS), Tehran, Iran 2.Cognitive and Neuroscience Research Center (CNRC), Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran

Background and Aim : Rewards or punishment of an experience or stimulus has an important role in animal behavior. If the stimulus (such as drug) causes reward, it can be imposes a strong remembrance in memory and creates exploratory behavior in order to regain it. This behavior is a sign of psychological dependence to a substance that stimulates the reward centers of the brain especially mesolimbic dopamine system. One of the most appropriate animal models for the evaluation of reward induces by medications and therefore psychological dependence on the drugs are conditioned place preference (CPP). Transcranial Direct Current Stimulation (tDCS) is a neuromodulator technique by which the cerebral cortex is stimulated with a weak and constant electrical current on the basis of painless and non-invasive method. Mechanism of tDCS effect is not well understood, but preliminary studies using direct current applied on cerebral cortex in animals showed that the anodal stimulation causes depolarization of the membrane resting potential and increasing of cortical neurons firing rate in the context of lower electrode. The tDCS is currently being promoted as a cheap and effective tool to enhance cognitive and behavioral function. The aim of this study was to determinate of the effect of Anodal left prefrontal tDCS on the acquisition of morphine-induced conditioned place preference (CPP) in male Wistar rat.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Methods : In this study, we investigated effect of tDCS on the acquisition session of morphine (1.25, 2.5, 5 mg/kg)-induced CPP; as we applied Anodal left prefrontal stimulation with 0.2 mA intensity and 20 minutes duration in three session pre-condition of CPP.

Results : Our results revealed that the pre-condition anodal left prefrontal tDCS increases CPP induced by ineffective dose of morphine (1.25 mg/kg) while it decreases CPP induced by first effective dose of morphine (2.5 mg/kg) without significant change in locomotor activity.

Conclusion : This study was shown application of anodal tDCS over the left prefrontal in pre-condition of CPP can alter memory encoding induced by morphine dose dependently.

Keywords : tDCS (transcranial Direct Current Stimulation); Anodal; prefrontal; CPP (Conditioned Place Preference); acquisition.

Count: 338

Abstract ID: 487

subject: Novel and Cutting-Edge Technologies: Brain Stimulation Methods (ECT, rTMS, TDCS, DBS)

Presentation Type: Poster

A Review on Differences Found between Conventional and High-Definition tDCS

Submission Author: Golnaz Baghdadi

Golnaz Baghdadi¹, Farzad Towhidkhan²

1. Biomedical Engineering Department, Amirkabir University of Technology
2. Biomedical Engineering Department, Amirkabir University of Technology

Background and Aim : Transcranial direct current stimulation (tDCS) is one of therapeutic methods that has been recently taken into consideration by researchers. In this method, the cerebral cortex is stimulated using a very low electrical current (about 1 to 2 mA). Considering the number of electrodes, tDCS devices can be categorized into conventional tDCS (C-tDCS) and high-definition tDCS (HD-tDCS). Several differences have been found between C-tDCS and HD-tDCS from various aspects such as manufacturing procedure, experiment design protocols, application, and effective results. The aim of this paper is to provide a brief review on these differences.

Methods : In C-tDCS, two sponge-based electrodes are placed in two regions of brain or body. One electrode that is called anode sends electrical current into the brain and the other one that is named cathode or return electrode receives the current. It has been believed that neurons under the anode and cathode electrodes are respectively excited and inhibited. In C-tDCS, size of electrodes are usually about 25 or 35 cm². Brain imaging studies and computational head modeling have shown that C-tDCS cannot be used to stimulate one region of the brain focally. The electrical current approximately sweeps the area between the two electrodes. HD-tDCS has been developed to increase the current focality. In HD-tDCS, several (more than two) small gel-based electrodes (about 1 cm²) are placed on the scalp. Usually one electrode is considered as anode and others as return electrodes or vice-versa. Increasing numbers of electrodes and decreasing size of electrodes can enhance the focality of the stimulation.

Results : Despite the advantage of increasing the focus of the current flow and the ability to target a specific area of the brain, designing, manufacturing, and using the HD-tDCS have some

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

considerable challenges. Controlling the constant current, impedance level and synchronization of multi-channels (more than two) is harder than two channels. Finding the appropriate place, fixation of several small gel-based electrodes, and keeping their contact with the head skin is a time consuming procedure in comparison with C-tDCS electrodes. Hence, the usage of HD-tDCS is less welcomed in clinical centers for therapeutic goals. However, the higher tolerability of subjects, more focused stimulation of region of interest, lower and safer intensity of stimulation current, and long lasting intervention effect of HD-tDCS have been reported in comparison with C-tDCS.

Conclusion : To study the role of a specific part of the cerebral cortex or to target one region of interest for therapeutic goals, using HD-tDCS is suggested to have focal brain stimulation. However, several consideration such as finding the appropriate place of each electrodes, checking the impedance of all electrodes, and keeping the total current of all channels bellow the 2 mA should be taken into account. Despite the problems of using the HD-tDCS and the higher cost of its devices, due to its benefits as well as the reported long-lasting effects, the arrival of HD-tDCS in healthcare and therapeutic centers is highly expected.

Keywords : Conventional tDCS; HD-tDCS; Brain stimulation; Focal stimulation

Count: 339

Abstract ID: 219

subject: Novel and Cutting-Edge Technologies: Brain Stimulation Methods (ECT, rTMS, TDCS, DBS)

Presentation Type: Poster

The Effect of Transcranial Direct Current Stimulation on Postural Control in Healthy Young and Older Adults: A systematic-Review

Submission Author: Hamzeh Baharlouei

Hamzeh Baharlouei¹, Mohammad Jafar Shaterzadeh Yazdi², Maryam S. Saba³, Shapour Jaberzadeh⁴

1. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Musculoskeletal Rehabilitation Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3. Musculoskeletal Rehabilitation Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
4. Monash University, Frankston, Australia

Background and Aim : Postural control and balance plays a major role in standing, walking and other daily activities. Transcranial direct current stimulation (tDCS) is a non-invasive technique that can change corticospinal excitability to improve postural control. The effects of tDCS on postural control have been investigated in healthy young and older adults. The aim of this systematic review was to systematically analyze studies which investigate the effects of tDCS on balance in health young and older adults.

Methods : 9 electronic databases were searched papers reporting the effect of tDCS on postural control. The methodological quality of selected studies was examined using the PEDro scale.

Results : The mean score of 7.27 for 12 included studies indicates total good quality. The method of studies was different in stimulation and outcomes. However it seems that stimulation of dorsolateral prefrontal cortex could increase the dual task balance ability rather than the single task. There is controversy about the effect of stimulation of cerebellum and motor cortex and there is limited evidence on effect of other areas stimulation on postural control. Two studies showed no effect of tDCS on static and one study reported that tDCS could not improve dynamic. In Contrast, five studies claimed that tDCS could improve static balance and four studies report some

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

positive effects of tDCS on postural control. It seems that age is not an important factor in predicting effect of tDCS on postural control. The side effects were not reported in five studies and other studies claimed that tDCS had not any side effect.

Conclusion : There is some evidence indicating tDCS is a safe technique which could improve the postural control in healthy young and older adults. However, because of the heterogeneity of methods there are questions on the treatment protocols and any conclusion on this area should be considered cautiously.

Keywords : Transcranial direct current stimulation, postural control, older adults

Count: 340

Abstract ID: 48

subject: Novel and Cutting-Edge Technologies: Brain Stimulation Methods (ECT, rTMS, TDCS, DBS)

Presentation Type: Poster

Transcranial direct current stimulation effects on Parkinson Disease's Symptoms: An original Meta-Review

Submission Author: Farzane Dehghani

Farzane Dehghani¹, Mojtaba Zarei²

1. Psychiatry Department, Shahid Sadoghi University of Medical Sciences, Yazd, Iran.
2. 2 Institute of Medical Sciences and Technology, Shahid Beheshti University, Tehran, Iran

Background and Aim : Parkinson Disease (PD) does not have an absolute cure with the available treatment approaches. Non-motor symptoms of PD have been considered as overbearing part of PD. Recently, growing attention has been put on the transcranial direct current stimulation (tDCS) as a novel neuromodulative method in the treatment of PD for both motor and non-motor symptoms. Yet, it is not clear how much benefit we can obtain from tDCS in patients with PD for non-motor symptoms. Review articles available in this area are reporting different result regarding benefits of tDCS in PD. Therefore, we aimed to clarify the conclusion and limitation existed within each review papers with tDCS application on non-motor symptoms of PD.

Methods : We performed our search using MEDLINE, EMBASE and PsycINFO databases in August 8, 2017. Our inclusion criteria were systematic review/meta-analysis papers evaluated non-motor symptoms in PD patients, who underwent tDCS. The quality of each study appraised focusing on methodological aspects of studies

Results : According to our search keywords 90 records were identified and 24 full text articles reviewed. Eight systematic review fulfilled the inclusion criteria and methodological quality. There were merely meta-analysis performed regarding our title. Available systematic review papers appears to have a low rate in methodology and combining results as the majority of review papers in this field rated low quality studies.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Establishing a guideline “how” to apply tDCS in PD patients with non-motor signs and “what” to measure in these patients could be likely helpful before starting any individual study and concluding for homogenous studies

Keywords : Parkinson disease, transcranial direct current stimulation, Non-invasive brain stimulation

Count: 341

Abstract ID: 76

subject: Novel and Cutting-Edge Technologies: Brain Stimulation Methods (ECT, rTMS, TDCS, DBS)

Presentation Type: Oral

The effect of a single session of rTMS on working memory and response inhibition in healthy adults: A randomized clinical trial

Submission Author: Fahimeh Sadat Hosseini Baharanchi

Fahimeh Sadat Hosseini Baharanchi¹, Fahimeh Sadat Hosseini-Baharanchi², Reza Rostami³, Hadi Bahrami Ehsan⁴, Fatemeh Sadat Hossieni-Baharanchi⁵

1. -
2. Master student of clinical Psychology, Department of Clinical Psychology, Faculty of Psychology, University of Tehran
3. Psychiatrist, Associate Professor, Department of Clinical Psychology, Faculty of Psychology, University of Tehran
4. Professor of Psychology, Department of Clinical Psychology, Faculty of Psychology, University of Tehran
5. Assistant professor, PhD, Department of Biostatistics, School of Public Health, Iran University of Sciences

Background and Aim : Executive functions play a critical role in cognitive performance of which working memory (WM) and response inhibition are defined as essential parts. Although many studies showed that repetitive transcranial magnetic stimulation (rTMS) on dorsolateral prefrontal cortex (DLPFC) improves WM and response inhibition in patients with psychiatric disorders, results were inconclusive in healthy subjects. This study aimed to investigate the effect of HF-rTMS on WM & response inhibition in healthy adults.

Methods : This randomized sham-controlled trial included thirty healthy right-handed subjects underwent a single session of 10 Hz rTMS on the left dorsolateral prefrontal cortex (DLPFC). Reaction time (RT) and correct responses rate (accuracy) are recorded while completing the n-back (0, 1, 2,3-back) and color-stroop tasks, before and after stimulation. The data was analyzed using analysis of covariance (ANCOVA) in order to compare the outcome between two groups controlling for the baseline measurements.

Results : The mean±SD age of the subjects was 27.2 years and 25 (83%) were female. Results showed that rTMS significantly improved RT for congruent trials in color-stroop task in the active

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

group compared to the sham. Also rTMS could positively, but not significantly, influenced subjects' RT drop while increasing task difficulty.

Conclusion : Based on the finding of this study, a single session of HF-rTMS can improve response inhibition while had no significant effect on working memory in healthy adult.

Keywords : Executive function; working memory; response inhibition; rTMS

Count: 342

Abstract ID: 456

subject: Novel and Cutting-Edge Technologies: Brain Stimulation Methods (ECT, rTMS, TDCS, DBS)

Presentation Type: Poster

Effectiveness of Transcranial Direct Current Stimulation (tDCS) on reading levels in Students with Dyslexia

Submission Author: Shokoofeh Rooholamini

Shokoofeh Rooholamini¹, Ladan Vaghef², Mehran Solymani³

1. Master of Psychology and Education of Exceptional Children, Azerbaijan Shahid Madani University
2. PhD Cognitive Neuroscience, Assistant Professor, Azerbaijan Shahid Madani University
3. PhD in Psychology, Assistant Professor, Azerbaijan Shahid Madani University

Background and Aim : The disorder and impairment in low reading levels is common symptoms of dyslexia. The purpose of this research is investigation of the transcranial direct current stimulation tDCS, effect on reading levels of students with dyslexia.

Methods : In this semi-experimental study, the statistical population has been all students of elementary school who had dyslexia in Sirjan city in school year of 95-96 that Out of this number, 20 subjects, including 6 boys and 14 girls in the first and second grades, were selected through the sampling method. All subjects were tested in two groups of 10 experimental and sham groups, for 10 sessions and each session for 20 minutes. In the test, the anode electrode on the DLPFC region and the cathode electrode placed on the opposite side shoulder In order to investigate the effect of electrical stimulation, the experimental group exposed to stimulation, but the sham group did not. all subjects evaluated before intervention and after intervention by Dyslexia tests.

Results : The results of acquisitive data analysis by using of single -variable covariance showed that tDCS causes improving of reading levels of students with dyslexia.

Conclusion : The acquisitive findings indicates that the protocol for of tDCS applying causes the network cortical excitability increase of brain regions that play an important role in reading levels. It also has potential abilities for improving the effectiveness of rehabilitation in children with dyslexia.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : tDCS, reading levels, dyslexia

Count: 343

Abstract ID: 433

subject: Novel and Cutting-Edge Technologies: Brain Stimulation Methods (ECT, rTMS, TDCS, DBS)

Presentation Type: Poster

Effectiveness of Transcranial Direct Current Stimulation (tDCS) on selective attention in Students with Dyslexia

Submission Author: Shokoofeh Rooholamini

Shokoofeh Rooholamini¹, ladan vaghef², mehran solymani³

1. Master of Psychology and Education of Exceptional Children, Azerbaijan Shahid Madani University
2. PhD Cognitive Neuroscience, Assistant Professor, Azerbaijan Shahid Madani University,
3. PhD in Psychology, Assistant Professor, Azerbaijan Shahid Madani University

Background and Aim : The disorder and impairment in executive functions such as selective attention is common symptoms of dyslexia. The purpose of this research is investigation of the transcranial direct current stimulation tDCS, effect on selective attention of students with dyslexia.

Methods : In this semi-experimental study, the statistical population has been all students of elementary school who had dyslexia in Sirjan city in school year of 95-96 that Out of this number, 20 subjects, including 6 boys and 14 girls in the first and second grades, were selected through the sampling method. All subjects were tested in two groups of 10 experimental and sham groups, for 10 sessions and each session for 20 minutes. In the test, the anode electrode on the DLPFC region and the cathode electrode placed on the opposite side shoulder In order to investigate the effect of electrical stimulation, the experimental group exposed to stimulation, but the sham group did not. all subjects evaluated before intervention and after intervention by Stroop tests.

Results : The results of acquisitive data analysis by using of multi-variable covariance showed that tDCS causes improving of selective attention of students with dyslexia.

Conclusion : The acquisitive findings indicates that the protocol for of tDCS applying causes the network cortical excitability increase of brain regions that play an important role in selective attention. It also has potential abilities for improving the effectiveness of rehabilitation in children with dyslexia.g

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : tDCS,selective attention,dyslexia

Count: 344

Abstract ID: 213

subject: Novel and Cutting-Edge Technologies: Brain Stimulation Methods (ECT, rTMS, TDCS, DBS)

Presentation Type: Oral

An overview of simultaneous TMS-EEG

Submission Author: Reza Rostami

Reza Rostami¹

1. Department of psychology, Faculty of Psychology and Education, University of Tehran, Tehran, Iran

Background and Aim : Simultaneous transcranial magnetic stimulation (TMS) and electroencephalography (EEG) recording is a new method for studying the different characteristics of the brain. TMS-EEG can help scientists study the excitability, connectivity and plasticity of various cortical regions by assessing the TMS-evoked potentials (TEPs). This process, however, is challenging due to the high amount of artifacts induced by the magnetic field. Recording the electrophysiological properties of the brain in milliseconds following the magnetic stimulation requires artifact-resistant EEG system. In the recent years, there has been a significant improvement in developing new hardware (e.g. EEG amplifier and electrodes) and algorithms to reduce the TMS-induced artifacts efficiently. Here we review the basics of TMS-EEG.

Methods : nothing

Results : nothing

Conclusion : nothing

Keywords : TMS-EEG, Transcranial magnetic stimulation, Brain mapping

Count: 345

Abstract ID: 236

subject: Novel and Cutting-Edge Technologies: Brain Stimulation Methods (ECT, rTMS, TDCS, DBS)

Presentation Type: Oral

Effects of a single session transcranial direct current stimulation(tDCS) on food craving In Obesity

Submission Author: Amir Hossein Samani

Amir Hossein Samani¹, Reza Rostami², Javad Hatami³

1. University of Tehran
2. University of Tehran
3. University of Tehran

Background and Aim : Food craving can be defined as the “urge to eat a specific food.” Previous findings suggest impairment of inhibitory control, specifically a regulatory deficit in the lateral prefrontal circuitry that is associated with a compulsion for food. This study examined whether a 20-minute session of prefrontal transcranial direct current stimulation (tDCS) with anode over the right dorsolateral prefrontal cortex and cathode over the left DLPFC would reduce food cravings in obese participants.

Methods : This study employed a randomized within-subject crossover design. Participants Received both real and sham tDCS and were blind to the condition. Based on selection criteria, the participants consisted of 10 women with average BMI=35.28±4.15, who each received a real tDCS stimulation on R-DLPFC and a placebo or sham stimulation a week after their wash-out periods. With the order of actual and sham simulations being randomly assigned. The participants’ craving levels were measured via the Food Craving Questionnaire-State(FCQ-S).the measurement of craving levels was performed before and after each stimulation session.

Results : Food cravings ratings were reduced in Both conditions, however, the percent change in cravings ratings from pre-to post-stimulation was Significantly greater for real stimulation (27.2) than for sham (14.39). Statistical analysis of results, 2x2 between-group analysis of variance,(F=19.94,p<0.05, Partial Eta Squared=0.714) shows that single session of tDCS significantly reduces the state food craving.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : In conclusion, this study provides evidence that non-invasive neurostimulation of the DLPFC decreases craving levels. The findings in our experiment indicate that R-DLPFC stimulation can reduce food craving state and improve the self-reported ability to resist foods in obese subjects.

Keywords : tDCS ; Food Craving ; DLPFC ; Obesity

Count: 346

Abstract ID: 259

subject: Novel and Cutting-Edge Technologies: Brain Stimulation Methods (ECT, rTMS, TDCS, DBS)

Presentation Type: Poster

Randomized Controlled trial of the effect of repeated tDCS on habitual food consumption behavior In Obese subjects

Submission Author: Amir Hossein Samani

Amir Hossein Samani¹, Reza Rostami², Javad Hatami³

1. University of Tehran
2. University of Tehran
3. University of Tehran

Background and Aim : Transcranial direct current stimulation (tDCS) has been used to suppress food cravings, but there is insufficient evidence to support its application in clinical practice. The dorsolateral prefrontal cortex (DLPFC) plays a vital role in the regulation of food intake. Several previous studies demonstrated that a single session of tDCS of the DLPFC reduces food craving and caloric intake. We hypothesized that repeated tDCS of the right DLPFC may exert long-term changes in obese subjects.

Methods : The Randomized Controlled trial used a parallel design. 20 female volunteer with mean BMI=41.93±11.67 were randomly divided and assigned to control and study groups. The study group received six sessions of real tDCS 20 minutes, anode right-cathode left montage, 2mA with current density kept at 0.06mA/cm², 1min ramp-up/ramp-down), in three weeks, while the control group has no intervention. Their Habitual food consumption Behavior was examined by Food Craving Questioner-Trait (FCQ-T) at beginning and end of the three week period.

Results : In study group tDCS reduced habitual experiences of food craving(FCQ-T), when compared to baseline pre-stimulation levels (pre=142.4, post=102.6) while this change was smaller in control group(pre=147.2, post=134.4). ANCOVA statistical analysis shows that Trait food craving significantly reduced in study group compared with control.(F=7.877, p<0.05, Partial Eta Squared=0.317)

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The results confirm earlier findings that single session of tDCS has immediate effects in reducing food craving. They also show that repeated tDCS over the right DLPFC may increase the duration of its effects, which may be present weeks after the stimulation. These results support further investigation of the use of tDCS in obesity.

Keywords : tDCS ; Obesity ; Repeated stimulation ; FCQ-t ; DLPFC

Count: 347

Abstract ID: 562

subject: Novel and Cutting-Edge Technologies: Brain Machine Interface and Neuroengineering

Presentation Type: Poster

Optimization of Artificial Retina implant's vision by External image processing platform

Submission Author: Michael Bidollahkhany

Michael Bidollahkhany¹, Sahar Darbarpanah²

1. Graduate Student, K. N. Toosi University of Technology, Tehran, Iran
2. Doctor of Medicine, Neuroscience, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : Nowadays each electronic and biomedical organization – business or institution – produces and builds number of electronic devices and tools for developing and help itself and its environment. Based on Accuracy and Resolution of results is the development team working with the aim of obtaining clear and useful results for the owner of the utilizer. Optimized images are very important for an Artificial Electronic Retina Implant, because it should able patient to recover it's vision as good as a human visionary system can; so Scientists and Engineers are looking for a new way and upgrade for that tool for optimization of Results. Image processing is a preparing tool for making better images and play's important role in every field of science even in medical sciences like mammography or X-Ray results improvement, cancer detection, disquisition and behavior sensing of tissues, etc. So we found that we can use Image processing for improvements on Retina implant's results.

Methods : we analyzed and suggest a framework for An optimization method for Retina implant's images improvement, we will examine most of the widely use algorithms, such as Gauss Newton, Levenberg Marquardt, Quasi-Newton and Nonlinear Conjugate Gradient, and present some modifications, Recursive Sub sampling technique and Weighted technique, to enhance the rate of convergence for particular type of applications and then improve the image that taken by implant.

Results : Using this method, the signal processor will upgrade with software platform and BCI optimizer section for rendering images by image processing to optimize for patient. This method can support magnifying images without binoculars, running software algorithms to block out bright sunlight and glare so you'd never need sunglasses, or watch a video in one eye while the other's free to let you walk around. And just imagine the potential for virtual reality and immersive

movies that are played out directly into your own eyes... Communicating directly through an implant to the brain's visual cortex is a very exciting area of technology that's currently in its infancy but has massive future potential.

Conclusion : The artificial retina using the a processor for Image processing with aim of Optimization of electrodes results will propose, which is an improvement of the last electronic and software image gathering where the in- pixel and pixel to pixel operations are executed using the poly-si TFTs and directly with-out image processing. The processor will be able to improve the result of retina implant with running on Optimization framework and it implemented simulation environment with using of retina implant sample image with 1000 electrodes accuracy. The circuit configurations of the retina implant should change, for adding an external processor for image processing. It was confirmed that the artificial retina can operate and achieve the edge enhancement and simple image processing functions. Improperly chosen steps can negatively influence the process methods especially in Load, Transform and Extraction of algorithm on the result) so processor should has a machine learning mechanism for make a decision for changing ratio of each effect on image for best outcome. It will be the subject of further research.

Keywords : Retina Implant; Medical image processing; Image optimization; Image improvement;

Count: 348

Abstract ID: 695

subject: Novel and Cutting-Edge Technologies: Brain Machine Interface and Neuroengineering

Presentation Type: Poster

Design and implementation of a head-mounted eye gaze tracking system based on low cost cameras

Submission Author: Ali akbar Khalili mahdirajee

Ali Akbar Khalili Mahdirajee¹, Mostafa Charmi², Mostafa Yargholi³

1. MSc in electronic engineering at University of Zanjan, Zanjan, Iran
2. Assistant professor in biomedical engineering at University of Zanjan, Zanjan, Iran
3. Associate professor in electronic engineering at University of Zanjan, Zanjan, Iran

Background and Aim : A family of eye tracking methods work with video images analysis. Eye tracking with these methods have many applications in medical science and humanities such as learning and reading disorders, autism disorders, ADHD disorders, human-computer interaction. These methods are fallen into two groups: invasive and noninvasive. In invasive methods, the imaging cameras are attached to individual's head or glasses. In most invasive methods, IR cameras are used for eye tracking. However, in this work, we aim to mount visible range cameras on the head. Then, we utilize a state of the art algorithm to process video images. Then the gaze point of an eye on the processed image is estimated.

Methods : In order to track eye movements, two low cost cameras (Mini DV Md80 DVR) are used in our work. The cameras have mounted on glasses in such a way that to cause a little discomfort for an individual. One camera has been devised to capture scene video and the other to capture eye movements. In our project, there was no necessity that the cameras to be synchronized with each other. Furthermore, the scene camera image is only used to estimate the gaze point of the eye. In fact, an image processing algorithm is mainly applied to the captured images from an eye. In order to determine pupil center, all the current related works were examined. From amongst the six great works in this field, we have chosen the best work. Image processing algorithm of this work has four main part as the following: 1) preprocessing stage includes elimination of unwanted regions of images, noise reduction and contrast enhancement of images, 2) pupil center estimation from the camera images captured from an eye, 3) calibration stage, and 4) estimation of the gaze point of an eye in scene image.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : In this paper, eye tracking results are reported on two datasets. The pupil center estimation deviates approximately 15 pixels from real pupil center in average for the first dataset. This dataset is presented by Swirski. This dataset is publicly accessed via internet. The second dataset was collected with the help of our own eye tracking system. Our preliminary results are promising. Of course, the final results on the second dataset will be reported in the paper presentation time.

Conclusion : In this project, we were able to design and build an eye tracking system from two low cost cameras which were mounted on the glasses. Then, recently developed image processing algorithm were successfully used to estimate gaze point of the eye. The disadvantages of our basic design are concluded as the following: 1) offline estimation of the gaze point of the eye and 2) two cameras did not synchronize. Based on our good design and implementation results, we will devise and build an online wireless eye tracking system.

Keywords : Eye gaze tracking, image processing, offline tracking

Count: 349

Abstract ID: 831

subject: Novel and Cutting-Edge Technologies: Brain Machine Interface and Neuroengineering

Presentation Type: Oral

EEG representation of different Human Computer Interaction Modes: an EEG base study

Submission Author: Afrooz Seyedebrahimi

Afrooz Seyedebrahimi¹, Reza Khosrowabadi², Hossein Mousavi Hondori³

1. Institute for Cognitive and Brain Sciences, Shahid Beheshti University GC, Tehran, Iran
2. Institute for Cognitive and Brain Sciences, Shahid Beheshti University GC, Tehran, Iran
3. Department Of Neurology, University of California, Irvine

Background and Aim : Brain computer interface (BCI) technology was developed as a tool to provide basic communication between the brain and an external device. The communication is generally performed by detection of specific patterns of brain activities and encoding them to the messages or commands that user wants to send. This procedure could be performed in various interaction modes to increase the quality of communications between humans and computers. Augmented reality (AR) and virtual reality (VR) are two main modes of human computer interaction. VR refers to the use of interactive simulations to provide the user an opportunity to engage in the environments. This computer based mode (hardware and software) will help the user to feel similar to the real-world environment. Whereas the AR is relatively a newer technology that mixes the virtual objects with real scenes in a real time manner. In this study, we hypothesized that a differential behavioural pattern must be observed when comparing the subjects' performances in the AR and the VR modes. The neural correlates of this differential pattern will be investigated by the EEG recorded in AR and VR modes from a group of healthy individuals.

Methods : Twenty healthy control subjects (11 females and 9 males) were recruited. Age ranged from 22 to 32 years. All subjects signed an informed consent form and their medical history was reviewed. Then, a Raven's intelligence test and handedness questionnaire were taken from everyone. Subsequently, EEG data was recorded with a 32-channel EEG system in the AR and the VR environments. All subjects underwent 2 recording sessions in 1 day at the institute for cognitive and brain sciences, shahid beheshti university. After, a standard preprocessing pipeline, power spectrum density analysis was performed in the conventional EEG frequency bands including delta [1-4 Hz], theta [4-8 Hz], alpha [8-13 Hz], beta [13-30 Hz] and gamma [30-40 Hz]. In addition to

absolute power, relative power and power ratio also were calculated in trials of 1 second. Then, a statistical analysis was performed using a paired t-test between 1) absolute power of EEG data recorded in AR and VR environments, 2) relative power of EEG data recorded in AR and VR environments and 3) power ratio of EEG recorded in AR and VR environments.

Results : The results indicate significantly smaller absolute power at the alpha, delta, and theta bands as well as smaller relative power at the alpha band and higher relative power at the beta band in AR environment as compare to the VR ($P < 0.05$, FDR corrected). In addition, power ratio of delta vs theta is higher in AR while ratios of delta, theta, alpha and beta vs gamma are higher in the VR environment. These neural activity changes may lead to a better performance in AR condition.

Conclusion : These differential patterns of spectral powers might provide meaningful information about the brain mechanism involved in different modes of human computer interaction. These finding could shed a light to better understanding of effects of environments in HCI studies.

Keywords : Augmented reality; Virtual reality; Brain computer interface; Human computer interaction; EEG

Count: 350

Abstract ID: 424

subject: Novel and Cutting-Edge Technologies: Drug Discovery and Neuropharmacology

Presentation Type: Oral

Extremely low frequency electromagnetic field increase cytotoxicity of temozolomide in glioma cells but not in primary cortical astrocytes

Submission Author: Meysam Ahmadi

Meysam Ahmadi¹, Zeinab Akbarnejad², Hossein Eskandary³

1. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, 76175-113 Kerman, Iran
2. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, 76175-113 Kerman, Iran
3. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, 76175-113 Kerman, Iran

Background and Aim : Glioblastoma multiforme (GBM) are the most common primary neoplasm tumors arising within the central nervous system (CNS) and are usually incurable. Despite all the current treatments (radiotherapy, neurosurgical resection, and chemotherapy), the patient survival remains poor. Temozolomide (TMZ) is an alkylating agent that has been widely used in the treatment of GBM; however, resistance to this drug is very common. Researches have shown that Extremely low frequency electromagnetic field (ELF-EMF) has effects on cancer cells and drug action. many authors have shown the synergistic effects of ELF-EMF in combination with chemotherapeutic agents for cancer. The aim of this study was to evaluate ELF-EMF and the temozolomide (TMZ) effect in cell viability, apoptosis in u87 human glioma cells, as well as in primary culture of cortical astrocytes viability.

Methods : U87 glioma cells and primary cortical astrocytes were cultured. After 24h, the cells were treated with TMZ for 120 and 144 hours. Viability analysis was performed through reduction MTT assay. Apoptosis occurrence was evaluated through Propidium iodide (PI) and Annexin V staining.

Results : TMZ (100 μ M) treatment did not change astrocytic viability. In U87 cells, TMZ 100 μ M reduced cell viability. TMZ and ELF-EMF association did not effect in cell viability in primary

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

astrocyte but the co-treatment reduced viability at 120 and 144h in U87 cells. ELF-EMF, TMZ and both association increased apoptosis.

Conclusion : In this way, our results show the ELF-EMF cytotoxic effect in glioma cells but not in astrocytes, suggesting that glioma cells are more susceptible to ELF-EMF toxicity than astrocytes. Even, the ELF-EMF plus TMZ effect in cell death may indicate these drugs association as a new potential therapeutic option in glioma treatments.

Keywords : primary cortical astrocytes; human glioblastoma cells U87; Temozolomide (TMZ); Extremely Low Frequency-ElectroMagnetic Field (ELF-EMF); apoptosis.

Count: 351

Abstract ID: 616

subject: Novel and Cutting-Edge Technologies: Drug Discovery and Neuropharmacology

Presentation Type: Poster

Enhancing the effects of Doxorubicin and Curcumin by Tumor Treating Field in Neuroblastoma BE(2)-C cells in vitro

Submission Author: Nadia Gharaee

Nadia Gharaee¹, Ladan Delphi², Houri Sepehri³, Mahdi Habibpour⁴

1. Department of Microbiology, School of Biology, College of Science, University of Tehran, Tehran, Iran
2. Department of Animal Biology, School of Biology, College of Science, University of Tehran, Tehran, Iran
3. Department of Animal Biology, School of Biology, College of Science, University of Tehran, Tehran, Iran
4. Department of Nuclear Engineering and Physics, Amirkabir University of Technology, Tehran, Iran

Background and Aim : Tumor Treating Fields (TTFs) are alternating fields with low intensity and intermediate frequency which has been indicated as effective approach in cancer treatment. TTFs lead to disruption in mitotic process and inhibit the proliferation of cancer cells. Since drug resistance is the major obstacle in chemotherapy, new therapeutic strategy promoting the drug efficiency seems vital. According to this fact, we investigated the effects of TTFs on Neuroblastoma cells in vitro in the presence of synthetic and natural drugs to promote their cytotoxic effects in lower concentration.

Methods : BE(2)-C Neuroblastoma Cells were culture in RPMI1640 media. The cells were exposed to TTFs alone and in combination with non-effective doses of Doxorubicin as chemical anti-cancer drug and Curcumin as a natural anti-cancer agent. In each case the cells proliferation rate was assessed after 72h with MTT and trypan blue exclusive assays.

Results : Our data demonstrates that application of TTFs may interfere with the cell's proliferation mechanisms and TTFs exert a significant reduction in the number of viable cells after 72h. The combination of TTFs with the both natural and chemical drugs intensified their effects significantly. The results indicated that the TTFs can cause the non-effective doses of curcumin and doxorubicin to show cytotoxic effects on BE(2)-Cells.

Conclusion : These results represent a very promising alternative to TTFs therapy in combination with Doxorubicin and Curcumin. These findings show that TTFs can support

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

chemical drug efficiency. In addition, the study indicates that application of TTFields co-administered with chemical and natural agents can be applied as an alternative strategy for cancer therapy in Neuroblastoma cases to improve the effects of the drugs and increase the sensitivity of cancer cells.

Keywords : Neuroblastoma cells, Curcumin, Doxorubicin, Proliferation rate, Tumor Treating Fields, Tumor Treating Fields.

Count: 352

Abstract ID: 459

subject: Novel and Cutting-Edge Technologies: Drug Discovery and Neuropharmacology

Presentation Type: Poster

Change in gene expression of jnk3 Map kinase in rat model of hepatic encephalopathy is improved by nanoporous silica type SBA-15

Submission Author: Nazila Saadati

Nazila Saadati¹, Halaleh Ghaderi², Shamseddin Ahmadi³, Saadi Samadi⁴

1. Department of Biological Science, Faculty of Science, University of Kurdistan, Sanandaj, Iran
2. 1Department of Biological Science, Faculty of Science, University of Kurdistan, Sanandaj, Iran
3. 1Department of Biological Science, Faculty of Science, University of Kurdistan, Sanandaj, Iran
4. Department of Chemistry, Faculty of Science, University of Kurdistan, Sanandaj, Iran

Background and Aim : Hyperammonemia has an important role in neuroinflammation induced by cirrhotic hepatic encephalopathy (HE). Mitogen-activated protein (MAP) kinases have shown to play key roles in the signaling pathways from inflammatory receptors. Nowadays mesoporous silica such as SBA-15 has received considerable attention as a drug delivery vehicle because of its large surface area and pore volume for loading drugs and large biomolecules. It has been shown that nanoporous silica type SBA-15 have a possible potential to control increased levels of ammonia in HE. In this study, we aimed to evaluate the possible therapeutic effects of subcutaneous injection of SBA-15 in a rat model of HE.

Methods : We used male Wistar rats weighing 300-350 g and cirrhotic chronic liver failure was induced with a common bile duct ligation (BDL) in a group of rats as a model of HE. Sham control operation consisted of laparotomy and bile duct identification without ligation and resection. SBA-15 (0.2 mg/kg) was injected subcutaneously with 48 hours intervals during 28 days of BDL. On day 28 of BDL, each rat was decapitated, rat brain removed, and the prefrontal cortex (PFC) and the hippocampus were dissected. Total RNA extraction and cDNA synthesis were performed and real-time qPCR method was used to evaluate gene expression of jnk3 MAP kinase.

Results : The present results revealed that in the hippocampus and PFC of the HE model rats, jnk3 Map kinase gene expression was increased while the jnk3 gene expression was significantly decreased. The results also showed that SBA-15 treatment during 28 days induction of cirrhotic

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

liver failure and HE, returned the change in the gene expression of p38 MAP kinase to a normal level.

Conclusion : It is concluded that SBA-15 nanopores may have an effect on increased level of ammonia in the brain of rat model of HE. One may propose that SBA-15 nanopores can have a therapeutic potential in controlling HE.

Keywords : Hepatic encephalopathy, Hyperammonemia, SBA-15 Nanopores, jnk3 MAP kinase

Count: 353

Abstract ID: 593

subject: Novel and Cutting-Edge Technologies: Molecular, Biochemical, and Genetic Techniques & Gene . Therapy

Presentation Type: Oral

American College of Medical Genetics and Genomics guideline for clinical genetics evaluation of autism spectrum disorders

Submission Author: Mojgan Ataei

Mojgan Ataei¹, Mohammad Taghi Akbari²

1. Tehran Medical Genetics Laboratory, Taleghani Ave, Tehran, Iran
2. Medical Genetics Department, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, 1411513116, Iran

Background and Aim : The autism spectrum disorders are a collective of conditions that have in common impaired socialization and communication in association with stereotypic behaviors. The reported incidence of autism spectrum disorders has increased dramatically over the past two decades. Clinical geneticists can contribute to the process by examining and evaluating the patient, his or her parents, and siblings as necessary in establishing the etiology.

Methods : A review of the potential contribution of newer testing modalities can be expected to influence diagnostic yield.

Results : A genetic basis for autism is strongly supported by a large body of literature. Advances in clinical testing technology have increased the diagnostic yield from 6–10% a few years ago to 30–40%. Therefore, genetic testing should be discussed with all patients and families with ASDs.

Conclusion : This guideline assists clinicians in the better management of the patients with ASDs.

Keywords : Autism spectrum disorder; American College of Medical Genetics and Genomics guideline; clinical genetics

Count: 354

Abstract ID: 462

subject: Novel and Cutting-Edge Technologies: Molecular, Biochemical, and Genetic Techniques & Gene . Therapy

Presentation Type: Poster

Effect of nanoporous silica type SBA-15 on gene expression of p38 MAP kinase in the hippocampus of rat model of hepatic encephalopathy

Submission Author: Halale Ghaderi

Halale Ghaderi¹, Nazila Saadati^{1,2}, Shamseddin Ahmadi^{1,3}, Saadi Samadi^{2,4}

1. 1Department of Biological Science, Faculty of Science, University of Kurdistan, Sanandaj, Iran
2. 1Department of Biological Science, Faculty of Science, University of Kurdistan, Sanandaj, Iran
3. 1Department of Biological Science, Faculty of Science, University of Kurdistan, Sanandaj, Iran
4. 2Department of Chemistry, Faculty of Science, University of Kurdistan, Sanandaj, Iran

Background and Aim : Hepatic encephalopathy (HE) is a major neurological complication of severe liver disease. Recent studies have shown a significant role of neuroinflammation in the pathogenesis of both acute and chronic HE. There are different reports that HE is primarily induced by hyperammonemia and brain inflammation followed by liver failure. Mitogen-activated protein (MAP) kinases are key molecules in the signaling pathways of inflammatory and neurotransmitter receptors. It has been reported that MAP kinases are affected at transcriptional and post-transcriptional levels in the HE in response to inflammation induced by hyperammonemia. In recent years, porous materials have used as drug carriers. Nanoporous silica type SBA-15 is likely to absorb increased levels of ammonia in HE and reduce the amount of ammonia in the blood. This, in turn, can reduce the effects of ammonia and activate the pathway of cytokine receptors such as MAP-kinases in HE. The aim of this study was to evaluate the effect of subcutaneous injection of SBA-15 silicate nanoparticles in rat model of HE in order to investigate the possible therapeutic effects of these nanoparticles and the mechanisms of these therapeutic effects.

Methods : Male Wistar rats weighing 300-350 g were used. Chronic liver failure was induced using a common bile duct ligation (BDL) in a group of rats as a model of HE. Sham control operation consisted of laparotomy and bile duct identification without ligation and resection. SBA nonporous (0.2 mg/kg) was injected subcutaneously every 48 hours during 28 days after BDL. The brain tissue samples from the prefrontal cortex (PFC) and the hippocampus were dissected,

extraction of total RNA was done and real-time qPCR method was used to evaluate gene expression of p38 MAP kinase.

Results : The results showed that in the hippocampus and PFC of the HE model rats, p38 gene expression was increased while the jnk3 gene expression was significantly decreased. Interestingly, SBA-15 nonporous treatment during 28 days induction of liver failure and HE, prevented the change in the gene expression of p38 MAP kinase.

Conclusion : It can be concluded that SBA-15 nanopores can have a therapeutic potential in controlling HE. It is possible that this effect has been resulted from effects of the SBA-15 nanopores on increased levels of ammonia in rat model of HE. This result propose that SBA-15 may have a beneficial effect on brain function and ultimately may improve cognitive and locomotion disorders induced by HE.

Keywords : Hepatic encephalopathy, Hyperammonemia, SBA-15 Nanopores, p38 MAP kinase

Count: 355

Abstract ID: 586

subject: Novel and Cutting-Edge Technologies: Molecular, Biochemical, and Genetic Techniques & Gene . Therapy

Presentation Type: Poster

Genetic variants in memory and learning genes are associated with over estimation of time

Submission Author: Arvin Haghightafard

Arvin Haghightafard¹, Amir Hossein Ghaderi², Shadi Moradkhani³, Fateme Akrami⁴, Sode Soleymani⁵

1. Department of biology, Tehran North Branch, Islamic Azad university, Tehran, Iran
2. Cognitive Neuroscience Lab, Department of Psychology, University of Tabriz, Tabriz, Iran
3. Department of Physics, Amirkabir University of Technology, Tehran, Iran
4. Iran university of medical science
5. Department of biology, Parand Branch, Islamic Azad university, Robat karim, Iran

Background and Aim : Time perception is refers to the subjective experience, or sense, of time that is measured by individual's perception of the duration of the indefinite and unfolding of events and may manipulate under different circumstances. Neural mechanisms and genetic bases of time perception are not completely clarified. Present study aimed to reveal the associations between genetic variants with time perception by using a whole genome approach.

Methods : DNA extracted from blood samples of 55 healthy subjects. Subjects had no psychiatric or somatic disease. Time estimation test were obtained by using two 15 minute tasks in resting state and mind fullness situation. Genotyping for the subjects was performed using the Affymetrix Genome-Wide Human SNP Array 6.0 (Affymetrix, Santa Clara, CA). Wisconsin sorting test and NEO-FFI personality test were obtained for assessment of executive functions and five personality traits respectively.

Results : Results were showed significant association between seven single nucleotide polymorphisms (SNPs) in learning and memory genes and over estimation of time. These SNPs are located on four genes. Creb1 a cAMP response element-binding protein which is related to working memory , Egr1 a transcription factor that is involved in neural proliferation and maturation, , foxp2 a transcription factor that is well-known in relation to language and learning,

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

and npas4b a neuronal PAS domain protein that is suggested that is necessary for formation of long term memory. No association was found between Wisconsin sorting test and NEO-FFI test results and genotyping findings.

Conclusion : Previous study found relations between dopaminergic genes with time perception. It seems that time perception characteristics has associations with genetic variants in genes which are related to learning and memory as well.

Keywords : time perception, genotyping, SNP array, learning and memory

Count: 356

Abstract ID: 345

subject: Novel and Cutting-Edge Technologies: Molecular, Biochemical, and Genetic Techniques & Gene . Therapy

Presentation Type: Oral

Identification of a rare BSCL2 mutation in an Iranian family with Charcot-Marie-Tooth by whole exome sequencing

Submission Author: Neda Mohsenpour

Neda Mohsenpour¹, Tina Shahani², Hassan Rokni-Zadeh³, Alireza Biglari⁴, Majid Changi-Ashtiani⁵, Razie Rezaie⁶

1. Department of Genetics and Molecular Medicine, School of Medicine, Zanjan University of Medical Sciences (ZUMS), Zanjan, Iran.
2. Department of Genetics and Molecular Medicine, School of Medicine, Zanjan University of Medical Sciences (ZUMS), Zanjan, Iran.
3. Department of Medical Biotechnology and Nanotechnology, School of Medicine, Zanjan University of Medical Sciences (ZUMS), Zanjan, Iran
4. Department of Genetics and Molecular Medicine, School of Medicine, Zanjan University of Medical Sciences (ZUMS), Zanjan, Iran.
5. School of Mathematics, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran
6. Department of Genetics and Molecular Medicine, School of Medicine, Zanjan University of Medical Sciences (ZUMS), Zanjan, Iran.

Background and Aim : Charcot- Marie-Tooth disease (CMT), is a heterogeneous group of neuromuscular disorders characterized by progressive weakness and atrophy of distal muscles, sensory loss, and foot deformities. CMT patients share similar phenotypes which make it often impossible to differentiate the types of the disease based on clinical and electrophysiological data alone. So far, causative mutations have been identified in more than 80 genes for CMT with various frequencies in different populations, making diagnosis a big challenge. Because high proportion of patients remain undiagnosed after screening of the main CMT-associated genes by Sanger Sequencing technology, as a result, recently many prefer to use WES (whole-exome sequencing) as a fast and powerful tool to analyze known and novel disease-causing variants for accurate diagnosis, genetic counseling and prenatal testing. In this study we attempted to identify the genetic cause of CMT disease via WES in a three-generation Iranian family with autosomal dominant inheritance pattern, which was undiagnosed by MLPA and Sanger sequencing of most common genes, including PMP22, MPZ and MFN2.

Methods : Twenty individuals of an Iranian pedigree (13 males and 7 females) consented to this study. The average age of onset was 15.6 years in males and 38.6 in females. In the majority of the patients, the first symptoms started at age 4 to 5 and the most presenting symptoms were distal muscle weakness, gait difficulties with progressive appearance of foot drop, hammer toe, and clawed hands. The genomic DNA was extracted from peripheral blood of all samples using innuPREP Blood DNA Mini Kit (Analytika Jena, Germany) according to manufacturer's protocol. WES was performed by Macrogen (Seoul, South Korea) using SureSelect XT Library Prep Kit (Agilent Technologies, CA, USA) with the HiSeq 4000 Genome Analyzer (Illumina, San Diego, CA, USA). Results of candidate variants were confirmed by Sanger sequencing on an Applied Biosystems 3500 Genetic Analyzer. The study was approved by Zanjan University of Medical science Ethics Committee (ZUMS.REC.1395.145; 05 August 2016).

Results : WES applied to the proband demonstrated a heterozygous stopgain mutation (c.C1049A:p.S350X) in exon7 of ACTA1 gene, previously not reported and a known very rare heterozygous missense mutation (c.C269T:p.S90L) in exon3 of BSCL2 gene. Sanger Sequencing confirmed the presence of the variant p.S350X in the ACTA1 gene in the proband, which was absent in other patients and healthy individuals. The variant p.S90L in the BSCL2 gene was detected in all affected members whereas unaffected family members lacked such mutation.

Conclusion : According to WES data and bioinformatics analysis, BSCL2 was the causative gene for CMT2 (Charcot-Marie-Tooth neuropathy type 2) in the studied pedigree. The BSCL2 (S90L) mutation found in our study is a very rare and low-frequency genetic variant in CMT2 and other inherited neuropathies, only reported in Europeans. This is the first report of this mutation in Middle East, particularly among the Iranian CMT2 patients. This study supports the effectiveness of WES for genetic diagnosis of CMT disease in an undiagnosed family.

Keywords : CMT; BSCL2; ACTA1; bioinformatics analysis; WES

Count: 357

Abstract ID: 70

subject: Novel and Cutting-Edge Technologies: Molecular, Biochemical, and Genetic Techniques & Gene . Therapy

Presentation Type: Poster

Development of non rejectable allogeneic skin grafts for treating acute and chronic wounds in spinal cord injuries

Submission Author: Mohammadreza Pakyari

Mohammadreza Pakyari¹, Reza Jalili², Aziz Ghahary³, Erin Brown⁴

1. MD; PhD candidate at iCORD; UBC
2. MD; PhD
3. PhD
4. Md; PhD; FRCSC

Background and Aim : More than 30% of people with new spinal cord injuries develop pressure ulcers during and after their first hospitalization. A study of the National Model Systems SCI reported only 19.6 percent of SCI patients had no history of pressure ulcers. It is considered as a common cause of hospitalization and is responsible for 10% of death in SCI patients. Complex and deep pressure sores require skin grafting surgery. pressure sores can really change patients life and have multiple negative consequences; There's a lot of personal suffering with dealing with a chronic sore, and it certainly can contribute to depression. Approaches for faster healing and more effective interventions will certainly increase the quality of life of SCI patients. This study focuses on improving the outcome of autologous and allogeneic skin grafting for treating chronic wounds. Specifically, IDO-expressing fibroblasts are introduced into the dermis of donor subjects to provide a tryptophan-depleted local environment in the recipients. IDO is an immuno-suppressive enzyme, due to its catabolism of the essential amino acid Tryptophan. In nature, it protects the semi-allogeneic fetus against the maternal immune system during the course of pregnancy.

Methods : Regular (control) and IDO-fibroblast are injected intra dermally in syngeneic and allogeneic recipients (n=5/group). Viability and functionality of the cells post injection are compared to control at different time points (1,2,4,8 weeks). In the next step, 4 days post injection of the cells; grafts with regular and IDO fibroblast were transplanted to allogeneic recipients and monitored until graft rejection. To investigate any possible cumulative effect of multiple injections

on the survival rate of grafts, cells are injected at different time point (days 0,3,6) to the same area and a 6mm graft will be harvested from that region and transplanted to the allogeneic subjects.

Results : Five days after intra-dermal injection, injected fibroblasts remain viable and functional ($p<0.001$). Kynurenine levels, an indicator of IDO activity, were significantly higher in IDO group compared to regular fibroblast group ($p=0.006$) and un-injected skin ($p<0.001$). We also observed migration of IDO expressing fibroblasts and dendritic cells to regional lymph nodes in allogeneic subjects. Results from skin transplantation study demonstrate that IDO expressing grafts remain viable for significantly longer than control allogeneic grafts ($p=0.01$). Following 3-times injection of the IDO-cells to the allogeneic full-thickness graft, average survival graft rate in IDO group increased up to 35-days in comparison to 13-days for control group ($p<0.001$).

Conclusion : These data suggest that local immunosuppression can be provided by the delivery of IDO expressing fibroblasts in allogeneic skin transplantation which can result in significant improvement in allograft survival. The potential of this research goes far beyond the promising role for skin transplantation. This “cell-based” approach to localized immunosuppression not only provides potential opportunities to skin transplantation but also (with some modifications) an immune-privileged scaffold could also be utilized for nerve grafting.

Keywords : Spinal cord injury, Pressure ulcer, Transplantation, indoleamine 2 3-dioxygenase, skin grafting, immune tolerance.

Count: 358

Abstract ID: 190

subject: Novel and Cutting-Edge Technologies: Molecular, Biochemical, and Genetic Techniques & Gene . Therapy

Presentation Type: Poster

Transdifferentiation of mouse fibroblast to neural progenitor-like cells in suspension culture

Submission Author: Mahmood Talkhabi

Mahmood Talkhabi¹, Majid Ebrahimi²

1. Department of Animal Sciences and Biotechnology, Faculty of Life Sciences and Biotechnology, Shahid Beheshti University, Tehran, Iran
2. Department of neuroscience, University of Toronto, Canada

Background and Aim : For many years, finding the best approach to obtain customized functional cell types such as neural lineage cells has been the most challenging and interesting field in regenerative medicine. Reprogramming of fibroblast to pluripotent stem cells opened a new avenue for reprogramming fibroblasts to other somatic cells (fully differentiated cells or non-pluripotent stem cells). Today this reprogramming strategy is also called as direct reprogramming, direct conversion or transdifferentiation. The first In vitro transdifferentiation was achieved at 1987, in which scientists showed that the overexpression of MyoD could transdifferentiate fibroblasts to myoblasts (Davis et al., 1987). After two decades, scientists successfully transdifferentiated fibroblasts to neuronal cells using overexpression of the neuronal specific transcription factors Ascl1, Brn2, and Myt1l (Vierbuchen et al., 2010). In the last years, scientist have tried to find new combinations of TFs, small molecules and miRNAs to transdifferentiate different somatic cells to neural lineages cells including different types of neurons and neural progenitors.

Methods : Mouse embryonic fibroblasts (MEFs) and tail-tip fibroblasts (TTFs) were isolated from C57/BL6 mice and cultured in DMEM containing FBS, penicillin and streptomycin. MEFs or TTFs (at passage two) were transduced with retroviruses overexpressing sox2 and c-myc. After 24 hours, transduced cells were trypsinized, counted and transferred to round bottom ultra-low attachment 96-well plates and cultured for 2 days in fibroblast medium. To induce transdifferentiation of fibroblasts to neural progenitors, the aggregates formed in 96-well plates were collected and transferred to ultra-low attachment 6-well plates and cultured in neural stem

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

cell medium (DMEM/F12, B-27, penicillin, streptomycin, HEPES buffer, EGF, and bFGF) plus Trichostatin A (an inhibitor for Histone deacetylases) and BIX-01294 (an inhibitor for G9a histone Methyltransferase) for one week. Then, the neurosphere-like aggregates cultured on matrigel coated dishes for 3 days. To examine the identity of cells, their morphology, gene expression and protein expression were analyzed using light microscopy, Real-time PCR and immunostaining.

Results : After attachment the neurosphere-like structures to the surface of matrigel coated plates, cells started to expand from the aggregates. These cells were positive for neural progenitor markers including Nestin, GFAP and Sox2 as determined by immunostaining. They also expressed GFAP, Nestin, Gli2, Sox2 and Olig2, whereas the pluripotency genes including Nanog and Oct4 didn't expressed in starting and transdifferentiated cells. The expression of neural progenitor specific marker increased in the presence of both small molecules. The expanded cells have proliferative capacity as they were passaged for 3 passages in the adherent and suspension cultures.

Conclusion : Overexpression of sox2 and c-myc and inhibition of G9a histone methyltransferase and HDAC induce transdifferentiation of mouse fibroblasts to neural progenitor-like cells in the suspension culture. These strategy can be used for large scale production of neural progenitors required in cell therapy.

Keywords : Transdifferentiation, mouse fibroblasts, neural progenitors

Count: 359

Abstract ID: 146

subject: Novel and Cutting-Edge Technologies: Other

Presentation Type: Poster

Neurofeedback an alternative approach to treating psychiatric disorders

Submission Author: Sara Akbari

Sara Akbari¹, Nima Ganji²

1. MA Student of Psychology, Islamic Azad University, Karaj Branch.
2. PhD Student of Psychology, Member of Cognitive Science Research Group of Academic Center of Education, Culture and Research, Alborz Branch

Background and Aim : Psychiatric disorders, are behavioral or mental pattern that may cause suffering or a poor ability to function in life. Such features may be persistent, relapsing and remitting, or occur as a single episode. Many disorders have been described, with signs and symptoms that vary widely between specific disorders. The causes of psychiatric disorders are often unclear.

Methods : Theories may incorporate findings from a range of fields. Although many many of them have a basis in neurobiological dysfunction, most treatment approaches either neglect biological aspects of the problem, or approach dysfunction through pharmacological treatment alone, which may expose individuals to negative side effects. In recent decades, neurofeedback has been promoted as an alternative approach to treating neurobiological dysfunction.

Results : Neurofeedback helps individuals gain control over subtle brain activity fluctuations through real-time rewards for pre-established target brainwave frequencies at specific cortical locations. Neurofeedback has emerged as superior or equivalent to either alternative or no treatment in many of the examined studies, suggesting it produces some effects worthy of further examination. In light of its potential to address neurobiological dysfunction directly, future research is suggested in order to refine protocols, as well as to establish effectiveness and efficacy.

Conclusion : Potential mechanisms of neurofeedback are discussed, including global connectivity, neuroplasticity, and reinforcement of the default mode network, central executive network, and salience network.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : psychiatric disorders, neurofeedback, neuroplasticity

Count: 360

Abstract ID: 507

subject: Novel and Cutting-Edge Technologies: Other

Presentation Type: Poster

Novel approaches in neurosciences based on neural stem cells

Submission Author: Hadi Aligholi

Hadi Aligholi¹

1. Department of Neuroscience, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran

Background and Aim : Stem cells are defined as the cells with two main properties: cell proliferation by which the cells expand and renew themselves and cell differentiation through which different types of mature cells can be generated by stem cells

Methods : Among various sources of stem cells, neural stem cells (NSCs) are outstanding ones for application in neurosciences.

Results : These days 3D culture of NSCs is used to create different in-vitro models of nervous system diseases. In this way, 3D organotypic cultures are utilized to produce brain organoids using bioreactor. Cerebral organoids open new avenue in front of scientists for personalized medicine by which genetic screening, genome editing and drug screening can be performed before individual therapy. Another application of NSCs is generation of Chimera. The term of chimeras means the individuals with tissues derived from more than one zygote. Human-animal chimera produces human cellular characters in animals. In this sense, human NSCs can be integrated with embryonic tissue of animals to create an animal in which some neural cells have human cellular properties. Thus, human-animal chimera try to produce better animal models of nervous system diseases.

Conclusion : Novel applications of NSCs help scientists to create variable models of diseases and improve personalized medicine.

Keywords : neural stem cells, chimera, brain organoid

Count: 361

Abstract ID: 641

subject: Novel and Cutting-Edge Technologies: Other

Presentation Type: Poster

Zebrafish; an emerging model for studying neurosciences

Submission Author: Hadi Aligholi

Hadi Aligholi¹

1. Department of Neuroscience, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran

Background and Aim : The zebrafish (*Danio rerio*) is rapidly becoming a popular model organism in pharmacogenetics and neuropharmacology.

Methods : . The utility of both adult and larval zebrafish in neuroscience has grown markedly in the last decades, as it is a vertebrate species with high physiological and genetic homology to humans, as well as because of the ease of genetic manipulation and similar CNS morphology.

Results : Representing an ideal organism for disease modeling, zebrafish prove increasingly useful in translational biomedical research, and are well suited to meet the rapidly growing challenges of this field. In this regard, numerous valuable CNS disorder models were created using zebrafish.

Conclusion : Zebrafish can be used as an outstanding animal model of neurological disorders in basic neurosciences researches.

Keywords : Zebrafish, neurosciences, Animal models

Count: 362

Abstract ID: 798

subject: Novel and Cutting-Edge Technologies: Other

Presentation Type: Poster

Improvement of working memory performance by parietal upper alpha neurofeedback training

Submission Author: Peyman Dehghanpour

Peyman Dehghanpour¹, Fardad Farokhi², Reza Rostami³

1. Department of Biomedical Engineering, Central Tehran Branch, Islamic Azad University, Tehran, Iran
2. Department of Biomedical Engineering, Central Tehran Branch, Islamic Azad University, Tehran, Iran
3. Department of Psychology, Tehran University, Tehran, Iran

Background and Aim : Working memory (WM) is a part of human memory which is the ability to maintain and manipulate information. WM performance is impaired in some neurological and psychiatric disorders such as schizophrenia and ADHD. Neurofeedback (NF) training is a self-regulation method which can be used to improve WM performance by changing related EEG parameters.

Methods : In this paper we used neurofeedback training to improve WM performance in eight healthy individuals. The protocol is consisted of individual upper alpha up-training in parietal brain lobe of participants which is a part of fronto-parietal network and related to central executive functions of WM. Power of individual upper alpha band in channels P3 and P4 was used for neurofeedback training in five sessions. 2-back working memory test was used to measure WM performance before and after the course. Also an other eight persons were selected as control group and performed 2-back test in the same intervals of time without neurofeedback training.

Results : Results indicates success of NF group in neurofeedback training and enhancing individual upper alpha power in both channels (P3 and P4). Results of 2-back test indicates that improvement in response accuracy and response time of test in NF group was more significant than control group. Also the correlation between change in power of individual upper alpha band in channel P3 and change in response time of 2-back test was approximately significant ($r = -0.571$ and $p = 0.076$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : In conclusion it seems individual upper alpha neurofeedback up-training in parietal lobe is an appropriate method to improve WM performance.

Keywords : Neurofeedback; Working memory performance; Individual upper alpha band; Parietal lobe; 2-back test

Count: 363

Abstract ID: 465

subject: Novel and Cutting-Edge Technologies: Other

Presentation Type: Poster

Trace determination of Lipophilic drugs using HF-LPME- HPLC-UV method

Submission Author: Marjan Gholghasemi

Marjan Gholghasemi¹, Mahnaz Qomi², Kambiz Hafezi³, HAKIMEH
MAGHSOUDLOUJAFARI⁴

1. Active Pharmaceutical Ingredients Reseach Center, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran- Iran (APIRC)
2. Active Pharmaceutical Ingredients Reseach Center, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran- Iran (APIRC)
3. Active Pharmaceutical Ingredients Reseach Center, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran- Iran (APIRC)
4. Active Pharmaceutical Ingredients Reseach Center, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran- Iran (APIRC)

Background and Aim : In present study, donepezil and atomoxetine, 2most commonly prescribed drugs for neurological disorders, were preconcentrated and determined using Hollow fiber liquid phase microextraction technique. These agents are metabolized by liver, therefore, dosage modification should be considered based on the status of the patient. Sex differences can also alter the concentration of the drug and its efficiency. It may even lead to unexpected toxicity.

Methods : In this study, the trend method solvent bar microextraction technique coupled with HPLC-UV was implemented in order to preconcentrate and determine tamoxifen in biological fluids. In this method, the use of hollow fiber along with the application of pH gradient is the whole determinant of the microextraction. In this method, there are three phase that facilitates the process; Donor phase has to have a pH in which the drug could be in molecular form, organic phase should be selected according to the results (n-octanol is proven to have the desirable effect), and acceptor phase which has to have a pH that could change the drug into its ionized form. The other factors like the stirring rate, temperature, salt addition, and time are the contributing factors, used to optimize the preconcentration condition. After choosing the optimum condition, the drug could be microextracted from the real samples under the chosen condition.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : For atomoxetine, under the optimized conditions, an enrichment factor of about 153 was obtained. Good linearity was achieved for calibration curves with a coefficient of estimation higher than 0.994. Detection limits and relative standard deviation (RSD) ($n = 3$) were less than $10 \mu\text{g L}^{-1}$ and 2.78%, respectively. In case of donepezil, the preconcentration factor was 216.6, and detection limits 0.1435 ng/ml with a relative standard deviation of 3.1%.

Conclusion : Based on the results obtained, it could be indicated that the proposed method proven to be an accurate and sensitive method with high sample clean up and selectivity. It should be noteworthy that it is a green method, due to the low consumption of organic solvents and its practicality is the reason why it could be used in clinical applications, basic neuroscience studies, and dose monitoring. Cost-effectiveness is yet another reason that could be the reason to replace the existing methods.

Keywords : trace determination, HPLC-UV, Hollow fiber, Dose monitoring

Count: 364

Abstract ID: 632

subject: Novel and Cutting-Edge Technologies: Other

Presentation Type: Poster

Sports psychology tool during the last Olympic: Brain waves management

Submission Author: Ali Moghadam Zadeh

Ali Moghadam Zadeh¹, Amir Hossien Mehrsafari²

1. Assistant Professor, Department of psychometric, Faculty of psychology, University of Tehran
2. Department of sport psychology, Faculty of sport sciences, University of Tehran

Background and Aim : Sports psychology is the measurement of mental and behavioral components that can impact on performance. However, sports scientists and coaches alike have a difficult task observing, measuring and controlling mental processes. The main goal of the brain wave management is to increase the athlete's work capacity and skill capabilities as well as to develop strong psychological qualities for successful performance. Bet, A discussion on the technique of brain wave management and its application during the last Olympic. the present review evaluated the Brain waves management as a sports psychology tool during the last Olympic.

Methods : The present study is a review article. A total number of 17 articles (published between 2010 and 2017) were collected and reviewed searching the keywords of brain wave, Psycho-physiological Indicators, Sport performance and Athletes in the PubMed, Science Direct, and Springer websites.

Results : Statistics related to participants, athletes treated at the health clinic, and athletes in psychological intervention during each game will be presented, highlighting brain wave management and other interventions that were carried out before, during, and after the event at the Olympic Village.

Conclusion : In recent years there has been an enormous interest in psychophysiology in sport, and particularly in Brain waves management. Beyond the psychological benefits of Brain waves management training to the athlete's performance, there is another major advantage to this technique. Athletes are used to receiving objective feedback during practice in regard to their

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

physical achievements. Similarly, Brain waves management training can provide the athlete with objective feedback in regard to his or her mental achievements. Therefore, we recommend that applied sport psychologists learn to use Brain waves techniques as part of psychological skills training.

Keywords : brain wave, Sport performance, athlete

Count: 365

Abstract ID: 664

subject: Novel and Cutting-Edge Technologies: Other

Presentation Type: Poster

Mouse motions analysis in open field maze with MATLAB image processing toolbox and App designer

Submission Author: Mohsen Taghavi lakani

Mohsen Taghavi lakani¹, Mostafa Charmi², Meysam Karami Jozami³, Kamal Mohammadi Asl⁴

1. MSc student in biomedical engineering at University of Zanjan, Zanjan, Iran
2. Assistant professor in biomedical engineering at University of Zanjan, Zanjan, Iran
3. MSc student in biomedical engineering at University of Zanjan, Zanjan, Iran
4. Instructor of Computer and Information Technology Department, Payame Noor University, Tehran, Iran

Background and Aim : Experiments on animals is a key step in scientific and medical studies. In some experiments on animals, mouse motions is studied in a place called open field maze. Until now, track and analysis of mouse motions has been done by hand or computer. Today, manual method for mouse motions analysis is not utilized due to its time cost and low accuracy. Meanwhile, in a computer aided analysis method, video images are captured with a digital camera and then mouse motions analysis is facilitated with image processing algorithms and a graphical user interface. In this project, design and implementation of an application software will be done for mouse motions analysis in an open field maze.

Methods : In this project, activities are classified into two groups: hardware section and software section. Hardware section includes the construction of open field maze and also the selection of needed capturing equipment for video images and transmission of data to a computer. Software section has subsections called image processing algorithms and graphical user interface design. After capture and transmission video images into computer, it is necessary to process these images for extract mouse motions information. This step on its own has two subsections: calibration and mouse motion information extraction. Calibration stage is done before any further test with a mouse. There is no need to calibration in remaining trials on that work session. Mouse motion information extraction stage in every frame of input video images is pursued as the following: 1) color image conversion to a gray level image, 2) image filter for noise reduction, 3) image thresholding to reach a binary image, and 4) mouse centroid estimation in binary image. To simple and efficient interaction of a researcher with the software, we forced to design and

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

implement a graphical user interface with the help of MATLAB App designer. This GUI allows access to video images, calibration section, and mouse motions analysis section. Also, MATLAB App provide the visualization possibility of mouse tracking as a diagram.

Results : In this paper, tracking results was provided on a mouse. Animal laboratory of ZMUS (Zanjan University of Medical Sciences) allowed us to test our tracking system on a mouse. It is worth to mention that developed software in our research work is not sensitive to mouse size. After many studies, we designed the preliminary version of graphical user interface to have the following sections: Video source, Arena, Researcher, Trails, Calibration, View, and report.

Conclusion : In the present research work, we were able to design and implement GUI to analysis mouse motions in open field maze. The software is capable to execute experiments and store mouse motions data.

Keywords : Open field test, design, software, mouse, motion analysis

Count: 366

Abstract ID: 78

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

Human Mesenchymal Stem Cells Reverse Oxidative Stress-Induced Cell Death and Ameliorates Motor Function and Striatal Atrophy in Rat Models of Huntington Disease

Submission Author: Hossein Ahmadi

Hossein Ahmadi¹, abbas aliaghaei², mohammad javad ebrahimi³, yousef sadeghi⁴

1. msc student of anatomical sciences at shahid beheshti medical university
2. assistant professor of anatomical sciences at shahid beheshti medical university
3. medical student at shahid beheshti medical university
4. professor of anatomical sciences at shahid beheshti medical university

Background and Aim : Huntington disease (HD) is an inherited disorder hallmarked by progressive deterioration of specific neurons, followed by movement and cognitive anomalies. Cell therapy approaches in neurodegenerative conditions have concentrated on the replenishment of lost/dying neurons with functional ones. Multipotent mesenchymal stem cells (MSCs) have represented as a potential remedy for HD

Methods : . In this study, we evaluated the in vitro and in vivo efficacy of human umbilical cord-derived MSCs (hUCMSCs) and their paracrine effect against oxidative stress with a specific focus on HD. To this end, hUCMSCs were isolated, immunophenotypically characterized by the positive expression of MSC markers and exhibited multilineage potentiality. Besides, synthesis of neurotrophic factors of GDNF and VEGF by hUCMSCs were confirmed. Initially, PC12 cells were exposed to superoxide in the presence of conditioned media (CM) collected from hUCMSCs (hUCMSCs-CM) and cell viability plus neuritogenesis were measured. Next, bilateral striatal transplantation of hUCMSCs in 3-nitropropionic acid (3-NP) lesioned rat models were conducted, and one month later, post-graft analysis were performed

Results : . According to our in vitro results CM of hUCMSCs protected PC12 cells against oxidative stress and considerably enhanced cell viability and neurite outgrowth. On the other hand, transplanted hUCMSCs survived, decreased gliosis, and ameliorated motor coordination and

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

muscle activity, along with an increases in striatal volume as well as in dendritic length of the striatum in HD rats. Collectively

Conclusion : our findings implies that hUCMSCs provide an enriched platform by largely their paracrine factors, which downgrades the unfavorable effects of oxidative stress. Keywords: mesenchymal stem cells, umbilical cord, Huntington disease, cell therapy

Keywords : mesenchymal stem cells, umbilical cord, Huntington disease, cell therapy

Count: 367

Abstract ID: 149

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Evaluating the effect of probiotics mixture on the cognitive characteristics and Inflammatory and oxidative stress markers of Alzheimeric patient's

Submission Author: Elmira Akbari

Elmira Akbari¹, Mahmoud Salami², Zatollah Asemi³, Reza Daneshvar⁴

1. Physiology Research Center, Kashan University of Medical Sciences, Kashan, Iran
2. Physiology Research Center, Kashan University of Medical Sciences, Kashan, Iran
3. Research Center for Biochemistry and Nutrition in Metabolic Diseases, Kashan University of Medical Sciences, Kashan, Iran
4. Department of Neurology, School of Medicine, Kashan University of Medical Sciences, Kashan, Iran

Background and Aim : Alzheimer's disease (AD) is associated with severe cognitive impairments as well as some metabolic defects. Scant studies in animal models indicate a link between probiotics and cognitive function. This randomized, double-blind and controlled clinical trial was conducted among 60 AD patients to assess the effects of probiotic supplementation on cognitive function, Inflammatory and oxidative stress markers.

Methods : The patients were randomly divided into two groups (n=30 in each group) treating with either milk (control group) or a mixture of probiotic (probiotic group). The probiotic supplemented group took 200 ml/day probiotic milk containing *Lactobacillus acidophilus*, *Lactobacillus casei*, *Bifidobacterium bifidum* and *Lactobacillus fermentum* (2×10^9 CFU/g for each) for 12 weeks. Mini-mental state examination (MMSE) score was recorded in all subjects before and after the treatment. Pre- and post-treatment blood samples were obtained to determine the related markers.

Results : After 12 weeks intervention, compared with the control group ($-5.03\% \pm 3.00$), the probiotic treated ($+27.90\% \pm 8.07$) patients showed a significant improvement in the MMSE score ($P < 0.001$). In addition, changes in plasma malondialdehyde ($-22.01\% \pm 4.84$ vs. $+2.67\% \pm 3.86$ $\mu\text{mol/L}$, $P < 0.001$), serum high-sensitivity C-reactive protein ($-17.61\% \pm 3.70$ vs. $+45.26\% \pm 3.50$ $\mu\text{g/mL}$, $P < 0.001$) in the probiotic group were significantly varied compared to the control group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : We found that the probiotic treatment had no considerable effect on other biomarkers of oxidative stress and inflammation. Overall, the current study demonstrated that probiotic consumption for 12 weeks positively affects cognitive function and some Inflammatory and oxidative stress markers in the AD patients.

Keywords : Alzheimer's disease; Clinical trial; Probiotic; Stress Oxidative; Inflammatory

Count: 368

Abstract ID: 135

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Clinical features and results of genetic analysis of three Iranian patients affected to pantothenate kinase associated neurodegeneration (PKAN)

Submission Author: Afagh Alavi

Leila Javanparast¹, Masoud Rahimi Bidgoli², Afagh Alavi³, Mohammad Rohani⁴

1. Genetics research center, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.
2. Genetics research center, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.
3. Genetics research center, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.
4. Department of Neurology, Hazrat Rasool Hospital, Iran University of Medical Sciences, Tehran, Iran.

Background and Aim : Neurodegeneration with brain iron accumulation (NBIA) are a group of rare neurodegenerative diseases characterized by iron accumulation in the basal ganglia. The most prevalent form of NBIA is pantothenate kinase associated neurodegeneration (PKAN) which accounts for approximately 50% of the cases of NBIA. PKAN usually characterized by extrapyramidal syndromes (including dystonia and Parkinsonism) and ‘eye of the tiger’ pattern on the brain MRI. It can be classified in two major forms based on the age at onset (AAO) and rate of progression: typical (AAO usually in the first decade of life) and atypical (AAO in the second decade of life with slow progression). Its mode of inheritance is autosomal recessive and caused by mutations of the pantothenate kinase 2 (PANK2) gene. PANK2 encodes a key regulatory enzyme in coenzyme A biosynthesis. In the current study, we report clinical and genetic findings of three Iranian PKAN patients.

Methods : Phenotypic data were obtained by neurologic examination, brain MRI, and interviews from three unrelated probands. DNA was isolated from peripheral blood leucocytes and all exons of PANK2 were screened for mutations by direct sequencing. The pathogenicity effects of variations on the encoded protein were predicted using SIFT, PolyPhen-2, Panther, PROVEAN, SNPs&GO, PMut2017, fathmm, M-CAP and MutationTaster bioinformatics tools. The effects of mutations on protein stability were also assessed using DUET software.

Results : Three cases of ‘tremor-dominant’ PKAN with a relatively benign course were identified: dystonic tremor was seen in one patient and Parkinsonian tremor in remaining ones. Typical eye

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

of the tiger sign on brain MRI were observed in all probands. Three homozygous disease causing mutations in PANK2 (p.Asp403Val, p.Arg278Leu, and p.Thr528Met) were found in the probands. In silico analysis suggested the variations to be deleterious and DUET software revealed, these mutations destabilize the protein resulting in PANK2 being largely unfolded and inactive.

Conclusion : PKAN (and NBIA in general) might be a potential cause of tremor, thus emphasizing the need to consider this diagnosis even in patients with a clinical diagnosis of essential, dystonic or Parkinsonian tremor. The typical form usually starts in the first decade of life with severe dystonia, dysarthria, Parkinsonism, pyramidal signs, cognitive and visual disturbances with an aggressive course leading to death by the second decade of life. The “atypical” form is more heterogeneous with different presentations, a slower progression and a more benign course. There are few case series of atypical PKAN with tremor, either at rest or during action. In this study, we reported three PKAN cases presenting with a relatively benign condition mainly characterized by tremor.

Keywords : Neurodegeneration with brain iron accumulation, NBIA, PANK2, Tremor

Count: 369

Abstract ID: 723

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

The Role of Vitamin D in Multiple Sclerosis Mediated by Sema 4D Gene

Submission Author: Fatemeh Alimirzaei

Fatemeh Alimirzaei¹, Fatemeh Khani-Habibabadi², Mehrdad Behmanesh³

1. 1- Department of Molecular Genetics, Faculty of Biological Science, Tarbiat modares University, Tehran, Iran
2. 1- Department of Molecular Genetics, Faculty of Biological Science, Tarbiat modares University, Tehran, Iran
3. 1- Department of Molecular Genetics, Faculty of Biological Science, Tarbiat modares University, Tehran, Iran

Background and Aim : Multiple sclerosis (MS) is an inflammatory demyelinating disease that affect the central nervous system. Vitamin D is the precursor of the active steroid hormone 1, 25-dihydroxy vitamin D3 which regulates calcium and phosphorus homeostasis; vitamin D also plays a major role in other aspects of human health by binding to the vitamin D receptor, which is present in many human organs and tissues. The studies illustrate that vitamin D is an immunomodulating factor that can be impressive in both preventing and treating autoimmune diseases, including multiple sclerosis. Semaphorins were originally recognized as guidance cues in neural development; accumulating evidences revealed that several semaphorins , called 'immune semaphorins', such as Sema3A, 4A, 4D, 6D and 7A are critically involved in many aspects of the immune response by regulating immune cell migration or cell-cell contacts. Aim: The aim of this study was to investigate the role of vitamin D in the expression of sema4D gene.

Methods : U-87MG cell line was cultured and treated with 50nM of vitamin D. Total RNA was extracted and cDNA synthesis was performed. Real-time PCR was managed (in order to investigate the expression of sema4D gene).

Results : In this experiment, the vitamin D treated U87-MG cell line in comparison to untreated one brought about 2 fold up-regulation in the expression of sema 4D gene.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : We demonstrated a new evidence for the regulatory role of vitamin D in sema4D gene that is crucially involved in the pathology of multiple sclerosis.

Keywords : multiple sclerosis, vitamin D, semaphorin

Count: 370

Abstract ID: 178

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

Ameliorative effect of apelin-13 on Amyloid β -induced model of Alzheimer's disease

Submission Author: Samaneh Amin Yavari

Samaneh Aminyavari¹, Maryam Zahmatkesh², Maryam Farahmandfar³, Fariba Khodagholi⁴, Leila Dargahi⁵, Mohammad Reza Zarrindast⁶

1. Department of Neuroscience and Addiction Studies, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Neuroscience and Addiction Studies, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
3. Department of Neuroscience and Addiction Studies, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
4. Neuroscience research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
5. Neuroscience research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
6. Department of Neuroscience and Addiction Studies, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Alzheimer's disease (AD) is a neurodegenerative disorder characterized by memory loss and multiple cognitive impairments in old populations. It has been demonstrated that hippocampus play a pivotal role in learning and memory processes and its dysfunction is associated with memory impairment. Amyloid β ($A\beta$) plaque formation in the hippocampus is the hallmark of AD which is related with inflammatory processes and neural death. Many investigations have shown the impaired autophagy as one of probable causes of neuronal damage in the brain of AD patients. LC3 is a reliable biomarker for determining autophagy level in cell survival pathways. Apelin-13 is a neuropeptide with neuroprotective properties and is a candidate for controlling AD through probable inhibition of impaired autophagy.

Methods : For assessing learning and memory we carried out Morris water maze (MWM) and Y-maze tests. Male Wistar rats implanted with bilateral cannula into the CA1 region of the dorsal hippocampus through stereotaxic surgery. Bilateral intrahippocampal infusions of $A\beta$ 25-35 (5 $\mu\text{g}/2.5 \mu\text{l}/\text{side}$) were done alone or in combination with different doses of apelin-13 (0.5, 1 and 2 $\mu\text{g}/\mu\text{l}$, 2.5 $\mu\text{l}/\text{side}/\text{day}$, five consecutive days). In addition, we performed intrahippocampal

injection of A β followed by five consecutive intrahippocampal infusions of apelin-13 (2 μ g/ μ l, 2.5 μ l/side) and rats were sacrificed and the hippocampus tissue harvested on days 2, 5, 10 and 21 after A β injection for time dependent assessment of autophagy changes using western blot technique.

Results : Intrahippocampal injection of A β 25-35 caused significant impairment of rats working memory related performance in Y-maze as indicated with a significant decrease in alternative behavior compared to control animals (44.87 \pm 8.20 vs. 72.87 \pm 5.96, P<0.001). In MWM test A β caused significant decrease in time (21.40 \pm 1.03 vs. 30.18 \pm 1.31, P<0.001) and distance (393.5 \pm 25.01 vs. 568.6 \pm 51.17, P<0.01) of finding hidden platform in training days and the time spent in target quadrant (24.83 \pm 5.23 vs. 42.83 \pm 10.46, p > 0.001) in probe test. Also, the level of LC3-II/I ratio expression was significantly elevated in the hippocampus of A β treated animals 5 (0.171 \pm 0.015 vs. 0.39 \pm 0.019, P<0.01), 10 (0.092 \pm 0.011 vs. 0.156 \pm 0.019, P<0.05) and 21 (0.134 \pm 0.016 vs. 0.2851 \pm 0.036, P<0.01) days after injection in comparison to control group. Intrahippocampal injection of apelin-13 alone had no significant effect on measured parameters while bilateral intrahippocampal infusion of apelin-13 (2 μ g/ μ l, 2.5 μ l/side) significantly prevented from A β -induced spatial and working memory deficits in MWM and Y-maze test, respectively. In addition, we demonstrated that five consecutive infusions of apelin-13 significantly prevented from A β -induced LC3 expression elevation in the hippocampus of rats on days 5, 10 and 21 after initiation of treatment.

Conclusion : According to the results of the present study, it is suggested that ameliorative effect of apelin-13 probably resulted from inhibition of impaired autophagy in the brain as resulted from LC3 expression inhibition. Further studies needed to investigate the molecular pathways involved in the neuroprotective mechanism of apelin-13.

Keywords : Alzheimer's disease, Learning and memory, Apelin-13, Autophagy

Count: 371

Abstract ID: 84

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Up regulation of VEGF-A and positive correlation of VEGF-A and FLT-1 gene expression inversely correlate with EDSS in Iranian Multiple Sclerosis patients

Submission Author: Ghazaleh Azimi

Ghazaleh Azimi¹, Mohammad Taheri², Arezou Sayad³

1. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Medical Genetics, Shahid Beheshti University Of Medical Sciences, Tehran, Iran
3. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Background and Aim : Multiple sclerosis (MS) is the most common disease affecting the central nervous system. The cause of this disease is not clear. Vascular Endothelial Growth Factor-A (VEGF-A) and fms-like tyrosine kinase 1 (FLT1) is known to have an important role in multiple aspects of blood vessel physiology, inflammation, and permeability

Methods : To investigate a possible relationship between these genes and MS disease, we compared the expression levels of VEGF-A and FLT1 in the blood of 50 relapsing-remitting MS (RR-MS) patients and 50 healthy controls by TaqMan Quantitative Real-Time PCR

Results : We observed that VEGF-A expression was significantly up-regulated ($p = 0.04$) while no significant difference was observed between MS patients and controls for FLT1 gene expression ($p = 0.947$). In addition, there was a significant positive correlation between the two VEGF-A and FLT1 gene expression together ($r = 0.769$, $p < 0.0001$) and clinical finding that the level of physical disability in the MS patients according to the Kurtzke Expanded Disability Status Scale (EDSS) criterion increases ($r = -0.256$, $p = 0.035$; $r = -0.264$, $p = 0.049$, consequently). The significant up-regulation of VEGF-A may suggest a potent inducer of inflammation and vascular permeability and inflammation for this gene. In addition, the positive correlation between these two genes means that by assessment of one of these genes, the other expression level can be anticipated.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our findings revealed that loss of equilibrium among the VEGF-A and FLT1 genes may contribute to pathophysiology of multiple sclerosis. However, molecular mechanisms behind this cannot be fully elucidated because there are highly complex interactions among these genes and other factors. Our assessment also yields a simple practical application of such factors as clues of underlying severity for prognostic and, at the same time, therapeutic suggestions in an outpatient management. Indeed, we recommend taking an easier as well as cheaper way in practice rather than CSF sampling and MRI, which are already in practice

Keywords : multiple sclerosis, VEGF, FLT-1

Count: 372

Abstract ID: 120

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Phospholipase D1 expression analysis in relapsing-remitting multiple sclerosis patients

Submission Author: Tahereh Azimi

Tahereh Azimi¹, Mohammad Taheri², Mohammad Mahdi Eftekharian³

1. Department of Medical Genetics, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Medical Genetics, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran

Background and Aim : Multiple sclerosis (MS) is a chronic disorder resulting from destruction of the myelin or insulating covers of neurons in the central nervous system (CNS). Several lines of evidence suggest a role for immune response in the occurrence and progression of this disorder. Several disease-modifying agents (DMA) including β -interferons (IFN β) are being used in MS patients in order to stop the disease at the early inflammatory stage, postpone disease progression and diminish future disability. Phospholipase D1 (PLD1) is a critical enzyme responsible for the making lipid second messenger phosphatidic acid. It has an established function in regulation of immune response.

Methods : In the present study we have evaluated PLD1 transcript levels and plasma concentrations in 78 relapsing-remitting MS (RRMS) patients as well as 78 normal age- and sex-matched healthy subjects using real-time quantitative RT-PCR and enzyme-linked immunosorbent assay (ELISA), respectively.

Results : Significant PLD1 down-regulation has been observed in total MS patients compared with controls ($P < 0.001$) as well as IFN- β responders ($P = 0.034$) and non-responders ($P < 0.001$) compared with controls, respectively. However, a significant up-regulation has been detected in IFN- β responders compared with non-responders ($P = 0.047$). In both males and females groups, significant down-regulations have been detected in patients compared with controls ($P = 0.014$ and $P = 0.002$, respectively). The same results have been detected in PLD1 plasma concentrations.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : In conclusion, PLD1 transcripts in blood and its plasma concentrations can be used as putative biomarkers for evaluation of therapeutic responses to IFN- β in RRMS patients. However, this result should be validated in future studies.

Keywords : PLD1;MS;expression;

Count: 373

Abstract ID: 294

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

levothyroxine improve oxidative stress parameters in a Intracerebroventricular Streptozotocin rat model of Alzheimer's disease

Submission Author: Kowsar Bavarsad

Kowsar Bavarsad¹, Mousa-Al-Reza Hadjzadeh², Mahmoud Hosseini³, Zeinab Ashaari⁴

1. Department of Physiology, Mashhad University of Medical Sciences, Mashhad, Iran
2. Department of Physiology, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Physiology, Mashhad University of Medical Sciences, Mashhad, Iran
4. Department of Physiology, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : Alzheimer's disease (AD) is a neurodegenerative disorder characterized by progressive loss of memory and deterioration of cognitive functions. Studies showed that there is a close connection between thyroid hormones and Alzheimer's pathophysiology. In the current study, we evaluated the effect of intraperitoneally (i.p.) administrations of levothyroxine (LT-4) on the oxidative stress parameters in the animal model of the AD.

Methods : In this experimental study, adult male Wistar rat (2months old, 250±50 g at the beginning of experiments) were used. To make an animal model of the AD, streptozotocin (STZ) (3mg/kg) were injected intracerebroventricular (ICV). One week after surgery, rats were treated with L-T4 (10µg/kg) and/or normal saline for three weeks. Finally, oxidative stress parameters were evaluated.

Results : Analysis of data indicated that L-T4 significantly decreased malondialdehyde (MDA) concentration in the hippocampal ($p < 0.001$) and increased thiols content and superoxide dismutase (SOD) and catalase (CAT) activities in AD rats ($p < 0.001$).

Conclusion : In conclusion, I.P. injections of L-T4 improved oxidative stress parameters in STZ-induced AD rats.

Keywords : Alzheimer's disease, Levothyroxine, oxidative stress, Rat

Count: 374

Abstract ID: 628

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

The neuroprotective effect of intranasal interferon beta treatment in a lentivirus–induced rat model of Alzheimer’s disease

Submission Author: Sara Chavoshinezhad

Sara Chavoshinezhad¹, Homa Mohseni-Kouchesfehiani², Abolhassan Ahmadiani³, Leila Dargahi⁴

1. Department of Animal Biology, Faculty of Biological Sciences, Kharazmi University, Tehran, Iran
2. Department of Animal Biology, Faculty of Biological Sciences, Kharazmi University, Tehran, Iran
3. Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
4. NeuroBiology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Alzheimer's disease (AD), the most common progressive neurodegenerative disorder in the elderly, is clinically characterized by progressive impairment of cognitive functions. Accumulation of beta amyloid (A β) peptides and the neurofibrillary tangles (NFT), the prominent synaptic loss and eventually the neuronal loss are neuropathological characteristics of the disease. Chronic neuroinflammation appears to play an important role in cognitive impairment and progression of the disease. Several studies have shown upregulation of pro-inflammatory cytokines (TNF- α , IL-1 β , IL-6) and downregulation of anti-inflammatory cytokines such as IL-10 in AD brains. Interferon beta (IFN β) is the primary treatment used to combat inflammation and flare-ups in multiple sclerosis. IFN β appears to directly increase expression of anti-inflammatory agents while decreasing the expression of pro-inflammatory cytokines. The present study aimed to examine whether intranasal (IN) IFN β treatment with high CNS bioavailability and minimal systemic side effects, can reverse neuroinflammation and cognitive deficits in a rat model of AD.

Methods : Lentiviruses (LV) encoding human amyloid protein precursor (hAPP) bearing Swedish and Indiana mutations (LV-hAPP^{Sw/Ind}) (3 μ l; 109 TU/ml/side) were injected bilaterally in the hippocampus CA1 area of adult male rats. Cognitive function was assessed using passive avoidance task on days 49 and 50 after injection. Furthermore, we evaluated the TNF- α and IL-10 mRNA levels in the hippocampus using qRT-PCR. Therapeutic effects of IN IFN β delivery (1 μ g/kg, started from day 23 after injection and continued every other day for 14 total doses) were also investigated in AD animals.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Our results showed that intrahippocampal injection of LV-hAPP^{Sw}/Ind induced a significant reduction of the step-through latency in retention trial of passive avoidance performance compared with sham group. Furthermore, AD rats spent more time in the dark compartment compared to the sham group. We also observed a significant increase in TNF- α mRNA level in the hippocampus of AD animals in comparison to sham group while expression IL-10 gene was decreased. IFN β treatment attenuates LV-hAPP^{Sw}/Ind-induced cognitive deficits. In addition, IFN β significantly decreases expression of TNF- α gene and increases expression of IL10 gene in the hippocampus of AD animals.

Conclusion : Intranasal treatment with IFN β reduces neuroinflammation and improves cognitive function in AD. These findings suggest that IFN β could be a potential therapy for AD in the future and more studies are needed to determine the molecular pathways involved in the neuroprotective function of IFN β .

Keywords : Alzheimer Disease, Interferon beta, Memory, Neuroinflammation

Count: 375

Abstract ID: 238

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Protective effects of Mespilus germanica leaf flavonoids on A β 1-42-induced memory deficit and apoptosis in rat

Submission Author: Fatemeh Davoudzadeh

Fatemeh Davoudzadeh¹, Adele Jafari², parvin Babaei³

1. Department of Physiology, School of medicine, Guilan University of Medical Sciences, Rasht, Iran
2. Department of Physiology, School of medicine, Guilan University of Medical Sciences, Rasht, Iran
3. 2 Cellular & Molecular Research Center, Guilan University of Medical Sciences, Rasht, Iran 3 Neuroscience Research Center, Guilan University of Medical Sciences, Rasht, Iran

Background and Aim : Alzheimer's disease (AD) is the most common cause of dementia. To find new strategies to prevent cognitive decline has great importance. The aim of the present study was to investigate the effect of Mespilus germanica leave (MGL) flavonoids on passive avoidance memory and brain cells apoptosis in amyloid beta 1-42 (A β 1-42) model.

Methods : Methods: Forty eight male wistar rats weighing between 200-250 g were randomly divided into 6 groups (n=8): Sham (ICV injection of saline), AD model (ICV injection amyloid beta 1-42 on 1st day (4 μ g/ μ l), treatment groups ICV injection amyloid beta 1-42 with 5, 7.5 & 10 mg/kg MGL flavonoids intraperitoneal (IP) for 21 days and positive control group (ICV injection amyloid beta 1-42 with 1mg/kg Donepezil IP). Passive avoidance memory test was performed on the 22 nd day from flavonoid injection. Then cytochrome C was measured using ELISA technique.

Results : Results: The ICV injection of A β significantly reduced step through latency (STL) (p=0.017) and increased time spent in dark compartment (TDC) (p=0.002). Flavonoid treatment (10mg/kg) significantly increased STL (p=0.05) and decreased TDC (p=0.005). In addition, the level of cytochrome C was significantly reduced in the flavonoid treatment group (p=0.029) compared to AD.

Conclusion : Conclusion: Our results indicate that MGL flavonoid improves A β 1-42 induced memory impairment in rats probably by reduction in cytochrome C.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Amyloid beta1-42, flavonoid, Mespilus Germanica, passive avoidance

Count: 376

Abstract ID: 168

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Conversion of human chorionic stem cells to dopaminergic neurons in vitro: potential therapeutic application for Parkinson's disease

Submission Author: Vahid Ebrahimi

Vahid Ebrahimi¹, Abbas Aliaghaei², Yousef Sadeghi³

1. Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Today, cell replacement using stem cells has been considered as an important potential therapy for treatment of Parkinson's disease. Since the production of functional dopaminergic neurons is the first and critical step in cell-replacement therapy. So, we aimed to develop a high efficiency method to generate dopaminergic neurons from human chorionic stem cells (HCSCs) obtained from the placenta tissue.

Methods : HCSCs were isolated and incubated with neuronal differentiation media for 2 weeks. Next, immunoreactivity for neuronal markers β -III tubulin and dopaminergic specific marker, tyrosine hydroxylase were evaluated. Moreover, mRNA expression of nestin, MAP2, PITX3, TH and KCNH5 was measured using quantitative real-time PCR. Also, electrophysiological properties and ability of dopamine secretion were evaluated using patch clamp and HPLC methods, respectively. In the next step, HCSCs-derived dopaminergic neurons were transplanted in rat model of Parkinson's disease.

Results : Our data revealed that HCSCs showed the morphological changes following neuronal induction after 2 weeks. Furthermore, HCSCs-derived dopaminergic neurons were immunopositive for neuronal and dopaminergic-specific markers. In addition, mRNA expression of nestin, MAP2, PITX3, TH and KCNH5 significantly increased in HCSCs-derived dopaminergic neurons. Electrophysiological results confirmed that these neurons are able to excitation and they

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

could produce action potential. Moreover, interestingly, HPLC analysis indicated that this neuronal cells have capacity of dopamine secretion that was in line with over-expression of TH enzyme in the cells. In vivo study has shown that transplantation of HCSCs-derived dopaminergic neurons in rat model of Parkinson's disease can improve motor and behavior coordination and neuronal expansion of striatum.

Conclusion : Our results support the feasibility of using HCSCs as a source of in vitro generated DA cells for treatment of dopaminergic disorders such as Parkinson's disease.

Keywords : Parkinson's disease; Placenta; Human chorion stem cells; Dopaminergic neurons

Count: 377

Abstract ID: 724

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Down-regulation of TYK2, CBLB and LMP7 genes expression in relapsing-remitting multiple sclerosis patients treated with interferon-beta

Submission Author: Farbod Esfandi

Farbod Esfandi¹, Mohammad Taheri²

1. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Medical Genetics, Shahid Beheshti University Of Medical Sciences, Tehran, Iran

Background and Aim : This study aimed to examine the expression of TYK2, CBLB and LMP7 genes at both mRNA and protein levels in relapsing-remitting MS (RRMS) patients in compare with healthy controls.

Methods : Seventy-eight RRMS patients treated with IFN β -1a and 79 age- and ethnic-matched healthy subjects were studied. The mRNA expression levels of TYK2, CBLB and LMP7 in PBMCs were quantified by real-time PCR and plasma concentrations of three molecules were measured by ELISA. Results were compared between patients and controls, IFN β - responders and non-responders. Forty-nine of 78 patients were classified as IFN β -responders and 29 cases were non-responders.

Results : Significantly down-regulated expression of TYK2, CBLB and LMP7 genes was found in the patients group versus controls ($P < 0.001$). Decreased plasma levels of three molecules were observed in patients compared to controls ($P < 0.001$). IFN β -responders had significantly higher expressions for CBLB ($P = 0.001$) and LMP7 ($P = 0.02$) than non-responders. Also, we observed increased expressions of LMP7 ($P = 0.39$) and CBLB ($P = 0.02$) genes in patients under 30y and increased expression of TYK2 in patients > 40 years ($P = 0.002$).

Conclusion : Our results suggest that expression analysis of TYK2, CBLB and LMP7 genes could be useful for evaluation of T cells immunity and clinical response to IFN β -therapy in RRMS patients.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Multiple sclerosis; TYK2; CBLB; LMP7; Gene; Interferon-Beta.

Count: 378

Abstract ID: 452

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

The effect of chlorogenic acid on learning and memory and acetylcholinesterase activity in rats with cognitive deficit induced by intracerebroventricular streptozotocin

Submission Author: Elham Esmaeil jamaat

Elham Esmaeil jamaat¹, Esmaeil jamaat Elham², Roghani Mehrdad³, Zahedi Elham⁴, Sanaie Rad Ashkan⁵, Shabani Mozghan⁶

1. -
2. Department of physiology, Faculty of Medicine, Shahed university, Tehran, Iran
3. professor of physiology, Faculty of Medicine, Shahed university, Tehran, Iran
4. Department of physiology, Faculty of Medicine, Shahed university, Tehran, Iran
5. Department of physiology, Faculty of Medicine, Shahed university, Tehran, Iran
6. Department of physiology, Payamenoor University, Tehran, Iran

Background and Aim : Sporadic Alzheimer's type dementia is more abundant than other dementia diseases which causes memory and multiple cognitive damages and neurological disorders. Acetylcholinesterase (AChE) is a key enzyme in the cholinergic nervous system and is one of the most studied proteins in the field of Alzheimer's disease (AD). AChE activity increases at the vicinity of the two hallmarks of AD, the amyloid plaques and the neurofibrillary tangles (NFT). Intracerebroventricular STZ injection decrease cerebral glucose uptake and produce Alzheimer's disease. Chlorogenic acid (CGA) is a polyphenol that is found in diverse agricultural products such as coffee, beans, potatoes, and apples. CGA has many various activities, for example; the prevention in the development of insulin resistance and glucose intolerance, to stimulate glucose transport in skeletal muscle, anti-inflammatory, and anti-oxidant activities. The present study demonstrates the effect of CGA on learning and memory in rats with cognitive deficit induced by intracerebroventricular STZ and evaluate the AChE activity in AD.

Methods : In this experimental study, 32 male rats (250-290g) were divided to four different groups having 8 rats in each group as: group A (control), group B (Control+ CGA), group C (STZ), and group D (STZ + CGA). STZ was injected (bilaterally, 3 mg/kg body weight, on days 1 and 3). CGA was administered through intraperitoneal route at a dose of 50 mg/kg on 7th day after surgery

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

and continued up to 14 days. To evaluate the spatial learning and memory, Y maze (alternation behavior) and passive avoidance tests were used. AChE was measured via Elman protocol.

Results : (STZ + CGA) rats did not show significant improvement in spontaneous alternation behavior compared to STZ group. In passive avoidance learning test, there was significant difference between C and D groups. In the latter group, learning and memory was improved. In STZ group, AChE activity compared to control group significantly was increased and treatment with CGA significantly decreased the levels of AChE.

Conclusion : Chlorogenic acid can improve learning and memory in rats with cognitive deficit induced by intracerebroventricular STZ with apparently no improvement of spatial working memory, also CGA can modulate the AChE levels in the brain.

Keywords : Alzheimer's disease, Chlorogenic acid, learning and memory

Count: 379

Abstract ID: 278

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

Induced Pluripotent Stem cells and neural tissue repair: where is it all going?

Submission Author: Saman Esmailnejad

Saman Esmailnejad¹

1. Department of Physiology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran

Background and Aim : The generation of induced pluripotent stem (iPS) cells from somatic cells in recent years has offered a new tool for neural tissue repair strategies in regenerative medicine. After 10 years of growing progress, several recent studies have been successful in developing required cells for neurodegenerative diseases from iPS cell sources. generation of neurons and glia from the patient himself by using induced pluripotent stem cells has created a true revolution in the life science and stem cell therapy. Using iPS cells, with the nearly infinite capacity for production and self-renewal, eliminates the limited resource and expandability of source cells that has been the main bottleneck in preceding neural cell transplantation methods. Furthermore, new approaches developed in experimental labs all over the world enabled us in vitro generation of various neuronal and glial cell types. Somatic cell transdifferentiation to neural cells approaches, allowed us to harvest all neural cell types from somatic cells without passing intermediate stem or precursor stages. Although, production of functional iPS Cell-derived neural cells that are capable of integration in the complex networks of the brain still require several challenges to be addressed but in the near future researchers will take greater steps to accomplish their achievements. In this review, we will discuss the application of iPS Cells for neurodegenerative diseases and challenges ahead. This review is also a reliable source for the scientists interested to work in this exciting research area.

Methods : We have searched the PubMed databases comprehensively and accurately to find peer reviewed articles concerning application of Induced Pluripotent Stem cells in neurodegenerative diseases and selected the most prestigious articles. We also put meeting abstracts under consideration to ensure that all references have been studied.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : In this review the authors discussed the potentials of using iPS cells in neurodegenerative disease treatments. Our investigations provided a large number of articles that used this innovative approach to find a new way to control or cure this type of diseases and shows the high potentials of this method. At the end we discuss the bright future of iPS cell technology in neural disorder treatments.

Conclusion : This review uncovers the potentials of using iPS cells in neurodegenerative disease treatments. It is very important to be emphasized that iPS cell production could provide an infinite supply of autologous neural cells to overcome one of the barriers of autologous cell transplantation. The data outlined herein provide an encouraging roadmap toward iPS cells application in neural disorders for researchers in this field of study.

Keywords : Neurodegenerative diseases; Neural tissue repair; Induced pluripotent stem cells; Neural cell transplantation

Count: 380

Abstract ID: 573

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

The Role of 5HT4 Receptor in CA1 on memory Due to Total sleep deprivation(TSD)

Submission Author: Zainab Eydipour

Zainab Eydipour¹

1. Department of Biology, Damghan Branch, Islamic Azad University

Background and Aim : Sleep is a circadian or daily biologic rhythm which is modulated through an endogenous circadian clock located in suprachiasmatic nucleus (SCN). Sleep primarily promotes memory consolidation while memory coding and retrieval can occur effectively during wakefulness. Several studies have shown that sleep deprivation can affect cognitive functions such as memory, learning, and motor activities. 5 HT4 receptors are mainly expressed in hippocampus and it has been observed that they play a distinguished role in behaviors such as anxiety, learning, and memory processes. The present study aims to investigate the effects of activation and inactivation of serotonin 5HT4 receptor by RS67333 (agonist serotonin-4 receptor) and RS23597 (antagonist serotonin-4 receptor) in CA1 on acquired memory impairment induced by total sleep deprivation (TSD: 24 hours))

Methods : Water box apparatus was used to induce total sleep deprivation. Passive avoidance memory test was used to evaluate memory consolidation

Results : Intra-CA1 pre-training injection of both RS67333 and RS23597 in doses of 0.1 and 0.01 mg/rat decreases motor activities but doesn't have any effects on pain. TSD decrease acquisition memory; on the other hand, TSD decrease motor activities and increases pain reaction. TSD-induced amnesia improves by both RS67333 and RS23597 with sub-threshold doses of 0.001 and 0.0001 mg/rat respectively. Moreover, motor activities are increased while RS2323597 but not RS67333 reversed TSD-induced analgesia

Conclusion : According to our findings, it seems that CA1 5HT4 receptors play a critical role in cognitive and non-cognitive behaviors induced by TSD.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Sleep; Hippocampus; CA1; 5HT4; Memory

Count: 381

Abstract ID: 301

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

The role of blood brain barrier in multiple sclerosis

Submission Author: Solmaz Fallahi

Solmaz Fallahi¹

1. Children Hospital of Tabriz, Tabriz, Iran

Background and Aim : For all materials not easily commute to our central nervous system, A barrier known as the blood-brain barrier is built for our brain. Various studies have been done on the role of BBB in MS.

Methods : Various databases such as Google Scholar, Pub Med and Science direct were reviewed and 70 papers were selected. Of these, 40 articles were selected as the main essay for writing this review.

Results : Vascular endothelial cells in the walls of this region are quite compact together. We say that the so-called tight junctions. The system is to ensure that potentially harmful toxins, infectious agents, and immune cells cannot enter the central nervous system. But the material that is necessary for normal brain metabolisms, such as glucose and oxygen are able to cross this barrier, Carbon dioxide as a metabolite of brain metabolism is able to cross this barrier so. In MS following the destruction of the blood-brain barrier, damaging factors including white blood cells are able to pass through it. Due to the lack of specificity of white blood cells to brain neurons, myelin antigens and oligodendrocytes are detected as foreign agents. And so they began to destroy them. The present paper is to examine the role of the blood-brain barrier in MS pathophysiology.

Conclusion : In MS, endothelial cells leading to the formation of the tight junctions is to be demolished. So disrupting of BBB could be one of the most important factors in MS pathology.

Keywords : blood brain barrier - multiple sclerosis - central nervous system

Count: 382

Abstract ID: 712

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Dietary intake of Omega-3 fatty acids and its relation with the Blood Pressure in Parkinson's disease

Submission Author: Hossein Faraji

Hossein Faraji¹, Sanaz Jamshidi²

1. Student Research Committee, School of Nutrition and Food Sciences, Isfahan University of Medical Sciences, Isfahan, Iran
2. Department of clinical Nutrition, School of Nutrition and Food Sciences, Shiraz University of Medical Sciences, Shiraz, Iran.

Background and Aim : Parkinson's disease (PD) is one of the neurodegenerative disorders affected by the dietary factors. Fatty acids play important role in the pathophysiology of PD and brain function, especially omega-3 fatty acids. On the other hand, due to the incidence of blood pressure in PD and the role of omega-3 fatty acids in blood pressure, the aim of this study was the assessment of omega-3 fatty acids intake and its relation with the blood pressure in PD.

Methods : This study was conducted on 210 elderlies (≥ 60 years) with and without PD in Isfahan, Iran-based case-control design. Food frequency questionnaire (FFQ) and N4 software analyzer were used to nutrients intake assessment. Also, mean of the blood pressure was extracted from participant files. The ANCOVA test, multiple linear regression and independent sample-t test were used to statistical analysis.

Results : Dietary intake of α -Linolenic acid was significantly higher than control ($P=0.026$) and the intake of Docosahexaenoic acid was significantly lower than control ($P=0.002$), while the dietary intake of Eicosapentaenoic acid was not significantly different between case and control group ($P=0.205$). Also, significant negative relation was observed between Eicosapentaenoic acid intake and systolic blood pressure in Parkinson's patients ($P=0.021$, $r = -0.210$).

Conclusion : Our findings indicated that there is a negative connection between the intake of Eicosapentaenoic acid and blood pressure incidence in Parkinson's patients. Consumption of α -

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Linolenic acid and Docosahexaenoic acid were associated with PD. Lower consumption of Docosahexaenoic acid may be related to an increased risk of PD.

Keywords : Parkinson disease, Diet, Omega 3 fatty acids, Blood pressure

Count: 383

Abstract ID: 88

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Neuropsychological Assessments in CNS Tumors

Submission Author: Nima Ganji

Nima Ganji¹, Soodabeh Bassak Nejad², Nasrin Arshadi³, Azam Noferesti⁴

1. PhD Student of Psychology, Member of Cognitive Science Research Group of Academic Center of Education, Culture and Research, Alborz Branch
2. Faculty member of Shahid Chamran University of Ahvaz
3. Faculty member of Shahid Chamran University of Ahvaz
4. PhD of Clinical Psychology, Faculty Member of Cognitive Science Research Group of Academic Center of Education, Culture and Research, Alborz Branch

Background and Aim : Neuropsychology, a sub-specialty of psychology, specializes in the relationship between the brain, thinking, and behavior. A neuropsychologist's expertise in assessing cognition, emotional functions, and behavior, as these functions relate to the brain and central nervous system, allows them to play an important role in the assessment and treatment of individuals diagnosed with CNS tumors. Although brain tumor localization and classification is primarily accomplished through MRI, spectroscopy, and biopsy of brain tissue, these techniques do not provide information regarding the functional impact of the tumor on thinking, emotions, and behavior. Both primary and metastatic brain tumors can produce a range of global and/or domain specific impairments in cognitive functions.

Methods : Neurocognitive outcome strongly influences patient- and family-perceived quality of life of individuals treated for CNS tumors, and neuropsychological testing should be included in the assessment and treatment plans of all individuals with CNS tumors, when medically feasible. Over the past 30 years, the approach to the treatment and follow-up of patients with brain tumors has changed profoundly. With increased life expectancy comes the need for increased attention to the impact of tumor and tumor therapies on the person as a whole, and including neuropsychological evaluation prior to surgery, during awake craniotomy, during and after adjuvant therapies have been completed, and with serial testing over time should be part of the standard practice of care for the assessment and management of individuals with CNS tumors.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Neuropsychological testing plays an important role in the assessment and management of CNS tumors.

Results : Evaluation prior to the start of treatment provides insights into the functional impact of tumors and establishes a baseline against which later functioning can be compared. Testing of cognitive functions such as language, attention, working memory and... during awake surgery assists in the protection of eloquent cortex.

Conclusion : Assessment during and after adjuvant a therapy identifies the effects of treatment, and assists in making decisions regarding palliative care. Serial testing over time may detect regrowth of tumor prior to radiographic evidence of recurrence and predict survival.

Keywords : Neuropsychology, CNS tumors, Neuropsychological testing, cognitive functions

Count: 384

Abstract ID: 113

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

VDR and CYP24A1 Expression Analysis in Iranian Relapsing-Remitting Multiple Sclerosis Patients

Submission Author: Vajiheh Gharzi

Vajiheh Gharzi¹, Arzou Sayad², Mohammad Taheri³

1. Department of Medical Genetics, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Medical Genetics, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Department of Medical Genetics, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Multiple sclerosis (MS) is a common disease of the central nervous system. This disease may be initiated by either vitamin deficiency or triggered by abnormality in CYP24A1 and vitamin D receptor

Methods : In this case-control study, the expression of genes encoding vitamin D receptor (VDR) and CYP24A1 in relapsing-remitting MS (RR-MS) patients were compared with normal individuals in the Iranian population. RNA from whole blood of 50 RR-MS patients (HLA-DRB1*15-negative and responders to interferon beta with a normal vitamin D level) and 50 normal controls was extracted. The levels of CYP24A1 and VDR expression were measured using real-time quantitative polymerase chain reaction.

Results : The RR-MS group had a significantly more than 2 times higher expression level of VDR than the normal group (P=0.04). On the other hand, there was a 0.89 times decrease in the expression level of CYP24A1 in RR-MS patients which was not statistically significant. There was no linear correlation between the risk of expanded disability status scale of Kurtzke (EDSS) and the expression level of either CYP24A1 or VDR. In addition, the expression level of CYP24A1 or VDR was not correlated with the duration of the disease.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Up-regulation of VDR is likely to happen in RR-MS patients in the Iranian population. We did not observe a gene expression-phenotype correlation for CYP24A1 which may be due to limited statistical power as a result of the small sample size. Although the individuals taking part in this study had normal levels of vitamin D, the increase in VDR expression levels may perhaps be a response to a defect in vitamin D processing. Another possibility is that despite an increase in VDR expression level, factors such as micro-RNAs may result in their deactivation while an increase in VDR expression level can be seen as a compensatory response. Of course, further studies are required to identify the mechanism of action of vitamin D by analyzing genes involved in its signaling pathway, particularly VDR and CYP24A1.

Keywords : VDR, CYP24A1, Expression, Multiple Sclerosis, Real Time-Polymerase Chain Reaction

Count: 385

Abstract ID: 246

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

FMNL2 is part of PAX6 regulatory network

Submission Author: Elham Ghorbanpour

Elham Ghorbanpour¹, Parvin Pasalar², Elahe Elahi³

1. Department of Biochemistry, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Biochemistry, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
3. School of Biology, College of Science, University of Tehran, Tehran, Iran

Background and Aim : Glaucoma consists of a group of neurodegenerative diseases accompanied by progressive loss of retinal ganglion cells (RGCs), degeneration of the optic nerve, and characteristic visual field defects. It is the leading cause of irreversible blindness worldwide, yet its etiology is poorly understood. Elevated intraocular pressure (IOP), its major risk factor, is caused by impaired aqueous humour drainage through the trabecular meshwork (TM). Primary Open Angle Glaucoma (POAG) is the most prevalent type of glaucoma. However, mutations in five POAG causing genes account for <10% of POAG cases. The combined effect of several genes and gene-environment interactions are expected to be important in the etiology of POAG in patients without mutations in said genes. FOXC1 (forkhead box c1) is a transcription factor that has a crucial role in the differentiation of neural crest-derived ocular tissues. Additionally, mutations in FOXC1 can cause Axenfeld Rieger Syndrome (ARS) which is a disorder characterized by anterior eye segment defects and systemic anomalies. Approximately 50% of ARS patients secondarily develop glaucoma, and patients with FOXC1 mutations are yet more likely to develop glaucoma. We earlier identified 849 genes whose mRNA levels were affected by FOXC1 knock down in whole genome microarray gene expression analysis in primary human trabecular cell lines. Among FOXC1 direct targets, there is MEIS2 which directly targets PAX6, both important transcription factors in ocular development. Here, we attempted to expand the genetic network relevant to trabecular meshwork functions that include FOXC1 by identification of a potentially glaucoma relevant gene that is indirectly affected by FOXC1 and directly affected by PAX6. The target gene studied was FMNL2 that encodes formin-like protein 2 which has cytoskeleton relevant functions. The state of the cytoskeleton affects aqueous humor flow which is a cornerstone of glaucoma pathology.

Methods : Initially, bioinformatics tools were extensively used to identify FMNL2 as an appropriate candidate gene for possible targeting by PAX6. Subsequently, direct targeting of the promoter of FMNL2 by PAX6 was tested by the dual luciferase assay. The experiment was performed by cloning a promoter region of FMNL2 that contains PAX6 binding sites upstream of a firefly luciferase gene and comparison of expression of the luciferase in the presence and absence of PAX6 expression vectors in the HEK293T cell line. The effect of PAX6 on endogenous expression of FMNL2 in trabecular meshwork primary cells was assessed by real-time PCR.

Results : Dual luciferase assays in HEK293T cells clearly evidenced that PAX6 directly affects the FMNL2 promoter to promote increased expression of downstream sequences. However, overexpression of PAX6 in TM cells caused small but statistically significant downregulation of endogenous FMNL2 as assessed by real-time PCR.

Conclusion : It is concluded that PAX6 can indeed directly affect the transcription of FMNL2. However, the regulation of FMNL2 expression in TM cells is complicated and not limited to the direct effects of PAX6.

Keywords : Glaucoma; FMNL2; PAX6; MEIS2; FOXC1; trabecular meshwork.

Count: 386

Abstract ID: 122

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

Serum urate level as a biomarker of Parkinson's disease; evidences from experimental animal model

Submission Author: Hashem Haghdost Yazdi

Hashem Haghdost Yazdi¹, Ali Sarbazi Golezari², Gilda Khandan-chelarsi³, Mohammad Sopiabadi⁴, Mohammad Hossein Esmaeili⁵

1. Dept. Physiology, Qazvin University of Medical Sciences, Qazvin, Iran
2. Student Research committee, Qazvin University of Medical Sciences, Qazvin, Iran
3. Student Research committee, Qazvin University of Medical Sciences, Qazvin, Iran
4. Dept. Physiology, Qazvin University of Medical Sciences, Qazvin, Iran
5. Dept. Physiology, Qazvin University of Medical Sciences, Qazvin, Iran

Background and Aim : Several epidemiological studies indicate that higher plasma level of uric acid (UA) associates with a decreased risk of Parkinson's disease (PD). However, the results of epidemiological studies are intriguing, they do not clarify whether the inverse association between urate and PD progression is merely due to a pre-existing high plasma UA level, or the levels of endogenous urate can dynamically change during dopaminergic nigrostriatal degeneration. Therefore, to verify more the role of UA as a biomarker for PD, in this study, serum UA profile was followed in the 6-hydroxydopamine (6-OHDA) animal model of PD.

Methods : 6-OHDA was administered by stereotaxic surgery into the medial forebrain bundle. Apomorphine- induced rotational test was carried out to evaluate severity of behavioral symptoms and then, remaining tyrosine hydroxylase (TH) - positive neurons in the substantia nigra pars compacta were counted. Also, striatal dopamine level and three oxidative stress markers of superoxide dismutase (SOD), glutathione peroxidase (GPx) and malondialdehyde (MDA) in the midbrain were assessed using specific Research ELISATM kits. Serum UA level was determined before the surgery and at the third and sixth weeks post-surgery by alpha classic auto analyzer. Also, UA concentration was measured in the rat's brains.

Results : In 6- OHDA treated rats a significant decrease in urate level was observed. As severity of rotational behavior increased as function of time, more decrease in UA level was occurred. Also,

more decrease in serum UA level was observed in severe parkinsonian rats showed high number of rotations relative to mild parkinsonian rats that did not show significant rotations. Relative to severe parkinsonian rats, rats with mild behavioral symptoms showed significantly more number of tyrosine hydroxylase (TH)- positive neurons in substantia nigra, less decrease in striatal dopamine level and less severe oxidative stress in the midbrain of injured hemisphere. On the other hand, UA concentration in the midbrain of injured hemisphere of 6- OHDA treated rats was increased relative to control group.

Conclusion : Our data showed that in 6-OHDA- induced Parkinsonism there is a significant and direct correlation between amounts of decrease in serum urate level and severity of behavioral deficits, DA neuronal cell death in SNc, decrease in striatal dopamine level and severity of oxidative stress in midbrain. Our data also indicate that serum urate level could be considered as a biomarker for PD because a significant decrease in urate level was also observed in 6-OHDA-treated rats without marked behavioral deficit but with a significant DA cell death in SNc. On the other hand, UA at least in concentrations presented in this study, has no marked neuroprotective role.

Keywords : Uric acid, 6-OHDA- induced Parkinsonism, tyrosine hydroxylase - positive neurons, striatal dopamine level, Apomorphine- induced rotational test

Count: 387

Abstract ID: 579

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

A New Insight into γ -secretase Related miRNA's as a Diagnostic Biomarker for Alzheimer's Disease

Submission Author: Seyedeh nazanin Hajjari

Seyedeh nazanin Hajjari¹, Mehdi Mehdizadeh , Corresponding author ², Saeed Sadigh-Eteghad³, Shahram Teimourian⁴

1. Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran.
2. Cellular and Molecular Research Center, Department of Anatomy, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran
3. Neurosciences Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
4. Department of Medical Genetics, Iran University of Medical Sciences, Tehran, Iran.

Background and Aim : Alzheimer's disease (AD) as a destructive and progressive neurodegenerative condition, is the most prevalent dementia throughout the world which leads to death within 3 to 9 years after the emergence of clinical symptoms. Early and accurate diagnosis of AD has a vital role in the prevention of irreversible dementia. Increasing and accumulation of amyloid- β ($A\beta$) were proposed as the main factors in the disease incidence and development. Increased expression of the amyloid precursor protein (APP) may lead to increased levels of $A\beta$ and raises the risk of AD. The miRNAs has a critical regulatory role in various biological processes and their type and level of expression are mostly dysregulated in AD. Because of the vital role of γ -secretase in the production of $A\beta$, it is considered as a potential biomarker for AD. γ -secretase is a membrane-bound aspartic protease and includes 4 essential components: presenilin1 (PS1), nicastrin (NCSTN), anterior pharynx defective 1 homolog A (APH1A), and presenilin2 (PS2). We reviewed γ -secretase related miRNA's involved in APP cleavage pathways and the formation of $A\beta$ in AD as biomarker.

Methods : For this article the keywords : Alzheimer's disease, γ -secretase, presenilin1 (PS1), nicastrin (NCSTN), anterior pharynx defective 1 homolog A (APH1A), and presenilin2 (PS2) ,miRNAs, biomarker were searched with different combination in the pubmed, sciencedirect, google scholar and proquest. Appropriate and comprehensive articles were selected and reviewed.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Evidence have shown that miRNAs can have direct regulatory effects on the components of the γ -secretase. In addition, there are some other proteins which affect γ -secretase activities and accumulation of A β plaques

Conclusion : γ -secretase related miRNA's can be considered as an AD diagnostic biomarker.

Keywords : Alzheimer's disease; γ -secretase; miRNAs; biomarker

Count: 388

Abstract ID: 99

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

Assesment of anti alzheimer effects of *Ferulago angulata* extract

Submission Author: Seyedeh leila Hashemi

Seyedeh leila Hashemi¹, maliheh soodi², homa hajimehdipoor³

1. Department of Toxicology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
2. Department of Toxicology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
3. Department of Traditional Pharmacy, School of Traditional Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Alzheimer's disease (AD) is an age-dependent neurodegenerative disease and is the most common form of dementia in the elderly. It is characterized by progressive memory loss. According to the amyloid hypothesis, beta amyloid peptides ($A\beta$), produced by protease cleavage of Amyloid beta protein precursor (APP), extracellularly aggregate and produce insoluble fibrils which trigger pathological cascades such as oxidative stress and mitochondrial dysfunction that lead to neuronal cell death. Then modulation of $A\beta$ toxicity is the hopeful therapeutic approach for control of disease progression. It is suggested that Medicinal plants for having multiple active ingredients are effective in complex diseases such as AD then several researches have been focused on medicinal plants for finding effective treatment for AD. *Ferulago angulata* is a medicinal plant found in Western Asia and Iran. The extract from this plant consists of a mixture of various polyphenols whose antioxidant and neuroprotective effects have been reported by several studies. The aim of the present study is to assess the protective effect of the methanolic extract of the *Ferulago angulata* (chovir) on $A\beta$ -induced toxicity and oxidative stress in PC12 cells.

Methods : Methanolic extract of aerial part was prepared by maceration method. PC12 cells were cultured according to a standard protocol. PC12 cells were incubated for 24 hours with $A\beta$ alone and in combination with various concentrations of the *Ferulago angulata* extract. Cell viability was determined by the MTT assay. Also ROS production and the activity of Acetylcholin esterase (AChE), glutathione peroxidase (GPx) and caspase-3 enzymes were measured.

Results : The extract dose-dependently protects PC12 cells against $A\beta$ -induced cell death. The most protective effect was observed at the 200 $\mu\text{g/ml}$ concentration. Also $A\beta$ increase the ROS

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

production, AChE and caspase-3 activity and decrease the GPx activity which were ameliorated by *Ferulago angulata* extract. In addition *Ferulago angulata* extract reduced the AChE activity in PC12 cells.

Conclusion : Results of the present study indicate that *Ferulago angulata* extract protect against A β -induced oxidative stress and apoptosis. These effects may be due to antioxidant and anticholinesterase activity of extract. Then *Ferulago angulata* extract is a good candidate for further investigation as an anti-Alzheimer agent.

Keywords : Alzheimers, Beta amyloid, Oxidative stress, PC12 cells, *Ferulago angulata*

Count: 389

Abstract ID: 54

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

STAT5a and STAT6 gene expression levels in multiple sclerosis patients

Submission Author: Mahsa Hatami

Mahsa Hatami¹, Mohammad Taheri², Arezou Sayad³

1. Department of Medical Genetics, Shahid Beheshti University Of Medical Sciences, Tehran, Iran
2. Department of Medical Genetics, Shahid Beheshti University Of Medical Sciences, Tehran, Iran
3. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Background and Aim : Multiple sclerosis (MS) is a complex inflammatory, autoimmune disease of the central nervous system (CNS). The disease pathogenesis is not well defined yet. Cytokines have an important role in inflammation as characteristic feature of the disease. Janus kinase/ signal transducers and activators of transcriptions (JAK/STAT) family promote cytokinemediated cell activation. Failure in the JAK/STAT signaling pathway is associated with the pathological outcome in MS.

Methods : In this study, we compared the expression levels of STAT5a and STAT6 genes in the blood of 50 relapsing-remitting MS (RR-MS) patients and 50 healthy controls by TaqMan Quantitative Real-Time PCR in patients and healthy control group.

Results : We found that STAT5a expression was significantly down-regulated ($p=0.049$), whereas STAT6 gene expression was significantly up-regulated ($p=0.046$) in MS patients compared to controls. Moreover, there was significant correlation between the STAT6 gene expression and Kurtzke Expanded Disability Status Scale (EDSS) criterion. However, no significant correlation was demonstrated between the expression of STAT5a gene and clinical findings. Furthermore, there is not significant correlation between expression levels of STAT5a and STAT6 genes.

Conclusion : Our findings suggest that STAT5a and STAT6 dysregulation may have a critical role in modification of immune responses leading to imbalance between Th2- and Th1-related cytokines. However the mechanisms underlying it still remain to be elucidated. Future studies are needed to explore the role of STAT5a and STAT6 as prognostic biomarkers in research, design of experimental therapies or clinical settings of the MS.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : SATA5a, STAT6, expression, multiple sclerosis

Count: 390

Abstract ID: 266

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

The behavioral consequences of HTLV-1 infection in female BALB/c mice: motor dysfunction, memory impairment, depression and anxiety

Submission Author: Mahdieyh Hedayati

Mahdieyh Hedayati¹, Mahdiyeh Hedayati², Saeed Niazmand³, S.A Rahim Rezaee⁴, Mahmoud Hosseini⁵, Hossein Salmani⁶, Narges Amel Zabihi⁷

1. -
2. Department of Physiology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3. 1- Department of Physiology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran. 2- Neurocognitive Research Center, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
4. Immunology Research Center, Inflammation and Inflammatory Diseases Division, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
5. Neurocognitive Research Center, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
6. Neurocognitive Research Center, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
7. Department of Physiology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

Background and Aim : HTLV-1 infection is related to neuroinflammatory diseases like myelopathy/tropical spastic paraparesis (HAM/TSP). The present study evaluated the effect of HTLV-1 infection on locomotive activity, memory, depression and anxiety in female BALB/c mice.

Methods : Twenty female BALB/c mice (4-6 weeks old, 20-30g) were divided into control and HTLV-1 infected groups. HTLV-1 infected mice were inoculated with MT2 cells, a T-cell lymphotropic virus type 1 (HTLV-1) - producing human T-cell line, in 100 µl phosphate buffer solution (PBS) and control mice were inoculated only with 100 µl PBS. After 2 months rotarod running (RR), wire hang (WH), new object exploration (NOE), passive avoidance (PA), forced swimming (FS), marble burying (MB) and elevated plus maze (EPM) tests were performed. At the end of experiment, mice were sacrificed in order to obtain spleen, mesentery and peripheral blood

mononuclear cells (PBMC) for quantification of HTLV-1 proviral load by real time PCR technique.

Results : The provirus was detected in extracted DNA of spleen, mesentery and peripheral blood of the mice. In the HTLV-1 infected group, running time in RR, falling time in WH, the latency (delay time to entrance in dark compartment) in different time intervals (1, 2 and 7 days after foot shock) in PA test and the new object exploration percentage and discrimination ratio in NOE test were lower than the control group. Moreover, immobility time in FS, time spent in the dark compartment in PA test and total objects exploration time in NOE test significantly increased in the HTLV-1 infected group compared to the control group. There were no significant differences observed between groups in MB and EPM tests.

Conclusion : While the HTLV-1-infected mice exhibited depression-like behaviors, motor dysfunction and working and fear memory disruption, they do not display anxiety-like behaviors.

Keywords : HTLV-1, locomotor activity, memory impairments, depression, anxiety

Count: 391

Abstract ID: 652

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

The effect of intraperitoneal injection of Beta vulgaris root aqueous extract on thermal and mechanical hyperalgesia in the neuropathic pain (CCI) model in male rat

Submission Author: Fariba Hesari

Fariba Hesari¹, Masoud Fereidoni²

1. Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
2. Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran

Background and Aim : Neuropathic pain is a chronic pain caused by damage to neuronal cells and impaired function of the central or peripheral nervous system. Nevertheless of all the treatments provided so far (non-steroidal analgesics, opioids, anti-depressants and anticonvulsants), any one had not been fully effective in treatment or prevention of neuropathic pain development and also exerts some side effects. Beta vulgaris contains betanin and strong antioxidant effect so it could be assumed that it is able to prevent both the mechanical and thermal neuropathic hyperalgesia.

Methods : This experimental study was performed using 42 male rats weighing 200-250 g. Neuropathic allodynia was created with the Sciatic Nerve chronic constriction injury Model (CCI). Animals were randomly divided into 6 groups (n=7) composed of positive control group, CCI surgical control group, intra-peritoneal recipients of Beta vulgaris root aqueous extract with 50, 100,150 mg/kg doses per day for 14 constitutive days after surgery and sham group received distilled water as extract vehicle within 14 days after surgery. Mechanical (pin prick test) and thermal (hot plate test) hyperalgesia were measured on day zero (before surgery) and days 3, 7, 14, 21, and 28 followed by surgery.

Results : Intraperitoneal injection of Beta vulgaris root aqueous extract with 50, 100, 150 mg/kg doses resulted in a significant reduction in mechanical and thermal hyperalgesia ($p < 0.05$). The most effective dose for reduction of mechanical and thermal hyperalgesia was 150 mg/kg ($p < 0.01$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : It has been suggested that betanin, within the Beta vulgaris aqueous extract as an antioxidant, is able to inhibit the NF-b, iNOS, and NO production as well as MPO reduction. Perhaps the same mechanisms also in the present study have led to reduce mechanical and thermal hyperalgesia which should be investigated more.

Keywords : Aqueous extract, Beta vulgaris, Hyperalgesia, Neuropathic pain, Rat

Count: 392

Abstract ID: 653

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

The Effect of Menatetrenone Intraperitoneal Administration on Thermal and Mechanical Allodynia after Closure of Sciatic Nerve in Male Rat

Submission Author: Parisa Hesari

Parisa Hesari¹, Masoud Fereidoni²

1. Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
2. Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran

Background and Aim : Neuropathic allodynia can occur following damage to the nervous system, a pain that even arise with non-noxious stimuli and is a common disabling condition that affects millions of people around the world. Drug therapy has had limited success. It can be assumed that menatetrenone because of its antioxidant properties, inhibition of oxidative stress and inhibitions of bradykinin and dynorphin potentially could inhibit the formation of thermal and mechanical allodynia.

Methods : This experimental study was performed on 42 male rats weighing 200-250 g. Neuropathic allodynia was created with the Sciatic Nerve chronic constriction injury Model (CCI). Animals were randomly divided into 6 groups (n=7). Positive control group, CCI negative surgical group, chronic vitamin K2 recipient groups with 25, 50, 100 mg/kg doses during the 14 days after surgery, and the sham group received(1% v/v DMSO) as vitamin K2 vehicle for 14 days after surgery. Mechanical (von fray test) and thermal (acetone test) allodynia were measured at the day zero (before surgery) and days 3, 7, 14, 21 And 28 after surgery.

Results : Chronic intra-peritoneal administration of Menatetrenone with 25, 50, and 100 mg/kg doses, significantly decreased mechanical and thermal allodynia by the days 3, 7, 14, 21 and 28 (p <0.05) post-surgery. The dose of 100 mg/kg was the most effective dose for reducing both the thermal and mechanical allodynia (p <0.01).

Conclusion : The reported abilities for reduction of oxidative stress and inhibition of bradykinin and dynorphin by menatetrenone treatments are likely, in the present study, could prevent the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

changes leading to neuropathic allodynia following nerve injury, details should be further investigated.

Keywords : Intra-peritoneal, Mechanical allodynia, Menatetrenone, Rat, Thermal allodynia

Count: 393

Abstract ID: 356

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

Apigenin protects hippocampal neurons against toxicity of amyloid beta by modulation of the Bax/Bcl-2 proteins ratio and prevention of caspase-9 activation

Submission Author: Hadiseh Hossein nia

Hadiseh Hossein nia¹, Alireza Moeinsadat ², Yasaman Khadem ³, Dr. Farnaz Nikbakht⁴

1. cellular and molecular research center, Department of physiology
2. cellular and molecular research center, Department of physiology
3. cellular and molecular research center, Department of physiology
4. cellular and molecular research center, Department of physiology

Background and Aim : Brain neuronal loss is a prominent pathological feature of Alzheimer's disease (AD). Cell death and neurodegenerative conditions have been linked to oxidative stress and caspase activation which lead to an imbalance between the generation of free radicals and antioxidant defenses. Suppression the production of caspase and Bcl2 family proteins is an essential part of AD treatment; however, no complete neuroprotective therapies have been yet developed. Recently apigenin, a natural dietary flavonoid, has received considerable attention as alternative candidates for Alzheimer's therapy taking into account its anti amyloidogenic, and anti-inflammatory properties. This study investigated the beneficial effects of apigenin on hippocampal CA3 neuronal death by modulation of the Bax/Bcl-2 proteins ratio and prevention of caspase-9 activation.

Methods : Rats were divided into four groups: 1- Amyloid beta (A β) 2- control/vehicle 3- apigenin and 4- amyloid beta+apigenin. Animals in A β group received ICV microinjection of 15nmol A β 25-35. Apigenin (50mg/kg) was used orally. Three weeks after Alzheimer modeling or apigenin treatment, animals were sacrificed and the brains were used for the further histological process. Cell death and degeneration were detected by Nissl and FluoroJade B assay. Furthermore, Bax and Bcl2 proteins were determined by immunohistochemical staining.

Results : The results show that the number of Fluoro-jade B positive cells was significantly increased in A β group ($p < 0.001$), which was significantly reduced after apigenin treatment ($P < 0.$

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

01). In addition, our results showed a significant increase in the Bax/Bcl-2 ratio in the A β group (P<0.001). Apigenin treatment restores this elevation to the normal level of the control group. The number of active caspase-9-positive neurons was also significantly increased in the A β group (P<0.001), which was attenuated markedly by apigenin (P<0.001).

Conclusion : This study showed that apigenin can exert neuroprotective effects against amyloid beta in CA3 neurons through modulation of Bax/Bcl2 ratio and inhibition of mitochondrial caspase-dependent cell death.

Keywords : Alzheimer's disease, Amyloid beta, Apigenin, BAX, BCL2, Caspase-9

Count: 394

Abstract ID: 41

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

The treadmill running effects on hippocampal dentate gyrus baseline neural activity in NBM-lesioned rats

Submission Author: Nasrin Hosseini

Nasrin Hosseini¹

1. Neuroscience Research Center, Iran university of Medical sciences

Background and Aim : One of the hypothesis about Alzheimer disease pathology is the cholinergic hypofunction. The nucleus basalis magnocellularis (NBM) is known as a major source of cholinergic projections to neocortex that is vulnerable to degeneration in Alzheimer's disease. Studies proposed some of the beneficial effects of exercise such as blood flow improvement to the brain, feeding the growth of new blood vessels and even new brain cells. Previous studies indicated that Alzheimer disease leads to impairments in hippocampus synaptic plasticity. Despite numerous anatomical, pharmacological, behavioral, and physiological investigations of NBM, there is no in vivo study of physical activity effect on neural baseline activity after cholinergic hypofunction. Thus, the effects of treadmill running on hippocampal dentate gyrus baseline neural activity in NBM lesioned rats were assessed

Methods : The forty male Wistar rats were randomly apportioned in four groups, including: Control (C), Sham (Sh), NBM-lesion (L) and exercise after the NBM-lesion (L-E) groups. NBM-lesion induced by bilateral ibotenic acid injection (5 µg/µl in each side) and after 21 days, animals were exercised for 3 weeks (to specify treatment effects of exercise). In all groups synaptic potency in the dentate gyrus evaluated by PS amplitude and EPSP slope

Results : Our results indicated that the PS amplitude and fEPSP slope significantly ($P<0.05$) decreased in 600,700,800,900 and 1000 µA stimulus intensity in the NBM-lesion group comparing to the control and sham groups in the input-output curves. Also, there was not significant differences between control, sham and exercise after the NBM-lesion groups in the PS amplitude and fEPSP slope

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The present results suggest that the basal synaptic responses are affected under cholinergic hypofunction, whereas treadmill running has advantageous effects on neural base line responses and it can improve neural dysfunction in Alzheimer disease.

Keywords : Neucleous Basalis Magnocellularis; Treadmill running; Synaptic plasticity; Dentate gyrus; Rat

Count: 395

Abstract ID: 574

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

Human mesenchymal stem cells promote functional improvement through coupling expression of neurotrophic factors and neural stem cell differentiation in a rat model of Alzheimer's disease.

Submission Author: Mohammad Karimipour

Mohammad Karimipour¹, Ali Abed elahi², Hamid Tayefi³

1. Department of Anatomical Sciences, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
2. Department of Anatomical Sciences, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
3. Department of Anatomical Sciences, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran

Background and Aim : Alzheimer's disease (AD) is an age-related progressive neurodegenerative disease, which is characterized clinically by serious impairment in memory, cognition and neural tissue degeneration. Current medications only slow down the dementia progression and the present treatment one-drug one-target paradigm for anti-AD treatment appears to be clinically unsuccessful. The strong evidences indicated that the mesenchymal stem cells (MSCs) improve hippocampal dependent learning and memory. In this regard, the present study aimed to investigate the neurogenesis potential effect of MSCs and its underlying mechanisms on neural stem cell (NSC) behavior through neurotrophins signaling pathways in a rat model of Alzheimer's disease.

Methods : Following isolation of the human MSCs from adipose tissue, at the third passage of cell culture they were evaluated by flowcytometry analysis. 21 days after amyloid beta injection, passive avoidance test was performed to confirm the induction of AD and memory impairment. MSCs were injected bilaterally into the dentate gyrus with stereotaxic surgery. One day after transplantation, for investigation of proliferation, migration and differentiation of endogenous NSCs in the hippocampus, BrdU was injected for 7 successive days. 24 h after the last injection, immunohistochemistry technique was performed to examine the proliferation of NSCs. Also immunofluorescence and double-labeling of BrdU, NeuN, and assays were conducted for evaluation of migration of NSCs and adult neurogenesis paradigms. Moreover for investigation of

neurotrophin genes expression and relation with adult neurogenesis phenomenon and memory consolidation, real time RT-PCR assay was applied. Three months after transplantation, the Morris water maze as a cognitive behavioral test was performed to evaluate the effects of MSCs transplantation on spatial learning and memory paradigms.

Results : The present research revealed that the human MSCs induce expression of neurotrophins including BDNF, NGF, CREB, ZIF268 which mediating the neurogenesis, synaptic plasticity and memory establishment. Our results showed that transplanted cells into rat's dentate gyrus exhibited robust proliferation, migration and differentiation of NSCs towards the granular layer. The majority of the NSCs stained with NeuN (78.2 %) implying that most cells differentiate to mature neurons and integrated into the preexisting synaptic hippocampal circuitry. Finally grafted cells reversed the A β -associated memory deficits in a rat model of amyloid- β induced Alzheimer's disease.

Conclusion : We found that the grafted human MSCs cells enhance learning and memory by via neurogenesis, synaptogenesis and related correlative and integration pathways. These findings, although are restricted to molecular, cellular, and behavioral approaches, but represent a new perspective for prevention and treatment of AD.

Keywords : MSCs, NSCs, Transplantation, Learning and memory and Alzheimer's disease

Count: 396

Abstract ID: 543

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

The neuroprotective effect of cinnamon alcoholic extract in experimental model of Parkinson's disease in rat

Submission Author: Mohammad Reza Khajevand Khazaei

Mohammad Reza Khajevand Khazaei¹, Ameneh Jomezadeh², Mohsen Khalili³, Zahra Kiasalari⁴, Mehrdad Roghani⁵

1. School of Medicine, Shahed University, Tehran, Iran.
2. Neurophysiology Research Center, Shahed University, Tehran, Iran.
3. Neurophysiology Research Center, Shahed University, Tehran, Iran.
4. Neurophysiology Research Center, Shahed University, Tehran, Iran.
5. Neurophysiology Research Center, Shahed University, Tehran, Iran.

Background and Aim : Parkinson's disease is the second most common neurodegenerative disease that affects 1% of the population over the age of 55. The most important defect in this disease is the degeneration of dopaminergic neurons in the pars compacta of the substantia nigra of the midbrain. Considering the antioxidant and neuroprotecting properties of cinnamon, the purpose of this study was to evaluate the neuroprotective effect of alcoholic extract of this plant in an experimental model of Parkinson's disease.

Methods : In this experimental study, male rats (n = 32) were divided into 4 groups: sham, extract-treated sham, lesion and extract-treated lesion. The experimental model of Parkinson's disease was made by injecting 12.5 microgram of 6-hydroxydopamine dissolved in a saline-ascorbate solution into the left side of neostriatum. The treated sham and lesion groups received 100 mg/kg of the extract intraperitoneally daily during a week before stereotaxic surgery, and the last injection was given one hour before stereotaxic surgery. In the second week after surgery, the rotational behavior induced by apomorphine injection within one hour and the number of dopaminergic neurons in the substantia nigra compacta was examined and counted.

Results : In the second week after surgery, the lesion rats showed an obvious and high rotation to the opposite side and a significant decrease was observed in the pure number of rotations in the extract-treated lesion rats (P<0.01). In the sham and extract-treated sham groups the rotations were

to the left side, but no significant difference was found between the rotations of these two groups. However, the pure number of rotations was higher in the sham group; in the lesion group a significant decrease of left dopaminergic neurons was observed compared with the sham group ($P<0.01$). This neuronal decrease was lower in the extract-treated lesion group, and the number of neurons was significantly higher compared with the lesion group ($P<0.05$). There was no significant difference observed in the extract acid-treated sham group compared to the sham group.

Conclusion : Pretreatment with intraperitoneal administration of cinnamon extract reduces the motor asymmetry (attenuation of rotational behavior) in an experimental model of Parkinson's disease and also has protective effect on reduction of nigral dopaminergic neurons.

Keywords : Cinnamon; Parkinson's disease; 6-hydroxydopamine; Motor asymmetry; Dopaminergic neuron; Substantia nigra

Count: 397

Abstract ID: 666

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Evaluation correlation between serum concentration of triglyceride and Behavioral Symptoms of 6-Hydroxydopamine -Induced Parkinsonism in Rats

Submission Author: Gilda Khandan chelarasi

Gilda Khandan chelarasi¹, arvin babayan taze kand², ali sarbazi golezari³, fatemeh salehi⁴, hashem haghdoost yazdi⁵

1. Student Research Committee, Qazvin University of Medical Sciences, Qazvin, Iran
2. Student Research Committee, Qazvin University of Medical Sciences, Qazvin, Iran
3. Student Research Committee, Qazvin University of Medical Sciences, Qazvin, Iran
4. Student Research Committee, Qazvin University of Medical Sciences, Qazvin, Iran
5. Cellular and Molecular Research Center, Qazvin University of Medical Sciences, Qazvin, Iran

Background and Aim : Parkinson's disease (PD) is the second most neurodegenerative disorder which is characterized by a progressive loss of dopaminergic neurons in the substantia nigra pars compacta. Clinical symptoms do not appear until approximately 70% of dopaminergic neurons and 80% of the striatal dopaminergic terminals have been lost. Characterization of non-clinical bioindicators are therefore of great importance in diagnosis of PD. In this study, we evaluate the serum level of triglyceride (TG) in 6-hydroxydopamine (6-OHDA)- induced Parkinsonism in rat.

Methods : Twenty-eight Wistar rats were classified in two control and 6- OHDA treated groups. The 6-OHDA toxin was injected into the medial forebrain bundle of rat's brain in 6- OHDA group through stereotaxic surgery. Severity and extent of Parkinsonism were assessed by apomorphine-induced rotational test. Blood specimens were collected from heart of animals and the serum TG level was determined.

Results : In the 6- OHDA rats, serum TG level was significantly higher than it in control group ($P < 0.05$). The severity of Parkinsonism, however, was not similar between 6- OHDA treated rats and severe, moderate and even no-detectable behavioral symptoms were observed in these rats. The TG level in all of these third groups was significantly higher than that in control group

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

($P < 0.01$, $P < 0.05$). On the other hand, no significant difference in TG level was observed between these groups.

Conclusion : Since the severity of rotations in the apomorphine-induced rotational test is in harmony with extent of degeneration of dopaminergic neurons in substantia nigra pars compacta, the serum level of TG can be considered as possible bioindicator of PD.

Keywords : Parkinson Disease; triglyceride; 6-Hydroxydopamine; Apomorphine-induced rotational

Count: 398

Abstract ID: 276

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

Identification of two SPG11 pathogenic mutations in autosomal recessive juvenile amyotrophic lateral sclerosis families using exome sequencing

Submission Author: Marzieh Khani

Marzieh Khani¹, Elahe Elahi², Mina Tolou Ghani³, Hanieh Taheri⁴, Afagh Alavi⁵, Hamidreza Moazzeni⁶, Shahriar Nafissi⁷

1. School of Biology, College of Science, University of Tehran, Tehran, Iran.
2. School of Biology, College of Science, University of Tehran, Tehran, Iran. Department of Biotechnology, College of Science, University of Tehran, Tehran, Iran.
3. Department of Molecular Genetics, Faculty of Biological Sciences, Tarbiat Modares University, Tehran, Iran
4. School of Biology, College of Science, University of Tehran, Tehran, Iran.
5. Genetics Research Center, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
6. Department of Medical Genetics, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.
7. Department of Neurology, Tehran University of Medical Sciences, Tehran, Iran.

Background and Aim : Amyotrophic lateral sclerosis (ALS) is an adult onset, progressive, and fatal motor neuron disease. It is the most common motor neuron disease and the third most common neurodegenerative disease in countries of European descent. ALS is characterized by dysfunction and degeneration of both upper motor neurons in the cortex and lower motor neurons in the brainstem and spinal cord. Autosomal recessive juvenile amyotrophic lateral sclerosis (ARJALS) is a rare form of ALS that occurs before the age of 25 years. It is distinguished from the classical ALS by its early onset and typically a slowly progressive course, with a disease duration up to 3 decades. Genetic analysis of Familial ALS (FALS) families and, more recently, whole genome exome sequencing in large patient cohorts have by now led to the identification of over 30 ALS causing genes. Some of these genes have been reported to be the cause of ARJALS disease. Despite the number of genes that have been reported for ALS, the cause of disease in most patients is still unknown. Our goal was to identify the causative gene for ARJALS in two families without mutations in the three more common ALS causing genes, SOD1, C9ORF72 and TARDBP.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Methods : Two families, each with two siblings affected with ARJALS were recruited. SOD1, C9ORF72, and TARDBP were screened for potential disease causing mutations. Subsequently, whole genome exome sequencing was performed. Segregation analysis, and screenings of ethnically matched control individuals were performed on a novel candidate causative mutation.

Results : Mutations in SOD1, C9ORF72, and TARDBP were not observed in the probands by direct sequencing. Exome sequencing led to identification of a homozygous frameshift mutation in SPG11 in each of the families that are predicted to create premature stop codons. Both mutations segregated with disease status. One was novel, and this was not observed in 300 control individuals.

Conclusion : SPG11 encodes SPATACSIN, whose function is unknown. SPG11 is known to be a causative gene of autosomal recessive hereditary spastic paraplegia with thin corpus callosum (HSP-TCC), and mutations in the gene are in fact the most common cause of HSP-TCC. Recently, mutations in SPG11 have been reported in multiple Charcot Marie Tooth (CMT) patients and in three ARJALS patients. Our finding of mutations in SPG11 in our two ARJALS families substantiates the role of this gene in the etiology of SPG11, and also emphasizes potential commonalities among the etiologies of HSP-TCC, CMT, and ARJALS.

Keywords : juvenile amyotrophic lateral sclerosis; SPG11; Exome sequencing

Count: 399

Abstract ID: 290

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Vitamin D supplementation may have therapeutic effects in Neuromyelitis Optica Spectrum Disorder

Submission Author: Mohammad Bagher Maljaei

Mohammad Bagher Maljaei¹, Vahid Shaygannejad², Omid Mirmosayyeb³, Gholamreza Askari⁴, Mohammad Reza Maracy⁵

1. Isfahan Neuroscience Research Center and Department of Neurology, Alzahra Hospital, Isfahan University of Medical Sciences, Isfahan, Iran.
2. Isfahan Neuroscience Research Center and Department of Neurology, Alzahra Hospital, Isfahan University of Medical Sciences, Isfahan, Iran.
3. Isfahan Neuroscience Research Center and Department of Neurology, Alzahra Hospital, Isfahan University of Medical Sciences, Isfahan, Iran.
4. Food Security Research Center and Department of Community Nutrition, School of Nutrition and Food Sciences, Isfahan University of Medical Sciences, Isfahan, Iran.
5. Department of Epidemiology and Biostatistics, Isfahan University of Medical Sciences, Isfahan, Iran.

Background and Aim : Neuromyelitis optica Spectrum Disorder (NMOSD) is an inflammatory disorder of the central nervous system that presents typically with relapses of optic neuritis or transverse myelitis, in which IgG autoantibodies against aquaporin-4 water channel protein probably play a pathogenic role. NMOSD is a progressive disease that increases disability. Previous studies were shown that vitamin D play an important role in autoimmune and inflammatory diseases and patients with NMOSD has vitamin D deficiency and there were negative correlation with serum vitamin D and Expanded Disability Status Scale (EDSS) in NMOSD. The aim of this study is to investigate the effects of vitamin D supplementation on IgG-NMO and disability in patients with NMOSD.

Methods : 29 patients with newly diagnosed of NMOSD were involved to present study. Food Frequency Questionnaires (FFQ) and Sun Exposure Questionnaire were recorded for evaluation of vitamin D intakes from food and sun light exposure before intervention. In addition, serum 25(OH) vitamin D, IgG-NMO, EDSS and Fatigue Scale were assessed in patients with NMO. Then, 15 patients that randomized selected, consumed 50000 International Unit (IU) of vitamin

D3 per week for 15 weeks. Other 14 patients received placebo. In finally, were assessed serum 25(OH) vitamin D, IgG-NMO EDSS and Fatigue Scale after intervention. This present clinical trial study was approved by Iranian Registry of Clinical Trials.

Results : Mean \pm SD of vitamin D intake, sun exposure scale, serum 25(OH) vitamin D3 levels, IgG-NMO titration, EDSS and fatigue scale no had significant difference between intervention and placebo groups before intervention. We observed significant decreases in EDSS and fatigue scale after intervention in intervention group. (EDSS before= 4.91 ± 1.85 , after= 3.54 ± 0.97 , $p < 0.001$ – Fatigue Scale before= 50.47 ± 4.21 , after= 38.57 ± 3.12 , $p < 0.001$). Also IgG-NMO titration decreased after supplementation but this was marginally significant. ($p = 0.069$). Too, we observed a significant negative correlation between serum vitamin D and EDSS ($r = -0.717$, $p = 0.004$), fatigue scale ($r = -0.410$, $p = 0.027$) and IgG-NMO ($r = -0.564$, $p = 0.001$) in all participants after intervention. Age, gender, disease duration and latitude were not confounder variables.

Conclusion : Physiological variation in vitamin D may exert a major impact on autoimmune and inflammatory disease. We observed that vitamin D supplementation can decrease IgG-NMO, EDSS and fatigue scale in participants with NMOSD and vitamin D may have therapeutic effects in NMOSD.

Keywords : Neuromyelitis optica Spectrum Disorder; vitamin D; immunoglobulin G

Count: 400

Abstract ID: 211

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Sesamin imparts neuroprotection against intrastriatal 6-hydroxydopamine toxicity by inhibition of astroglial activation, apoptosis, and oxidative stress

Submission Author: Monireh Mansouri

Monireh Mansouri¹, Tourandokht Baluchnejadmojarada², Mehrdad Roghanic³

1. Dept. Physiology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran
2. Dept. Physiology, School of Medicine, Iran University of Medical Sciences, Tehran, Ir
3. Neurophysiology Research Center, Shahed University, Tehran, Iran

Background and Aim : Parkinson's disease (PD) is one of the most prevalent neurodegenerative disorders in elders. Sesamin is a lignan compound and the active constituent of sesame oil with antioxidant and anti-inflammatory properties. This study was carried out to explore the mechanisms underlying sesamin effect against unilateral striatal 6-hydroxydopamine (6-OHDA) model of PD.

Methods : Intrastriatal 6-OHDA-lesioned rats were pretreated with sesamin at doses of 10 or 20 mg/kg/day for one week

Results : Sesamin at a dose of 20 mg/kg attenuated motor imbalance in narrow beam test, lowered striatal level of malondialdehyde (MDA) and reactive oxygen species (ROS), improved superoxide dismutase (SOD) activity, lowered striatal caspase 3 activity and a-synuclein expression, attenuated glial fibrillary acidic protein (GFAP) immunoreactivity, depressed nigral neuronal apoptosis, and prevented damage of dopaminergic neurons using tyrosine hydroxylase (TH) immunohistochemistry.

Conclusion : These findings reveal the reversal effect of sesamin in 6-OHDA model of PD via attenuation of apoptosis, astrogliosis, oxidative stress, and down-regulation of a-synuclein.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Sesamin Parkinson's disease 6-hydroxydopamine Apoptosis Astrogliosis Oxidative stress

Count: 401

Abstract ID: 405

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Association of SORL1 Polymorphisms with Alzheimer's disease in an Iranian Northwest Population

Submission Author: Nazanin Mardokh rouhani

Nazanin Mardokh rouhani¹, Mohammad Khalaj Kondari², Mahnaz Talebi³, Mohammad Ali Hoseinpour Faizi⁴

1. Tabriz University, Faculty of Natural Sciences, Department of Biology
2. Tabriz University
3. Tabriz University of Medical Sciences
4. Tabriz University

Background and Aim : The pathogenetic mechanisms of Alzheimer, as a common progressive neurodegenerative disease, is unclear. So, there is no valid way for predicting Alzheimer disease. But, genetic variations may play an important role in it. Previous studies have founded the association of single nucleotide polymorphisms (SNPs) in the Sortilin-related receptor (SORL1) with AD. The neuronal SORL1 has a role in the processing and transmitting of amyloid precursor protein (APP) into recycling pathways. Hence, it influences A β generation and by this, AD pathology. It is approved as a way for estimating and predicting the risk for AD in a genome wide association study, in Japanese, Koreans and Caucasians. The association of SORL1 variants with AD in the Iranian Population has not been studied.

Methods : A case-control study was accomplished in an Iranian Northwest Population including 94 AD patients and 86 control participants. Genomic DNA extracted from peripheral blood leukocytes with the salting out method of Miller et al. The SNP rs3781834 was genotyped with a polymerase chain reaction-restriction fragment length polymorphism, (PCR-RFLP) method. The primers were designed by Oligo-7 and Primer blast. The primers for SORL1 SNP rs3781834 analysis were as follows: 5'-TCCCTCCTGTCCCGACTTC-3' (forward) and 5'-CGCATAACAAGCACGCATAAG-3' (reverse).

Results : There was no association between the polymorphism of SORL1 SNP rs3781834 and the risk of AD. The results of this study rejected the relationship of the G allele (A/G + G/G) of SNP

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

rs3781834 with AD ($\chi^2=0.53$, $P = 0.817 > 0.05$). The results of this study rejected the relationship of the G allele (A/G + G/G) of SNP rs3781834 with AD.

Conclusion : According to the results, it cannot be a way for estimating and predicting the risk for AD in the Iranian Northwest Population. Some other needed researches are suggested in this respect.

Keywords : Alzheimer's disease, SORL1 Polymorphisms, SNP rs3781834, Iranian Northwest Population

Count: 402

Abstract ID: 2

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Neuroprotective effect of exogenous melatonin post-treatment on locus coeruleus noradrenergic neurons against REM sleep deprivation

Submission Author: Somaye Mesgar

Somaye Mesgar¹, Yousef Sadeghi², Abbas Aliaghaei³

1. Neuroscience Lab, Biology and Anatomical Sciences Department, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. 5Auditory Disorders Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Neuroscience Lab, Biology and Anatomical Sciences Department, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Melatonin primarily secreted by the pineal gland in dark phase of the circadian rhythm. In addition to its role as an internal sleep facilitator, melatonin acts as antioxidant, anti-inflammatory and neuroprotective agents. Recently, melatonin has been introduced as a therapeutic strategy for sleep disorders. Hence, in the present study, we studied the neuroprotective effects of pre- and post-treatment of melatonin in locus coeruleus (LC) of rapid eye movement (REM) sleep deprived (RSD) male adult rats.

Methods : Adult male rats of control and trial groups used in this study. Using flower-pot technique, long term RSD induced. Exogenous melatonin used intraperitoneally in two forms of pre and post treatment. The protein level of cleaved caspase-3, number and density of tyrosine hydroxylase (TH) positive neurons and microglia population in LC studied by western blot and immunohistochemistry respectively. Moreover, morphological changes of LC nucleus and neurons studied by stereological analysis.

Results : The number of neuron and volume of LC were reserved in animals received post-RSD ExMe, apoptosis significantly was decreased comparing to RSD and Pre-RSD animals. Besides, melatonin post-treatment of RSD rats decreased cleavage of caspase-3 and increased reduced glutathione content in LC. Moreover, immunohistochemistry analysis revealed the increase number of TH positive neurons and decrease microglia migration.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Based on our findings uprise of antioxidant property of exogenous melatonin along with anti-apoptotic effect could play critical roles in the certain types of sleep disorders.

Keywords : Locus coeruleus, Exogenous melatonin, REM sleep deprivation

Count: 403

Abstract ID: 68

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Chitosan-film associated with mesenchymal stem cells improved sciatic functional index in a rat sciatic nerve model

Submission Author: Mehrnaz Moattari

Mehrnaz Moattari¹, Gholamreza Kaka², Seyed Homayoon Sadraie³, Majid Naghdi⁴, Korosh Mansouri⁵

1. Department of Animal Biology, Faculty of Biological Science, Kharazmi University, Tehran, Iran
2. Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.
3. bNeuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.
4. Fasa University of Medical Science, Fasa, Fars, Iran.
5. Department of Physical Medicine, and Rehabilitation, Iran University of Medical Sciences, Tehran, Iran.

Background and Aim : Peripheral nerve injuries comprise significant portion of the nervous system injuries. Although peripheral nerves show some capacity of regeneration after injury, but the extent of regeneration is not remarkable. Regeneration might be through the activity of the mesenchymal stem cells (MSCs) which can release growth factors or extracellular matrix components or by the therapeutic effect of some material with the MSCs. The present study aimed to evaluate the regeneration of transected sciatic nerve by a therapeutic value of mesenchymal stem cells (MSCs) associated with chitosan-film (Cs) in rat.

Methods : Male Wistar rats (n=42, 180-200g) were randomly divided into intact; control; sham; Cs; MSCs; MSCs + Cs groups. Functional recovery using sciatic functional index (SFI) was evaluated at 2, 4, 6 and 8 weeks after surgery.

Results : The rats in the MSCs+Cs group showed significant decrease in SFI during the 2nd to 8th weeks after surgery.

Conclusion : the present study showed that mesenchymal stem cells associated with Cs could improve sciatic functional index 8 weeks after surgery.

Keywords : Chitosan; Mesenchymal stem cells; Sciatic nerve; Repair; Rat

Count: 404

Abstract ID: 728

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Complex regulatory network potentially involved in the pathogenesis of glaucoma

Submission Author: Hamidreza Moazzeni

Hamidreza Moazzeni¹, Mohammad Taghi Akbari², Elahe Elahi³, Marzieh Khani⁴

1. Department of Medical Genetics, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran. 2. Tehran medical genetics laboratory, Tehran, Iran.
1. Department of Medical Genetics, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran. 2. Tehran medical genetics laboratory, Tehran, Iran.
- School of Biology, College of Science, University of Tehran, Tehran, Iran
- School of Biology, College of Science, University of Tehran, Tehran, Iran

Background and Aim : Glaucoma is a leading cause of blindness worldwide. Elevated Intraocular pressure (IOP) is its most important risk factor. Trabecular meshwork (TM) is the key component of the aqueous humor outflow and affects IOP. Transcription factors and microRNAs are important components which exert a pivotal role in biological processes. Here, we aimed to identify complex regulatory network including transcription factors, microRNAs, and their target genes which involved in the pathogenesis of glaucoma.

Methods : Microarray analysis was performed to identify genes in TM cells whose expressions are affected by PITX2 and FOXC1 transcription factors. Bioinformatics tools were used to identify direct target genes and those which have relevance to glaucoma and TM functions. The tools were also used to identify microRNAs potentially involved in glaucoma and TM functions. Among microRNAs, one that was selected for further studies was submitted to MiRWalk to predict its target genes. Dual luciferase assay, real time-PCR, Western blot analysis and flow cytometry in transfected Hela, Hek-293 and TM cells were used to confirm in silico studies.

Results : Microarray analysis revealed that 41 and 849 genes, respectively, were affected by PITX2 and FOXC1. PITX2 and FOXC1 respectively, regulate the TGF β and NF-KB pathway. Mir-204 was shown to target five genes. Three of the five have apoptosis related functions.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Several transcription factors and microRNAs have relevance to glaucoma. FOXC1 and PITX2 may regulate IOP, focal adhesion, and oxidative stress response through NF-KB and TGF β signaling. Mir-204 have apoptosis related functions. Apoptosis is involved in the etiology of glaucoma, and abnormal function of mir-204 contribute to the glaucoma phenotype.

Keywords : Transcription factors, microRNAs, glaucoma, PITX2 and FOXC1

Count: 405

Abstract ID: 42

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

Riluzole ameliorates learning and memory deficits in A β 25-35-induced rat model of Alzheimer's disease

Submission Author: Zahra Mokhtari

Zahra Mokhtari¹, Tourandokht Baluchnejadmojarad², Farnaz Nikbakht³, Mehrdad Roghani⁴, Monireh Mansori⁵

1. Iran University of Medical Science, Tehran, Iran
2. Iran University of Medical Science, Tehran, Iran
3. Iran University of Medical Science, Tehran, Iran
4. Shahed University of Medical Science, Tehran, Iran
5. Iran University of Medical Science, Tehran, Iran

Background and Aim : Alzheimer's disease (AD), the most important global public health and social care problem, is associated with cognitive impairment. In addition to the accumulation of extracellular β -amyloid and the neurofibrillary tangles hypothesis, glutamate-mediated excitotoxicity is the most important mechanism underlying neuronal death in AD. This may be related to the increase in oxidative stress and brain cholinergic dysregulation.

Methods : In the present study, the effect of riluzole (10mg/kg oral gavage), a glutamate release inhibitor, on learning and spatial memory after bilateral intrahippocampal injection of A β (25–35) was assessed in a rat model for AD. Spatial memory was evaluated using a Morris water maze and the passive avoidance test was performed to assess learning. Lipid peroxidation, catalase activity, and nitrite levels were assessed as markers of oxidative stress. Acetylcholinesterase (AChE) activity was measured to assess involvement of the cholinergic pathways of the brain.

Results : The impairment of short and long memory in A β -injected groups was in accordance with the elevation of lipid peroxidation, decrease in catalase activity and increase in nitrite levels in the hippocampus. Pretreatment with riluzole enhanced learning and spatial memory reduced oxidative stress and prevented an increase in AChE activity in the rat hippocampus.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : It is concluded that riluzole could exert a protective effect against memory decline induced by intrahippocampal A β 25-35 through anti-oxidative, anti-cholinesterase, and neuroprotective potential and its beneficial effect is possibly independent of cholinceptor activation.

Keywords : Acetylcholinesterase; Alzheimer's disease; A β (25-35); Cholinergic receptor; Learning and memory; Oxidative stress; Riluzole

Count: 406

Abstract ID: 320

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

N-3 polyunsaturated fatty acids and multiple sclerosis; A systematic review of clinical trials

Submission Author: Iman Namjoo

Iman Namjoo¹, Mohammad Borzu Esfahani², Behnood Abbasi³

1. Food Security Research Center and Department of Community Nutrition, Isfahan University of Medical Sciences, Isfahan, Iran.
2. Food Security Research Center and Department of Community Nutrition, Isfahan University of Medical Sciences, Isfahan, Iran.
3. Food Security Research Center and Department of Community Nutrition, Isfahan University of Medical Sciences, Isfahan, Iran.

Background and Aim : Multiple sclerosis is a chronic, inflammatory, neurodegenerative and debilitating disease. Remarkable interest has been shown in the potential anti-inflammatory and immunomodulatory effects of n-3 polyunsaturated fatty acids (n-3 PUFAs) in multiple sclerosis (MS) and other autoimmune inflammatory disorders. The purpose of this study is the evaluation of effect of omega-3 fatty acids supplementation on clinical outcomes and immunity aspects in patients with MS.

Methods : According to the inclusion and exclusion criteria, we searched PubMed, ISI, Science direct and Google scholar by these terms: Omega-3 Fatty Acid, n-3 Polyunsaturated Fatty Acid, Fish Oils, Multiple Sclerosis and other related terms. We also searched reference lists and citations of primary articles and relevant reviews to identify any other eligible studies. Two authors independently assessed eligibility and extracted data. Of the 493 studies identified, 6 clinical trials met the defined inclusion criteria.

Results : There was no significant difference in Expanded Disability Status Scale (EDSS), quality of life (QOL), fatigue, rate and severity of relapse between intervention and control groups. Of the three studies, only one study showed improvements in QOL. No differences were seen in cytokines, chemokines and adhesion molecules levels between the two groups, although one study

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

showed decreased levels of inflammatory cytokines (TNF α , IL-1 β , IL-6) and nitric oxide Catabolites in the intervention group compared with placebo group.

Conclusion : There are no beneficial effects of omega-3 fatty Acid supplementation on clinical outcomes and immunity aspects in patients with MS. We found that evidence for the efficacy of omega-3 fatty acids supplementation is still lacking in MS, and more randomized controlled trials (RCT) are needed to confirm the results.

Keywords : omega-3 fatty acids; multiple sclerosis; clinical outcomes; immunity aspects

Count: 407

Abstract ID: 361

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Neuroprotective effect of Thymoquinone on hydrogen peroxide-induced cell death in SH-SY5Y cells

Submission Author: Zahra Nayeri

Zahra Nayeri¹, Farzaneh Sabouni², Mossa Gardaneh³, Farzaneh Afzali⁴

1. Molecular Medicine Department, Institute of Medical Biotechnology, National Institute of Genetic Engineering and Biotechnology
2. Assistant Professor in Molecular Medicine Department, Institute of Medical Biotechnology, National Institute of Genetic Engineering and Biotechnology
3. Associate Professor in Human Molecular Genetics Dept. of Stem cells and Regenerative Medicine National Institute of Genetic Engineering and Biotechnology
4. Human Molecular Genetics Dept. of Stem cells and Regenerative Medicine National Institute of Genetic Engineering and Biotechnology

Background and Aim : Oxidative stress plays an important role in the neuronal damage associated with Alzheimer's, Parkinson's, Huntington's diseases, amyotrophic lateral sclerosis and cerebral ischemic stroke. Thymoquinone (TQ) is a herbal compound derived from *Nigella Sativa* which is known to be the active constituent responsible for its antioxidant and anti-inflammatory effects.

Methods : Primarily, we determined the lethal dose (LD50) of H₂O₂ and the highest dose of TQ tolerated by dopaminergic SH-SY5Y cells using separate MTT viability assays. Then RT-PCR was applied to examine expression alteration of genes involved in cell survival and apoptosis.

Results : SH-SY5Y cells treated by H₂O₂ showed survival reduction rate but TQ attenuated the neuronal death induced by H₂O₂ in pre-treated cell populations. Our data indicated that TQ is a neuroprotective agent against oxidative damage caused by reactive oxygen species.

Conclusion : Our data suggests that TQ might be a potential therapeutic agent for preventing neurodegenerative diseases implicated with oxidative stress.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Thymoquinone ; Parkinson's diseases ; SH-SY5Y cells ; H2O2

Count: 408

Abstract ID: 17

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Elevation of PC12 cells viability in the presence of 6-hydroxydopamine due to celecoxib

Submission Author: Elham Ramazani

Elham Ramazani¹, Masoud Fereidoni², Zahra Tayarani Najaran³

1. Ferdowsi University of Mashhad
2. Ferdowsi University of Mashhad
3. Mashhad University of Medical Sciences

Background and Aim : Non-steroidal anti-inflammatory drugs (NSAIDs) are among the most widely used drugs. Numerous studies have been investigated the possible protective effects of selective COX2-inhibitor NSAIDs on neurodegenerative disorders.

Methods : In the present study, the effect of celecoxib (selective COX2-inhibitor NSAIDs) was assessed on cell apoptosis induced by 6-hydroxydopamine in PC12 cells in the mimicry of Parkinson disease by measurement of cell viability, the amount of reactive oxygen species (ROS) and apoptosis.

Results : According to the results pre-treatment with celecoxib significantly increased the amount of cell viability ($p < 0.001$), decreased the amount of ROS ($p < 0.001$) and apoptosis ($p < 0.001$) in PC12 cells adjacent with 6-hydroxydopamine.

Conclusion : As a result, probably pretreatment with celecoxib by scavenging ROS and inducing an antioxidant effect can decrease the cell apoptosis in dopaminergic cells. Overall, it is suggested that celecoxib may be able to produce anti-oxidant effects by inhibiting the COX2 enzyme.

Keywords : Celecoxib- Parkinson's disease- cell viability- 6-hydroxydopamine

Count: 409

Abstract ID: 810

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

The study of effect an endurance exercise on histological changes of dentate gyrus region of the hippocampus in diabetic male Wistar Rats

Submission Author: Mohammad Rami

Mohammad Rami¹, Mohammad Fathi², Masoud Rahmati³, Mohammad Reza Tabandeh⁴

1. PhD Student in exercise physiology (ISM neuromuscular), Department of Physical Education, Faculty of Literature and Human Sciences, Lorestan University, Iran
2. Assistant Professor of Department of Physical Education, Faculty of Literature and Human Sciences, Lorestan University, Iran
3. Assistant Professor of Department of Physical Education, Faculty of Literature and Human Sciences, Lorestan University, Iran
4. Associate Professor of Department of Biochemistry and Molecular Biology, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Iran.

Background and Aim : Background and aims: Type 1 diabetes is the most common metabolic disease which is associated with a high blood glucose and can cause disorders in the Central nervous system. The aim of the present study was to evaluate the effect of endurance training on histology of dentate gyrus region of the hippocampus of rats with experimental diabetes.

Methods : Methods: Twenty adult male Wistar Rats, 10 weeks of age and average weight 245 ± 9.4 g were randomly divided into four groups: diabetic, trained diabetes, healthy control and the healthy trained groups. Diabetes was induced by intraperitoneal injection of Streptozotocin (45mg / kg). 48 h after Streptozotocin injection and diabetes confirmation, the moderate endurance activity was performed under 50-55% Maximal oxygen uptake for a six-week period and 5 sessions in a week. 24 hours after the last training session, rats were anesthetized and sacrificed and then the hippocampus was removed. Sections with 5-6micron were prepared and stained with Hematoxylin and Eosin staining method.

Results : Results: The results showed that blood glucose levels had lower level in diabetic trained rats compared to diabetic control animals ($P<0.05$). Histological results demonstrated that the numbers of astrocytes and oligodendrocytes were increased in the dentate gyrus of the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

hippocampus after endurance training compared to the control group, while the number of microglial cells were significantly decreased ($P < 0.05$).

Conclusion : Conclusion: Our findings confirmed the anti-hyperglycemia and anti-neurodegenerative effects of endurance exercise in diabetes status. So it seems that physical activity plays an important role on improvement of the nervous complications in type 1 diabetes patients.

Keywords : type 1 diabetes, endurance training, hippocampus, neurodegeneration

Count: 410

Abstract ID: 250

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Degenerative changes in the anterior horn of spinal cord after sciatic nerve axotomy in rats: A stereological study

Submission Author: Amir Raoofi

Amir Raoofi¹, Yousef Sadeghi², Fatemeh Hejazi Jahromi³, , Mohammad_amin Abdollahifar⁴, Abbas Ali Aghaei⁵, Ensieh sajadi⁶

1. Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Department of Polymer Engineering and Color Technology, Amirkabir University of Technology, Tehran, Iran
4. Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
5. Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
6. Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : The aim of this experimental study was to quantify the histological changes in the anterior horn in rats subjected to sciatic nerve axotomy using stereological methods.

Methods : The rats were divided into two groups, each including six animals, and underwent the following intervention: group I: control animals; group II: sciatic nerve axotomy animals. . On the 12 weeks the L4 and L5 spinal cord segments were removed. Volume of the anterior horn and total number of neurons and glial cells were estimated using stereological methods.

Results : The volume of the anterior horn, total number of motor neurons and glial cells were decreased after nerve axotomy.

Conclusion : The result indicated that sciatic nerve axotomy could induce degenerative changes the anterior horn of spinal cord in rats.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Degenerative, anterior horn , stereology, axotomy

Count: 411

Abstract ID: 89

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

Brain insulin signaling malfunction as a consequence of prenatal stress exposure can accelerate Alzheimer like pathology in icv-STZ rat model of sAD

Submission Author: Farzaneh Rostami

Farzaneh Rostami¹, Masoud Fereidoni², Mohammad Javan³, Ali Moghimi⁴, Aliakbar Haddad-Mashadrizeh⁵

1. Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
2. Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
3. Department of Physiology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
4. Rayan Center for Neuroscience and Behavior, Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
5. Cell and Molecular Research group, Institute of Biotechnology, Ferdowsi University of Mashhad, Mashhad, Iran

Background and Aim : Dysregulated brain insulin signaling has been foregrounded to play an important role in Alzheimer 's (AD) pathology. Subclinical icv- STZ model (intracerebroventricularly streptozotocin injection, icv-STZ) has been introduced based on this observation. Astrogliosis and central insulin resistance have Suggested as an icv- STZ mechanism. Increasing evidence support the effect of environmental factors, such as stress and intrinsic factors like insulin resistance, in the etiology of sporadic Alzheimer 's (sAD). Based on the glucocorticoid basis of brain aging, stress can promote hippocampus aging and even AD. Prenatal stress can induce diverse life events such as depression and memory disorders. However, its potential to promote sAD pathology has not yet investigated.

Methods : In this study, the effect of prenatal stress on exacerbation of insulin signaling impairments was investigated using subclinical sAD model. A subclinical sporadic Alzheimer's model was induced using icv-STZ0.5mg/Kg injection in 3-month-old rats. A set of different stressors was applied in late pregnancy. 3-month-old male springs received single icv-STZ injection and animal's hippocampus was extracted 2.5 months later. Using Real-Time RT-PCR the expression levels of insulin-related genes was compared.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : As compared with control, there was a significant rise in insulin receptor gene expression in prenatally stressed group. Also, molecular data from prenatal stress+icv-STZ group showed a significant increase in insulin receptor and tau transcripts and the reduction in ChAT expression levels as compared with icv-STZ-treated animals.

Conclusion : This results show that prenatal stress can accelerate insulin signaling malfunction in subclinical rat model of sAD and so act as a sAD risk factor.

Keywords : Prenatal stress, Sporadic Alzheimer 's, insulin signaling, icv-STZ, rat

Count: 412

Abstract ID: 297

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Degenerative changes the dorsal root ganglion (DRG) and sciatic nerve after sciatic nerve axotomy in rats: A stereological study

Submission Author: Ensieh Sajadi

Ensieh Sajadi¹, Yousef Sadeghi², Fatemeh Hejazi³, Mohammad-amin Abdollahifar⁴

1. . Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. . Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Department of Polymer Engineering and Color Technology, Amirkabir University of Technology (Tehran Polytechnic)Tehran, Iran
4. . Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : The aim of this experimental study was to quantify the histological changes in the dorsal root ganglion (DRG) and sciatic nerve in rats subjected to sciatic nerve axotomy using stereological methods.

Methods : The rats were divided into two groups, each including six animals, and underwent the following intervention: group I: control animals; group II: sciatic nerve axotomy animals. On the 12 weeks day, the fifth lumbar DRG and sciatic nerve were removed. Volume of the ganglion, total number of sensory neurons and stellate cells, total number of nerve fibers were estimated using stereological methods.

Results : The volume of the ganglion, total number of sensory neurons and stellate cells, total number of nerve fibers were decreased after nerve axotomy

Conclusion : The result indicated that sciatic nerve axotomy could induce degenerative changes the dorsal root ganglion (DRG) and sciatic nerve in rats.

Keywords : Degenerative, dorsal root ganglion, sciatic nerve, stereology

Count: 413

Abstract ID: 407

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Neuron population and behavioral function improvement of prefrontal cortex in treated depress rats by electroconvulsive therapy

Submission Author: Ashkan Sanaie rad

Ashkan Sanaie rad¹, Sanaie rad Ashkan², Khalili. Mohsen³, Zahedi Elham⁴, Esmaeil jamaat Elham⁵, Shahraki Azad Mitra⁶

1. -
2. Department of Physiology, Faculty of Medicin, Shahed University, Tehran, Iran
3. Professoee of Physiology, Faculty of Medicin, Shahed University, Tehran, Iran
4. Department of Physiology, Faculty of Medicin, Shahed University, Tehran, Iran
5. Department of Physiology, Faculty of Medicin, Shahed University, Tehran, Iran
6. Department of Physiology, Faculty of Medicin, Shahed University, Tehran, Iran

Background and Aim : Depression is one of the most prevalent mental disorders and a common cause of disability and reduced life-satisfaction. Electro Convulsive Therapy (ECT) is one of the effective and less complicated methods for treatment of depression in cases of resistance to common treatments. Given the fundamental role of pre-frontal cortex on changing the mood of depression-related behaviors in depressed patients, the effects of electro convulsive therapy on behavioral functions and histological changes of this cortex are taken into account in this study.

Methods : For this purpose, 42 Wistar male rats were divided into three control, depressed and ECT groups. To create depression, Chronic Unpredictable Mild Stress (CUMS) method was used. Finally, tissue changes and behavioral functions in the three mentioned groups were measured and assessed.

Results : In general, the modification of behavioral parameters in rats treated with ECT indicates the specific effect of Electro Convulsive Therapy in modifying the mood and depression behaviors. A positive effect in neuronal population in the prefrontal cortex of rats receiving ECT indicate the possible role of the mechanism of electro convulsive effect through involving in the brain pre-frontal cortex.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : overall, ECT could be really effective on prevention of neural population and behavioral function

Keywords : Electroconvulsive therapy, prefrontal cortex, Depression

Count: 414

Abstract ID: 389

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Serum cation profile in 6-hydroxydopamine animal model of Parkinson's disease

Submission Author: Ali Sarbazi

Ali Sarbazi¹, Ali Sarbazi Golezari², Hashem Haghdoost-Yazdi³, Maryam Mohammadzadeh⁴, Ali Emami⁵

1. -
2. Student Research Committee, Qazvin University of Medical Sciences, Qazvin, Iran
3. Dept. Physiology, Qazvin University of Medical Sciences, Qazvin, Iran
4. Islamic Azad University, Tehran, Iran
5. Student Research Committee, Qazvin University of Medical Sciences, Qazvin, Iran

Background and Aim : Currently, Parkinson's disease (PD) was diagnosed by the clinical examination of extrapyramidal signs, such as tremor, bradykinesia and rigidity which are revealed after 70% of dopaminergic neurons in substantia nigra lost. Early diagnosis of PD may help to select the appropriate treatment to slow the neurodegenerative process and progression of disease. Therefore, the identification of biomarkers for PD would be valuable for its early detection and also differential diagnosis of this disease and other neurodegenerative diseases that share some clinical features with PD. However, biomarker research in PD is still in early stages, despite of its need for clinical development of new treatment strategies. In this study serum cation profile was evaluated in 6- hydroxydopamine (6- OHDA) animal model of PD.

Methods : 6-OHDA was administered by stereotaxic surgery into the medial forebrain bundle of male rats. Apomorphine- induced rotational test was carried out to evaluate severity of behavioral symptoms and then, remaining tyrosine hydroxylase (TH) - positive neurons in the substantia nigra pars compacta were counted. Blood was prepared from the heart of the animals and then serum concentrations of Na⁺, K⁺, Ca⁺⁺, Fe⁺⁺, Mg⁺⁺ and Zn⁺⁺ were determined using ion selective electrode and calorimetry methods.

Results : No significant differences in serum concentration of Na⁺, K⁺, Ca⁺⁺, Fe⁺⁺, Mg⁺⁺ were observed between control and 6-OHDA treated rats. However, 6- OHDA treated rats had

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

significantly lower Zn^{++} concentration relative to control group (151 ± 6 versus 214 ± 23 , $P < 0.01$, $n=13$). Based on the severity of rotational behavior, 6-OHDA rats were divided into three groups of severe with more than 300 rotations/hr, moderate with 60-300 rotations/hr and mild with less than 30 rotations/hr. All groups showed significant neuronal death in substantia nigra but the survival of TH- positive neurons in severe group was less than that in moderate and mild groups. Severe group also had less Zn^{++} concentration relative to moderate and mild group (140 ± 12 $n=5$, 154 ± 8 $n=4$ and 160 ± 11 $n=4$).

Conclusion : Our results show that serum Zn^{++} concentration is significantly decreased in 6-OHDA- induced Parkinsonism in rats. Decrease in Zn^{++} correlates with severity of behavioral symptoms. Since rotational activity is the behavioral outcome of unilateral dopaminergic cell loss in substantia nigra, our data indicate that decrease in serum Zn^{++} concentration might be a predictor of PD.

Keywords : 6-OHDA- induced Parkinsonism; medial forebrain bundle; Apomorphine- induced rotational test; tyrosine hydroxylase positive neurons; cation profile; Zn^{++}

Count: 415

Abstract ID: 535

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

The negative effects of untreated maternal diabetes on development of hippocampus in the offspring

Submission Author: Reza Sardar

Reza Sardar¹, Javad Hami², Zahra Zandieh³, Fariba Karimzadeh⁴, Mansooreh Soleimani⁵, Reza Shirazi⁶, Mohammad Taghi Joghataei⁷

1. Master student of Anatomical Sciences Department of Anatomical Sciences School of Medicine Iran University of Medical Sciences Tehran, Iran
2. Cellular and Molecular Research Center, Birjand University of Medical Sciences, Birjand, Iran. Department of Anatomical Sciences, School of Medicine, Birjand University of Medical Sciences, Birjand, Iran.
3. Department of Anatomical Sciences School of Medicine Iran University of Medical Sciences Tehran, Iran
4. Cellular & Molecular Research Center, Iran University of Medical sciences, Tehran, Iran
5. Cellular and Molecular Research Center ,Iran University of Medical Sciences, Tehran, Iran
6. Department of Anatomical Sciences School of Medicine Iran University of Medical Sciences Tehran, Iran
7. Department of Anatomical Sciences School of Medicine Iran University of Medical Sciences Tehran, Iran

Background and Aim : Diabetes is one of the most common metabolic disorders during the gestational period. Maternal diabetes in pregnancy increases the fetal and infant mortality and impairs fetal development. Over all, defects in the central nervous system (CNS), heart, kidney and skeletal system are the most common congenital anomalies in children born to diabetic mothers. The hippocampus is one of the most vulnerable areas in the brain to damage due to changes in blood glucose level.

Methods : Read articles

Results : The negative effects of maternal diabetes on the neonate's hippocampus including the neuronal density especially in the CA3, decreased volume, improve neuronal apoptosis, synaptogenesis, and decreased hippocampal astrocyte have been demonstrated.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Many lines of evidence also indicate that diabetes mellitus during pregnancy increases the risk of neurofunctional, neurodevelopmental, neurocognitive and neurobehavioral disorders in the offspring.

Keywords : negative effects;untreated maternal diabetes;hippocampus;

Count: 416

Abstract ID: 277

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

The Effects of Betulinic Acid on the Neurobehavioral Activity, Brain Electrophysiology and Histological Changes in an Animal Model of Alzheimer's disease

Submission Author: Alireza Sarkaki

Alireza Sarkaki¹, Seyedeh Parisa Navabi², Yaghoub Farbood³, Mohammad Badavi⁴, Esrafil Mansouri⁵, Ata Ghadiri⁶

1. Department of Physiology, Medicine Faculty and Physiology Research Center, Ahvaz Jundishpur University of Medical Sciences, Ahvaz-Iran,
2. Department of Physiology, Medicine Faculty and Physiology Research Center, Ahvaz Jundishpur University of Medical Sciences, Ahvaz-Iran,
3. Department of Physiology, Medicine Faculty and Physiology Research Center, Ahvaz Jundishpur University of Medical Sciences, Ahvaz-Iran,
4. Department of Physiology, Medicine Faculty and Physiology Research Center, Ahvaz Jundishpur University of Medical Sciences, Ahvaz-Iran,
5. Department of Anatomical Sciences, Medicine Faculty, Cellular and Molecular Research Center, Ahvaz Jundishpur University of Medical Sciences, Ahvaz-Iran,
6. Department of Immunology, Medicine Faculty, Cellular and Molecular Research Center, Ahvaz Jundishpur University of Medical Sciences, Ahvaz-Iran

Background and Aim : Alzheimer disease (AD) is a common disorder characterized by amyloid beta (A β) monomer to fibril aggregation. Betulinic acid (BA) accelerated this pathway through circumventing the oligomeric intermediate state, strongly. The aim of this study was the neuroprotective effect of BA on neurobehavioral, brain electrophysiological and histological changes in an experimental model of AD.

Methods : Betulinic acid at doses of 0.2 and 0.4 μ M/10 μ l/rat or same volume of DMSO10% as vehicle were injected bilaterally intra-hippocampally (i.h.) at 180 and 10 min before AD induction with A β (0.1 μ M/5 μ l/rat, i.h and intracerebroventricular (i.c.v.) injections of Streptozotocin (STZ), 1.5 mg/kg/10 μ l/rat. The behavioral assessments of spatial and passive avoidance memories, anxiety, locomotion, depression and motor coordination as well as hippocampal long- term potentiation (LTP) were performed 30 days after injections.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The indices of spatial and passive avoidance memories, anxiety/depression and LTP records significantly impaired in AD rats in comparison with the sham. Pretreatment with BA (0.4 μ M) showed a more significant improving effects on memory, anxiety and LTP than a low dose as compared with the AD group ($p < 0.05$).

Conclusion : BA pretreatment was able to prevent AD-induced neurobehavioral and LTP deficits in rats and the best effect was observed in molar ratio of 1:4 ($A\beta$ to BA). A key problem in AD is the special destruction of cognitive/ LTP through the soluble neurotoxic oligomers that strongly reduced by BA pretreatment.

Keywords : Alzheimer's disease; Betulinic acid; Memory; anxiety/depression; LTP; rat

Count: 417

Abstract ID: 495

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Effects of treadmill exercise and fluoxetine on BDNF and hippocampal dependent memory in male PTSD rats

Submission Author: Sakineh Shafia

Sakineh Shafia¹, Ali Rashidy-Pour², Abbas Ali Vafaei³, Moslem Mohammadi⁴

1. Department of Physiology and pharmacology, Mazandaran University of Medical Sciences, Sari, Iran
2. Laboratory of Learning and Memory, Research Center and Department of Physiology, Semnan University of Medical Sciences, Semnan, Iran
3. Laboratory of Learning and Memory, Research Center and Department of Physiology, Semnan University of Medical Sciences, Semnan, Iran
4. Department of Physiology and pharmacology, Mazandaran University of Medical Sciences, Sari, Iran

Background and Aim : Post-traumatic stress disorder (PTSD) is a complex syndrome resulting from the exposure to a life-threatening event. These mental illnesses can be deeply debilitating and have detrimental effects on patients' physical well-being, cognitive abilities, memory, interpersonal relationships, and general functioning in society, and thus present a major public health issue. Brain-derived neurotrophic factor (BDNF) plays a role in synaptic plasticity. Impaired BDNF production in the brain can lead to a variety of CNS dysfunctions including symptoms associated with PTSD. Although selective serotonin reuptake inhibitor (SSRIs) antidepressants like fluoxetine are currently the first line choice in PTSD drug treatment, the response rates to SSRI treatment rarely exceed 60% and less than 20–30% of SSRI-treated PTSD patients achieve full remission. Physical activity has been reported to improve cognitive function in humans and rodents, possibly via a brain-derived neurotrophic factor (BDNF)-regulated mechanism. We examined alternations in hippocampal brain-derived neurotrophic factor (BDNF) and hippocampal dependent memory in a rat model of PTSD.

Methods : We used to single prolonged stress (SPS) model as animal model for PTSD. The rats divided two groups; SPS and Sham groups. Rats in SPS group were exposed to (restraint for 2 h, forced swimming for 20 min and ether anaesthesia) and were then kept undisturbed for 14 days. After that, SPS and Sham rats were subjected to chronic treatment with fluoxetine (10 mg/kg/day, for 4 weeks), moderate treadmill running (4 weeks, 5 day per week) and the combined treatment

(fluoxetine plus treadmill exercise) followed by T-maze task for hippocampal dependent memory Survey, and biochemical assessments (ELISA kit) for BDNF measurement.

Results : SPS male rats exhibited reduced hippocampal BDNF and impaired hippocampal dependent memory. Moderate treadmill exercise, fluoxetine and the combined treatment alleviated the SPS-induced alterations in hippocampal BDNF and hippocampal dependent memory. Furthermore, the combined treatment was more effective than fluoxetine alone, but in most tests, the effects of the combined treatment were to those of exercise alone.

Conclusion : Exercise is the main factor in the beneficial effects of the combined therapy in PTSD patients.

Keywords : Post-traumatic stress disorder, Single prolonged stress, Moderate exercise, Brain-derived neurotrophic factor

Count: 418

Abstract ID: 741

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

Cell Therapy by Bone Marrow Mesenchymal Stem Cells Transplantation for Parkinson's Disease Treatment as a Neurodegenerative Strategy

Submission Author: Alireza Shams

Alireza Shams¹

1. Alborz University of Medical Sciences, Faculty of Medicine, Department of Anatomy

Background and Aim : Parkinson's disease one of the Human neurodegenerative diseases is related to the aging process, and represent a consistent increasing economic and social burden. We tried for treatment of PD based on utilizing Bone marrow mesenchymal stem cells (BMMSCs), which are potentially able to substitute dead cells and synthesize neurotropic factors and other molecules that induces and increases neurodegeneration. Transplantation experiments using stem cells in animal models of PD are still in primitive levels and have yet to follow with more studies. Furthermore, grafting of BMMSCs as an alternative has considered in PD. In this research we tried to graft BMMSCs to striatum of the brain of PD rat model as a different manner

Methods : BMMSCs was obtained by primary cell culturing of adult rat bone marrow got from femur bone by flushing method. BMMSCs were incubated with DMEM/F12 (Gibco), 15% FBS and 100 U/ml pen/strep as media. For neuronal differentiation, 2×10^5 BMMSCs were seeded on Gel/PLGA/FeNPs scaffolds was cultured for 7 days and 0.5 μ mol. Retinoic acid, 100 μ mol. Ascorbic acid, 10 ng/ml. Basic fibroblast growth factor (Sigma, USA), 250 μ M Iso butylmethyl xanthine, 100 μ M 2-metcaptoethanol, and 0.2 % B27 (Invitrogen, USA) added to media. Proliferation of BMMSCs was assessed by using MTT assay for cell survival. The morphology of BMMSCs was investigated by transmission electron microscopy analysis. Expression of neuron-specific markers was studied by immunohistochemistry method. 20 Male Sprague adult rats about 250-300 g was used by dividing them to experimental and control groups. To make a unilateral PD rat model we used 6-hydroxy dopamine (6-OHDA) lesioned rats as a well characterized rodent model. The animals were received a single injection of 5 μ l saline solution containing 2 μ g/ μ l 6-OHDA and 0.2% ascorbic acid into striatum. Control rats received only ascorbic saline solution.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Data were analyzed by analysis of variance and statistical significance was determined by Turkey's test.

Results : The results showed some grafted neurons were situated and survived in the area. The grafted cells were growing and made some connections to their surrounding microenvironment. Furthermore behavioral tests results were significant improvement and more extensive functional recovery in experimental group.

Conclusion : We concluded that grafting of BMSCs and differentiation to dopaminergic cells could promote survival and sprouting of cells. This may improve the efficiency of striatal cells and help for treatment of PD. Our results suggest the potential availability of stem cells for PD.

Keywords : Mesenchymal Stem Cells, Transplantation, Parkinson's Disease, Treatment , Neuror degenerative

Count: 419

Abstract ID: 289

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Induction of traumatic brain and spinal cord injury models in rat by using a novel device

Submission Author: Hamid Soltanizangbar

Hamid Soltanizangbar¹, Meysam Ghorbani², Parviz Shahabi³, Abass Ebrahimi-kalan⁴, Javad Mahmoudi⁵, Soheila Bani⁶, Mohsen Jafarzadehziaaddini⁷

1. Neuroscience department, Tabriz University of Medical Sciences, Faculty of Advanced Medical Sciences, Tabriz, Iran
2. Neuroscience Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
3. Neuroscience Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
4. Neuroscience department, Tabriz University of Medical Sciences, Faculty of Advanced Medical Sciences, Tabriz, Iran
5. Neuroscience Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
6. Neuroscience Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
7. Department of psychology, Islamic Azad University of Ahar, Ahar, Iran

Background and Aim : Spinal cord and traumatic brain injuries (SCI and TBI) are serious emergency situations, associating with sensorimotor deficits and cognitive impairments. The use of standard rodent model allows for the understanding of these neuronal injuries physiopathology and development of a therapeutic strategy. According to contusion type of SCI and mild TBI injuries that are commonly occurred in the human, we designed a novel impactor device with an ability to induce different degrees of SCI and TBI in rats.

Methods : In contrast to previous instruments, this novel device tested in both brain and spinal cord, and wide ranges of injuries from very mild to very severe were induced according to kilodyne. For standardization and determining of optimal performance of the device to induce varying injuries, 8 different forces were applied with low heterogeneity. In our device, technical problems involved in SCI and TBI models were limited as much as possible.

Results : The Hematoxylin and Eosin (H&E), and 2, 3, 5-triphenyltetrazolium chloride (TTC) results demonstrated that by increasing the level of forces, histological changes in the spinal cord

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

and brain were significantly enhanced. Different injuries had a significant effect on the Basso, Beattie, and Brenham (BBB) and elevated body swing test (EBST) outcomes and there were significant differences between groups in comparison with control group ($p < 0.05$ and $p < 0.001$, respectively).

Conclusion : Our results show that the novel device could be valid to produce precise SCI and TBI models, goal to replicate SCI and TBI in humans as much as possible. However, it might be considered that aspects of SCI and TBI models are complicated and more examination is necessary.

Keywords : spinal cord injury, traumatic brain injury, contusion model

Count: 420

Abstract ID: 362

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Oral

Cytokine profile and gene expression in PBMC cultured of patients with multiple sclerosis following vitamin A supplementation

Submission Author: Neda Soveid

Neda Soveid¹, Mahsa hemati², Niyaz Mohammadzadeh Honarvar³, Mina Abdolahi⁴, Fariba kouhdani⁵, Asma Bitarafan⁶, Ali akbar Saboor-Yaraghi⁷, MH. Harirchian⁸

1. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences, Tehran, Iran.
2. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences, Tehran, Iran.
3. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences, Tehran, Iran.
4. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences, Tehran, Iran.
5. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences, Tehran, Iran.
6. Iranian Centre of Neurological Research, Department of Neurology, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran.
7. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences, Tehran, Iran. asaboor@tums.ac.ir.
8. Department of Neurology AND Iranian Center of Neurological Research, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran.

Background and Aim : Multiple sclerosis is known as a chronic inflammatory disease of central nervous system. T helper cells such as Th17 are considered as main pathogenic cells that release inflammatory cytokines like IL-17 which Recent studies have suggested that this cytokine has a dominant role in provoking chronic autoimmune inflammation of the central nervous system (CNS) and it has a positive correlation with the severity of MS. The immunopathogenesis of this disease involves an impaired balance of T helper (Th) 17 cells and regulatory T (Tregs) cells. Th17 cells produce pro-inflammatory cytokines, and the activity and number of Th17 cells are increased in this disease. Evidence suggests that vitamin A and its active metabolites modulate the imbalance of Th17 and Treg cells.

Methods : this study reports the results of a clinical trial, over a 6-month period, of 36 relapsing-remitting MS (RRMS) patients that received vitamin A or placebo. Peripheral blood mononuclear cells were isolated from patients, and PBMCs were cultured in the presence of MOG, PHA and with no treatment and then gene expression of IL17 was measured. The differences in means between two groups were analyzed using Independent t-test. Paired t tests were used to test for any differences within the groups before and after supplementation. $P \leq 0.05$ considered as significant level

Results : As a results of this study the amount of IL17 in supernant of cells which stimulated with MOG, PHA and without provocation between the two groups before and after supplementation showed no significantly difference

Conclusion : the gene expression of IL17 between the two groups showed no significantly difference. Although we postulated that retinyl palmitate induces an anti-inflammatory response via the downregulation of IL-17 and gene expression. Therefore, more studies are needed to evaluate the ratio of (Th17/T reg) to clarify the specific effect of vitamin A supplementation on regulating the balance of CD4+ T cells.

Keywords : Multiple Sclerosis ; Vitamin A ;Neurodegenerative disease

Count: 421

Abstract ID: 110

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Expression Analysis of Long Non-coding RNAs in the Blood of Multiple Sclerosis Patients

Submission Author: Mohammad Taheri

Mohammad Taheri¹, Mehrdokht Mazdeh², Mohammad Mahdi Eftekharian³, Alireza Komaki⁴, Maziar Ganji⁵

1. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Neurology, Hamadan University of Medical Sciences, Hamadan, Iran.
3. Department of Immunology, Hamadan University of Medical Sciences, Hamadan, Iran.
4. Neurophysiology research center, Hamadan University of Medical Sciences, Hamadan, Iran.
5. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Multiple sclerosis (MS) is a chronic immune-mediated disorder of the central nervous system (CNS) with multiple genetic and environmental risk factors. Long non-coding RNAs (lncRNAs) have been recently reported to participate in the regulation of immune responses. Consequently, aberrant expression of lncRNAs has been suggested as an underlying cause of MS.

Methods : In the present study, we evaluated the expression of three lncRNAs with putative roles in the regulation of immune response, namely TNF- α and heterogeneous nuclear ribonucleoprotein L (THRIL), Fas cell surface death receptor- antisense 1 (FAS-AS1), and plasmacytoma variant translocation 1 (PVT1) in circulating blood cells of 50 Iranian relapsing-remitting multiple sclerosis (RRMS) patients compared with healthy subjects by means of quantitative real-time polymerase chain reaction (PCR).

Results : We detected a significant downregulation of PVT1 and FAS-AS1 expressions in RRMS patients while a significant upregulation of THRIL in patients compared with controls ($P < 0.001$). Correlation analyses between lncRNA expression levels and clinical data of MS patients revealed no significant correlation between lncRNAs expression levels and Expanded Disability Status Scale (EDSS), a moderate correlation between PVT1 expression levels and duration of the disorder and no significant correlation between lncRNAs expression levels and age at onset. In addition,

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

we demonstrated correlations between the expression levels of PVT1 and THRIL as well as expression levels of THRIL and FAS-AS1 in RRMS patients. In brief, we have demonstrated dysregulation of three lncRNAs in MS patients.

Conclusion : Further studies are needed to explore the exact mechanisms by which these lncRNAs participate in regulation of immune responses.

Keywords : multiple sclerosis, Long Noncoding RNAs

Count: 422

Abstract ID: 598

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Comparative Studies of Protection against 6-hydroxydopamine-induced PC-12 cells By Sesamum indicum, sesamin and sesamol

Submission Author: Zahra Tayarani Najaran

Zahra Tayarani Najaran¹, Seyed Ahmad Emami², Faezeh Ebrahimpour³, Elham Ramazani⁴

1. Medical Toxicology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.
2. Department of Traditional Pharmacy, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran.
3. Department of Traditional Pharmacy, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran.
4. 1Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran

Background and Aim : Sesame (*Sesamum indicum*) has been introduced as a useful treatment in traditional medicine for neurological diseases due to its hot nature. Also in recent studies the neuroprotective effects of the plane have been addressed.

Methods : In this study, the mechanism of protective effects of sesame, sesamin and sesamol against the neural injury induced by 6-hydroxydopamine in PC12 cells has been investigated. In this regard, we investigated the mechanism of antioxidant effects of sesame methanol extract, sesamin and sesamol in 6-OHDA-induced PC12 cell death. Method: AlamarBlue® assay to test cytotoxicity, cellular reactive oxygen species detection using 2',7'-dichlorofluorescein diacetate and propidium iodide staining and western blot analysis of the related proteins for apoptosis detection was performed.

Results : According to the results, pretreatment with sesame significantly increased cell viability ($P < 0.001$), decreased reactive oxygen species (ROS) ($P < 0.001$) and decreased apoptosis ($P < 0.001$) in 6-OHDA-induced PC12.

Conclusion : Since sesame is likely to show antioxidant and anti-apoptotic activity, this compound can be useful in the treatment of Parkinson's disease.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Parkinson's disease; Sesame; Antioxidant; Apoptosis

Count: 423

Abstract ID: 336

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

tauopathy in Alzheimer's disease

Submission Author: Neda Yazdanfar

Neda Yazdanfar¹

1. school of advanced medical science tbriz university of medical science

Background and Aim : Tau, a microtubule-associated protein first discovered in 1975. Aggregation of tau into paired helical filaments (PHFs) and neurofibrillary tangles (NFTs) characterizes a wide range of neurodegenerative diseases. The insoluble tau deposits are found in the brains of patients with tauopathies. One hypothesis in Alzheimer disease is the correlation of NFT density with cognitive decline. No tau mutations have been identified in Alzheimer's disease. The human MAPT locus lies on chromosome 17q21. Six isoforms of the encoded tau protein are expressed in the adult human CNS.

Methods : Tau is an unusually hydrophilic protein. Its longest isoform (2N4R) contains 80 Ser or Thr residues, 58 Lys or Arg residues and 5 Tyr and 3 Phe residues. It is also stable under acidic conditions and in high temperatures. Tau is overall a basic protein but the ~120 N-terminal residues are acidic, and the ~40 residue C terminus is neutral. The structure of tau can be subdivided in assembly domain & projection domain. Region that links the two domains contains seven PXXP motifs which serve as binding sites for FYN. Normal tau is 'natively unfolded' and has little tendency for aggregation. The tau molecule shows a preference to form a paperclip-like shape. The formation of the paperclip structure might protect tau from aggregation. When tau aggregates into PHFs, the repeat domain of tau forms the core of PHFs, C terminal and the long N terminal domains form the 'fuzzy coat' that surrounds the core. Residues 269–284 and 300–310 are essential for tau aggregation. Tau can form a local hairpin conformation. Normal tau becomes phosphorylated from two sites. In AD, the phosphorylation of tau is increased to eight phosphates per molecule.

Results : 17 Thr-Pro or Ser-Pro motifs are abnormally hyperphosphorylated in AD and other tauopathies. The phosphorylation of tau at Tyr394 and Tyr18 is present in PHFs in the brains of individuals with AD. Hyperphosphorylation of tau induces tau missorting from axons to the somatodendritic compartment. Phosphorylation of tau may alter its degradation. Phosphorylation of

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

tau at Ser422 inhibits the cleavage of tau by caspase 3 at Asp421 Phosphorylation of tau is often enhance tau aggregation Phosphorylation change the association of tau with its interaction partners Tau has intrinsic acetyltransferase activity and so can catalyse auto-acetylation at certain Lys sites(Lys280) The acetylation of tau at Lys163, Lys280, Lys281 or Lys369 could inhibit its degradation Acetylation of tau at Lys174,Lys280 has been detected in AD and other tauopathies

Conclusion : the potential of tau to cause neurodegenerative diseases has been confirmed by the identification of tau mutants in patients with FTDP 17 in vitro and in vivo studies have provided compelling evidence that tau is necessary for amyloid β induced neurotoxicity Although a role of Tau in brain physiological functions and neurodegenerative diseases has been established well but a fundamental questions remain to be investigated further

Keywords : taupathy, alzheimer's disease

Count: 424

Abstract ID: 264

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

Preventing Alzheimer's disease by nutrition through reducing oxidative stress

Submission Author: Elham Yekekhani

Elham Yekekhani ¹, Narges azizi²

1. School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
2. School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Alzheimer's disease (AD) is a chronic neurodegenerative disorder that strongly affects cognition. Oxidative stress in lipid oxidation, protein oxidation and DNA oxidation play important roles in the onset of AD. It is also known that diet as one of the most modifiable factors, plays a role in preventing AD.

Methods : Since there are many epidemiological studies indicating neuroprotective effects of nutrients in everyday diet, this article tries to summarize the knowledge on nutrients related to AD through reducing oxidative stress including vitamins and micronutrients.

Results : This article reviews antioxidant and neuroprotective effects of some substances like vitamin C , vitamin E, vitamin B, vitamin D, fatty acids and micro-nutrients like Selenium, transition metals like Fe, Zn and Cu.

Conclusion : Considering the socioeconomic impacts of AD and its increasing prevalence, the search for strategies to prevent this disease is better understood. Besides, There are still some strategies to prevent AD like adopting new healthy diets. Although approaches with multiple nutritional components might be helpful, current literature does not recommend definite supplementation. Hence, more data from trials are also needed.

Keywords : Alzheimer's disease, prevention , nutrition , oxidative stress

Count: 425

Abstract ID: 399

subject: Neural Injuries and Neurodegenerative Disorders: Neurodegenerative Disorders

Presentation Type: Poster

The combination effect of electroconvulsive and Ketamine therapy in oxidative stress and inflammatory factor changes in brain of depressed rats

Submission Author: Elham Zahedi

Elham Zahedi¹, Mohsen Khalili², Ashkan Sanaie rad³, Elham Esmaeil jamaat⁴

1. Department of Physiology, Faculty of Medicin, Shahed University, Tehran, Iran
2. Professoee of Physiology, Faculty of Medicin, Shahed University, Tehran, Iran
3. Department of Physiology, Faculty of Medicin, Shahed University, Tehran, Iran
4. Department of Physiology, Faculty of Medicin, Shahed University, Tehran, Iran

Background and Aim : Depression (major depressive disorder or clinical depression) is a common but serious mood disorder. It causes severe symptoms that affect how you feel, think, and handle daily activities, such as sleeping, eating, or working. Studies have suggested that depression was accompanied by oxidative stress dysregulation, including abnormal total antioxidant capacity (TAC), antioxidants, free radicals, oxidative damage and autoimmune response products. In patients, who have treatment-resistant depression, electroconvulsive therapy (ECT) is a possible option. Nevertheless, some symptoms may persist even after ECT. To treat patients suffering from major depressive disorder (MDD), recent research has focused on NMDA receptor antagonists. Thus, we assessed the impact of repeated ketamine treatment together with ECT.

Methods : For this purpose, 50 healthy adult male Wistar rats divided into five groups, and except the control group, the other ones were depressed by CUMS method. Then, three groups of depressed rats were treated in different ways (electro convulsive, ketamine, and combined electroconvulsive and ketamine therapy). So that, repeated dose of ketamine (15 mg/kg, i.p.) were used. Finally, enzymatic changes in the all mentioned groups were measured and assessed.

Results : In general, a significant change in the oxidative stress not shown and decrease of IL-6 in hippocampus, will be representing of more effectiveness of electroconvulsive therapy in depressed rats with ketamine injection as pretreatment.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : overall, by using combination of Ketamine and ECT inflammatory factor as IL-6 decreased in hippocampus.

Keywords : Ketamine, Electroconvulsive therapy, Hippocampus, Depression

Count: 426

Abstract ID: 471

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Oral

The effect of Tau protein on the expression of MFN2 homologous gene in tau transgenic *Drosophila Melanogaster*

Submission Author: Seyyede Leila Abtahi

Seyyede Leila Abtahi¹, Raheleh Masoudi², Mohammad Haddadi³, Mehrnaz Haghi⁴, Hoda Nikookar⁵

1. Department of Biology, College of science, Shiraz University, Shiraz, Iran.
2. Department of Biology, College of science, Shiraz University, Shiraz, Iran.
3. Department of Biology, Zabol University, Zabol, Iran.
4. Department of Biology, College of science, Shiraz University, Shiraz, Iran.
5. Department of Biology, College of science, Shiraz University, Shiraz, Iran.

Background and Aim : Alzheimer's disease (AD) is a form of dementia that afflicts a large number of people worldwide. Amyloid plaques and neurofibrillary tangles (aggregation of pathological tau) are two major hallmarks of AD. Dynamics of mitochondria, the balance between fission and fusion, is also perturbed in many neurodegenerative disorders such as AD. Reduced expression levels of proteins involved in fission and fusion (DLP1, OPA1, Mfn1 and Mfn2) have been shown in AD brain. Whether amyloid plaques or neurofibrillary tangles are involved in these downregulations is not known. The aim of this study was to investigate the role of pathological tau, alone, in the mitochondrial dysfunction at molecular level.

Methods : Tau transgenic drosophila expressing either wild type tau, R406W tau, or E14 tau under gal4 promoter was examined to determine the level of MARF (a Mfn2 homologous gene in drosophila). The level of MARF mRNA in transgenic flies was compared with control groups using real time PCR.

Results : The primary outcomes of this research indicated that the expression of MARF is significantly decreased in Tau R406W and Tau E14 models compared to control. However, we could not detect any significant difference between transgenic flies expressing wild type tau and their control group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Aggregation of tau is one of the main causes of toxicity in Alzheimer's disease which may affect the mitochondrial dynamic. Our results showed the mitochondrial dynamic component, MARF is down regulated in transgenic drosophila expressing mutated tau but not wild type tau. It can be concluded that mutated tau may affect the dynamic of mitochondria in AD. This work is in progress and more experiments need to be carried out to confirm our results.

Keywords : transgenic flies, MARF Gene, Tauopathy, Realtime pcr

Count: 427

Abstract ID: 183

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Oral

Panel-neuroendocrinology of dementia: Neuroprotective Role of Melatonin in Rat Model of Alzheimer's Disease

Submission Author: Mitra Ansari Dezfouli

Mitra Ansari Dezfouli¹, Maryam Zahmatkesh², Fariba Khodaghali³, Maryam Farahmandfar⁴

1. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
3. NeuroBiology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
4. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Melatonin (N-acetyl-5-methoxytryptamine), a tryptophan metabolite, has a number of physiological functions, including regulating circadian rhythms, clearing free radicals, modulating immunity and generally inhibiting the oxidation of biomolecules. Reduced melatonin level in serum and cerebrospinal fluid and the loss of melatonin diurnal rhythm have been reported in AD patients. Furthermore, the level of melatonin in CSF decreased with the progression of AD neuropathology, as determined by the Braak stages. The present study carried out to evaluate the effect of melatonin on behavioral impairment and hippocampal neural damage in animal model of AD.

Methods : In this study, melatonin was administrated 10mg/ Kg body weight daily during two weeks in amyloid beta injected rats. Memory was assessed by evaluating the alternation behavior in Y-maze. Elevated Plus Maz(EPM) was used to investigate anxiety. Neuronal density and morphology analyzed by Nissl staining.

Results : The percentage of alternation behavior increased in (A β)+i.p.Melatonin group in compare with (A β)+i.p.vehicle group which indicate that melatonin administration improved memory(67.8 \pm 2.5 vs 43 \pm 2.8, P<0.05). In (A β)+i.p.Melatonin group in compare with (A β)+i.p.vehicle the percentage of open arm entries and time spend in the open arms were

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

significantly increased [(37.2±4.2 vs 16.8±2.0, P<0.05) , (22.6±1.8 vs 4.3±0.8, P<0.05)] which indicate that melatonin administration improved anxiety related behavior. Melatonin administration enhanced cell density packing and reduced morphologically damaged in pyramidal neurons in hippocampal tissues.

Conclusion : These findings suggest that melatonin administration improves cognitive functions and could be a beneficial therapy against cognitive decline in AD.

Keywords : Dementia, Melatonin, Beta Amyloid, Memory

Count: 428

Abstract ID: 492

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Poster

β -amyloid Induced neurodegeneration and Memory Impairments in Male Rats are aggravated by aqueous Date fruit extract

Submission Author: Majid AsadiShekaari

Majid AsadiShekaari¹, Fatemeh Mehdipour², Nader Shahrokhi³, Khadijeh Esmailpour⁴, Taj Pari Kalantaripour⁵, Hakime Oloumi⁶, Mohsen Basiri⁷

1. Neuroscience Research Center, Neuropharmacology Institute, Kerman University of Medical Sciences, Kerman, Iran
2. Neuroscience Research Center, Neuropharmacology Institute, Kerman University of Medical Sciences, Kerman, Iran
3. Department of Physiology, Afzalipour School of Medicine, Kerman University of Medical Sciences, Kerman, Iran
4. Neuroscience Research Center, Neuropharmacology Institute, Kerman University of Medical Sciences, Kerman, Iran
5. Department of Basic Sciences, School of Medicine, Islamic Azad University, Branch of Kerman, Kerman, Iran
6. International Centre of Science, High Technology & Environmental Science, Kerman, Iran
7. Neuroscience Research Center, Neuropharmacology Institute, Kerman University of Medical Sciences, Kerman, Iran

Background and Aim : Alzheimer's disease (AD) is a type of dementia that causes problems with thinking, memory and behavior. At present, there is no cure for Alzheimer's disease. But drug and non-drug treatments may help with both cognitive and behavioral symptoms. Researchers are looking for novel treatments to modify the course of the disease and improve the quality of life for people with dementia. A product of the date palm and cultivated since approximately 6000 B.C., the date fruit (*Phoenix dactylifera* L) is one of the sweetest fruits around and also happens to come in numerous varieties. Data have been shown that aqueous date fruit extract (ADFE) has protective effects in different models of neuronal disorders. In the present study, the effects of ADFE gavage on cognitive impairments and neural degeneration in animal model of AD were investigated.

Methods : Sprague –Dawely male rats were divided into the experimental groups as following: β -Amyloid group was ICV injected with β -Amyloid 25-35; sham group, animals which undertook

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

the same surgical procedures as β -Amyloid group, treated with vehicle (distilled water); and ADFE group was ICV injected with β -Amyloid 25-35 and treated with ADFE for 12 consecutive days (80 mg/kg, gavage). Cognitive behavioral was studied by Morris Water Maze (MWM). Neuronal degeneration was evaluated by hematoxyline and eosin (H&E) and immunohistochemical (IHC) staining.

Results : The results demonstrated that ADFE improves learning process in β -amyloid induced impairments in male rats. But it could not ameliorate the memory process and neural degeneration.

Conclusion : As the results of this research project has shown, possibly high level of carbohydrate in ADFE may be suppress other favorable effects of this product.

Keywords : phoenix dactylifera L, Alzheimer's disease, β -Amyloid, rat, degeneration, hippocampus, memory, neuroprotection

Count: 429

Abstract ID: 546

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Poster

Progressive dementia, myoclonus and “alien-hand” phenomenon; typical features of Corticobasal Degeneration

Submission Author: Mohsen Dvoudkhani

Mohsen Dvoudkhani¹, Azadeh Zendeabad², Mostafa Almasi³, Maryam Noroozian⁴

1. MSc. Institute for Cognitive Science Studies, Tehran, Iran. Memory clinic, Brain and Cognition Clinic, Tehran, Iran
2. MD, Geriatric Medicine: Geriatric Department, Tehran University of Medical Sciences (TUMS), Tehran, Iran
3. MD, Department of Neurology, Iran University of Medical Sciences, Tehran, Iran
4. MD., Professor of Neurology; Director, Memory and Behavioral Neurology Division, Roozbeh Hospital, Tehran University of Medical Sciences (TUMS), Tehran, Iran

Background and Aim : Corticobasal degeneration (CBD) is a neurodegenerative disorder due to the accumulation of hyperphosphorylated tau in neurons and astrocytes throughout the cortex (especially in frontal and parietal lobe) and basal ganglia. The characteristic pathologic features of CBD are tau-positive neurons, astrocytic plaques, and focal neuronal loss in cortex and substantia nigra. Thus CBD presents with combination at cortical symptoms and movement disorders including apraxia, speech disorder, myoclonus, cortical sensory loss, dementia, rigidity, dystonia, “alien-hand” phenomenon and disorders of eye movement

Methods : Case Images, 2017. A Sixty four-years-old Iranian lady has presented with difficulty in dressing and disequilibrium especially “during dancing” since six years ago. Her movement disorders progressed slowly and recurrent falling occurred, especially backward falling. Gradually, she developed difficulty in daily living activities such as cooking foods and communication with speech, which has progressed until she cannot express, except few words. Recently, additional symptoms have appeared including fecal and urinary incontinence, dysphagia, decreased visual attention to the right side and visually hallucination. The examination revealed marked myoclonic jerks in upper limbs, severe bilateral rigidity, and bizarre postures in left hand compatible with the alien-hand phenomenon. The speech was confined to single meaningful but non-fluent words.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Brain MRI shows asymmetric cortical atrophy predominately at frontal and parietal lobes; which are compatible with hypometabolic areas in functional imaging procedures.

Conclusion : brain MRI showed asymmetric widening of Sylvain fissure, predominantly at the left side, and asymmetric atrophy at left parietal lobe which was progressed to severe cortical atrophy throughout one year. The EEG revealed scattered runs of bilateral generalized spikes and mild background slowing

Keywords : Dementia, Corticobasal degeneration, myoclonus, alien-hand

Count: 430

Abstract ID: 549

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Poster

Family history in different types of dementia: report from a dementia clinic in Iran

Submission Author: Mohsen Dvoudkhani

Mohsen Dvoudkhani¹, Azadeh Zendehbad², Maryam Noroozian³

1. MSc, Institute for Cognitive Science Studies, Tehran, Iran.
2. MD, Geriatric Medicine: Geriatric Department, Tehran University of Medical Sciences (TUMS), Tehran, Iran
3. MD., Professor of Neurology; Director, Memory and Behavioral Neurology Division, Roozbeh Hospital, Tehran University of Medical Sciences (TUMS), Tehran, Iran

Background and Aim : Several risk factors were reported for dementia. In this study, we aimed to address the prevalence of the different type of dementia and relationship between family histories in the different type of dementia.

Methods : this is a retrospective study based on the medical documents of a dementia clinic. The demographic data were collected from the forms the existed documents. The diagnosis was approved by a comprehensive interview which was carried out by a neurologist who was familiar with diagnosis and treatment of dementia and its types

Results : The medical documents of 154 patients with the diagnosis of dementia through Jun to December 2015 were used for extraction of data. The mean age of the participants was 72.23 (11.06) years and 55.2% of them were female. The participants' mean years of schooling was 8.18 (6.04) and 21.4% were illiterate or lower than one-year education. Only 8.4% had no any caregiver and other had a family caregiver with or without a formal caregiver. The most frequent type of dementia was Alzheimer's disease 52.6%, after that mild cognitive impairment (MCI), front temporal dementia, mixed type and Lowy body dementia had the higher prevalence (11.0%, 9.7%, 7.1% and 5.8% retrospectively). Pure vascular dementia was seen only in 5.0% of subjects. In general, 43.5% of the participants had at least one family who affected. 50.6% of patients with Alzheimer's disease, 41.2% of MCI, 33.3% of front-temporal and 45.5% of mixed type dementia had a positive family history. 13.0% of the participant had more than one family who had one type

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

of dementia. Of participants with positive family history, there was 22.4% dementia involvement in their mother, 17.9% in father, 14.9% in sister and 4.5% in the brother ($P < 0.05$).

Conclusion : although the participants of this study were not representative of the Iranian population who are affected by dementia, it seems that the most prevalent type of dementia is the AD. It may be the family history in first female family stronger associated with dementia than first male family history.

Keywords : Dementia, Family history risk factor

Count: 431

Abstract ID: 548

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Poster

Sleep Disturbances in Dementia: Implications for Non-Pharmacological Therapies

Submission Author: Mohsen Dvoudkhani

Mohsen Dvoudkhani¹, Azadeh Zendehbad², Maryam Noroozian³

1. MSc, Institute for Cognitive Science Studies, Tehran, Iran.
2. MD, Geriatric Medicine: Geriatric Department, Tehran University of Medical Sciences (TUMS), Tehran, Iran
3. MD., Professor of Neurology; Director, Memory and Behavioral Neurology Division, Roozbeh Hospital, Tehran University of Medical Sciences (TUMS), Tehran, Iran

Background and Aim : Sleep problems affect the quality of life for individuals and their families and can increase healthcare costs Increase the caregiver's distress and the likelihood of institutionalization especially in elderly. Studies indicate that 19–44% of patients with dementia complain about sleep disturbances which are higher in women than in men. The main reasons for prescribing sleeping pills by physicians are lack of knowledge about non-pharmacological treatment.

Methods : We performed selective review articles (1990-2015) on sleep disturbance in patients with dementia and evaluate non- pharmacological interventions in this population.

Results : Reports show that advanced age and dementia result in neurodegenerative changes that cause a progressive deterioration in circadian rhythm, as a result of reduced melatonin production from the pineal gland, alterations in expression of melatonin receptors in SupraChiasmatic Nucleus (SCN), decreased the ability for the retina and optic nerve to transmit light. Circadian rhythms become more irregular, directly correlated to age and severity of cognitive decline and temporal changes. Furthermore, other potential causes should be evaluated since patients with dementia suffer from medications side effects, circadian rhythm changes, medical illness, depression and the primary sleep disorders. Changes in sleep parameters include: Decrease in total sleep time, decrease in efficiency of sleep, Increase in stage 1 and 2 sleep, Increase in REM sleep latency, Decreased density of eye movement activity. More ever, several studies claimed the effectiveness

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

of three interventions on sleep quality includes: Cognitive Behavioral Therapy (CBT), bright light, and physical exercise. effective behavioral therapies: dietary modification like carbohydrate, limiting of daytime napping, going to bed when the patient feel sleepiness, increasing light exposure during the day, increase physical and social activity, moderate exercise like yoga

Conclusion : Use of psychotropic drugs to treat sleep problems in older adults has also been associated with increased risk for falls, accidents, cognitive impairment, and higher medical costs. Although the most common treatments are still pharmacological in patients with dementia, there is already evidence that non-pharmacological interventions work slower with remarkable reduction in the side effects

Keywords : Dementia, Sleep Disturbances, Non-Pharmacological Therapies

Count: 432

Abstract ID: 525

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Poster

The effects of Cannabis sativa leaves extract on, oxidative stress parameters in Alzheimeric adult male Wistar rats

Submission Author: Mahsa Esrafilzadeh

Mahsa Esrafilzadeh¹, Akram Eidi², Pejman Mortazavi³

1. department of physiology, basic science faculty, science and research university of Tehran , Islamic azad university
2. department of physiology, basic science faculty, science and research university of Tehran , Islamic azad university
3. Department of Pathology , Faculty of Veterinary Medicine , science and research university of Tehran , Islamic azad university

Background and Aim : Cannabis (*Cannabis sativa* L.) has long been known to have analgesic, immunomodulatory and anti-inflammatory effects. Cannabinoids are a group of C21 terpenophenolic compounds uniquely produced by Cannabis sativa plant (1)(2)(3). In the present study, the effect of cannabis ethanolic extract on neurodegeneration induced by intracerebroventricular (ICV) administration of streptozotocin (STZ), was investigated in adult male Wistar rats.

Methods : The rats were randomly divided into 9 groups: normal control, Sham-operated control (saline, ICV), cannabis extract (0.05, 0.1, and 0.2 g/kg intragastrically, daily) alone(4), alzheimeric control rats (STZ, 110 mg/ml, 3 µl/site, ICV) (5) , cannabis extract (0.05, 0.1, and 0.2 g/kg intragastrically, daily) together with STZ, and treatment was performed accordingly. Animals were injected with STZ bilaterally, on the 1st and 3rd days. Administration of cannabis extract (0.05, 0.1 and 0.2 g/kg) was started 1 h before the first dose of STZ and continued up to 30 days. The rats were sacrificed on day 31 and parameters of oxidative stress, superoxide dismutase (SOD), and glutathione peroxidase (GPX) activity, were measured in brain homogenate. Also TNF-α level was measured in brain homogenate. Histopathological changes were examined by Bielschowsky staining.

Results : Our results showed that administration of cannabis extract (0.1 and 0.2 g/kg) significantly improved STZ-induced cognitive impairment. Cannabis extract increased the levels of antioxidant enzymes, including SOD, and GPX levels. Also, cannabis extract decreased the levels of TNF- α in brain homogenate. Histopathological examination showed that cannabis extract decreased cell loss in cerebral cortex and hippocampus in Alzhiemic rats.

Conclusion : These results indicate that cannabis extract is effective in providing protection against oxidative stress, and neuronal damage induced by STZ. References : 1. Borgelt LM, Franson KL , Nussbaum AM , Wang GS , The pharmacologic and clinical effects of medical cannabis , *Pharmacotherapy* , 2013;33 (2): 195–209 2. Whiting PF , Wolf RF, Deshpande S , Di Nisio M , Duffy S , Hernandez AV , Keurentjes JC , Lang S , Misso K , Ryder S , Schmidtkofer S , Westwood M , Kleijnen, J , Cannabinoids for Medical Use: A Systematic Review and Meta-analysis , *JAMA* , 2015;313 (24): 2456–2473 3. Jensen B , Chen J , Furnish T, Wallace M , Medical Marijuana and Chronic Pain: a Review of Basic Science and Clinical Evidence , *Current Pain and Headache Reports* , 2015; 19 (10) 4. Mazidi M, Baghban Taraghdari S, Rezaee P, Kamgar M, Jomezadeh MR, Akbarieh Hasani O, Soukhtanloo M, Hosseini M, Gholamnezhad Z, Rakhshandeh H, Norouzy A, Esmaily H, Patterson M, Nematy M , The effect of hydroalcoholic extract of Cannabis Sativa on appetite hormone in rat , *J Complement Integr Med* , 2014 Dec;11(4):253-7. doi: 10.1515/jcim-2014-0006. 5. Wang H , Wang H , Cheng H , Che Z , Ameliorating effect of luteolin on memory impairment in an Alzheimer's disease model , *Mol Med Rep* , 2016 May;13(5):4215-20. doi: 10.3892/mmr.2016.5052. Epub 2016 Mar 28.

Keywords : Cannabis; Cannabis sativa L.; Oxidative stress ; Streptozotocin; Rat

Count: 433

Abstract ID: 51

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Poster

Vitamin K2 can exert a protective effect against amyloid beta peptide induced PC12 cell toxicity

Submission Author: Elham Hadipour

Elham Hadipour¹, Masoud Fereidoni², Zahra Tayarani-Najaran³

1. PhD Candidate, Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
2. Full Professor, Rayan Center for Neuroscience and Behavior, Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
3. Associate Professor of Pharmacology, Medical Toxicology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : Alzheimer's disease (AD) is a major cause of amnesia and behavioral injuries in old people that characterized by a progressive loss in cognitive function. This study has been questioned the protective effect of vitamin K2 against toxicity and oxidative damage induced by A β in PC12 cells as an appropriate model of Alzheimer's cell damage.

Methods : PC12 cells were pretreated with vitamin K2 (5, 10, 20, 50 μ M) for 24h and then exposed to A β (25 μ M) for 48h. At the end, the cell survival, intracellular reactive oxygen species (ROS) production were assessed by analysis of cell viability, ROS generation and apoptosis in PC12 cells was measured by Flow cytometry after PI staining.

Results : Vitamin K2 (5, 10, 20, 50 μ M) could decrease A β (25 μ M) toxicity and showed significant difference compared to the A β group (*P<0.05). After exposure of cells to A β (25 μ M) for 48 h, Vitamin K2 (5, 10, 20, 50 μ M) decreased ROS. Cell apoptosis was significantly increased to 14.3% after treatment with A β (25 μ M) compared to control (3.7%). After pretreatment with vitamin K2 (20, 50 μ M); however, apoptosis was significantly reduced to (4.2%, 7.6%).

Conclusion : Our study revealed that Vitamin K2 may exhibit protective effect on the apoptosis induced by A β in PC12 cells, possibly by reducing oxidative reagents. Thus, vitamin K2 could be considered for more investigation as a potential treatment in AD patients.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Alzheimer's disease (AD), beta-amyloid peptides, Vitamin K2

Count: 434

Abstract ID: 536

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Oral

Role of 5-HT₇ Receptor Activation in Hippocampal Long-Term Potentiation Against Streptozotocin-Induced Sporadic Alzheimer's Disease in the Rat

Submission Author: Nasrin Hashemi Firouzi

Nasrin Hashemi Firouzi¹, Nasrin Hashemi- Firouzi², Siamak Shahidi³, Alireza Komaki⁴, Sara Soleimani Asl⁵

1. -
2. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
3. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
4. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
5. Anatomy Department, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran

Background and Aim : Alzheimer's disease (AD) is the most common neurodegenerative disorder involving synaptic loss and impairments in learning and memory. Long-term potentiation (LTP) of synaptic function is a model of learning- and memory-related neural plasticity, of which serotonin (5-HT) is a key modulator in the hippocampus. As the 5-HT₇ receptor subtype is implicated in hippocampal neuronal function, dendritic rearrangement, and neurogenesis, the aim of this study was to assess the effect of 5-HT₇ receptor activation on hippocampal synaptic plasticity in a rat model of AD.

Methods : AD was induced via intracerebroventricular (icv) administration of streptozotocin (STZ). Forty adult male Wistar rats were divided into naive control, sham-operated, AD +saline (1 μ L icv for 30 days), and AD+AS19 (a selective 5-HT₇ receptor agonist, 1 μ g/ μ L, icv for 30 days) groups. Following the treatment period, rats were anesthetized and placed in a stereotaxic apparatus. LTP was induced by high-frequency stimulation of the perforant pathway. The population spike (PS) and field excitatory postsynaptic potentials (fEPSPs) in the dentate gyrus of the hippocampus were measured.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The PS and fEPSPs of the AD+saline- group were significantly decreased compared to the control and sham-operated groups. Moreover, the PS and fEPSPs of the AD+AS19 group were significantly increased compared to the AD+saline group.

Conclusion : We found that STZ-induced AD impaired LTP in the dentate granule cells. One month of AS19 treatment restored hippocampal LTP and reduced neuronal apoptosis in the AD+AS19 group. These findings suggest that 5-HT₇ receptor activation by AS19 improves synaptic dysfunction in a rat model of AD via reduction of apoptosis in the hippocampus and it could potentially prevent the progression of AD

Keywords : Alzheimer's disease; Streptozotocin; Long-term potentiation; Hippocampus; Serotonin-7 receptor; Rat

Count: 435

Abstract ID: 196

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Oral

Carbamylated Erythropoietin-Fc protects against beta-amyloid(25-35)-induced learning and memory deficit and hippocampal MAPKs signaling disruption

Submission Author: Etrat Hooshmandi

Etrat Hooshmandi¹, Rasoul Ghasemi², Nader Maghsoudi³

1. Neuroscience Research center, Shahid Beheshti University of Medical Sciences
2. Department of Physiology, Medical School, Shahid Beheshti University of Medical Sciences
3. Neuroscience Research center, Shahid Beheshti University of Medical Sciences

Background and Aim : Alzheimer disease (AD) is a slowly progressive neurodegenerative disease, characterized by extracellular deposits of amyloid-beta (A-beta) and neuronal loss particularly in the hippocampus. The cytokine erythropoietin (EPO) has been shown, in addition to its well-known hematopoietic effects, to be neuroprotective in a variety of models of central and peripheral nervous system injuries or impairments. However, hematopoietic side effects are unwanted for neuroprotection, underlining the need for EPO-like compounds with selective neuroprotective actions. It has been shown that carbamylated erythropoietin-Fc (CEPO-Fc), a derived compound from erythropoietin conjugated to the Fc region of an antibody to increase the serum half-life, to be neuroprotective in some models of neural injuries without hematopoietic bioactivity. This study evaluated the neuroprotective effects of CEPO-Fc in behavioral and molecular deficits seen in AD model of rats.

Methods : Adult male Wistar rats weighing 250-300 g were used in this study. The canules were implanted bilaterally into CA1 region. A-beta(25-35) was administered into CA1 region during first 4 days after surgery (5µg/2.5µL/day).. CEPO-Fc (500 IU or 5000 IU) was injected intraperitoneally during days 4-9. The animal's learning and memory capability was assessed on days 10-13 using Morris Water Maze (MWM), then hippocampi of rats were isolated for western blot analysis.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results of MWM test showed that although A-beta(25-35) increased escape latency and traveled distance of the animals during training days, CEPO-Fc treatment in both 500 and 5000 IU significantly prevented this learning and memory deterioration. Moreover, the result of probe test represented that CEPO-Fc treated groups had greater time spent in the target quadrant than A-beta(25-35) receiving group. The finding that A-beta(25-35) did not influence visible platform task reveals that the impairing effect seen was not related to its effect on animals' visual-motor ability or motivation. Molecular analysis revealed that CEPO-Fc in both doses could reverse A-beta(25-35)-induced elevation of P38 and ERK activity but not JNK activity.

Conclusion : These results indicated that CEPO-Fc exerts neuroprotective effects against A-beta-induced learning and memory deterioration probably through the modulation of hippocampal MAPKs activity. This study suggests CEPO-Fc can be considered as a potential therapeutic strategy for learning and memory deficits like AD.

Keywords : Alzheimer, Carbamylated erythropoietin-Fc, MAPK, learning and memory

Count: 436

Abstract ID: 340

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Oral

Combined 192 IgG-saporin and 8-OH-DPAT infusions in the male rat brain: A hippocampal EEG and behavioral study

Submission Author: Soheila Hosseinzadeh

Soheila Hosseinzadeh¹

1. Neuroscience Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, Iran. 2. Department of Physiology, School of Medicine, Babol University of Medical Sciences, Babol, Iran.

Background and Aim : The cholinergic and serotonergic systems exert a powerful control over the generalized electrical activity of the hippocampal formation. The present experiment assessed the stimulation effects of 5-HT_{1A} somatodendritic autoreceptors of the median raphe nucleus (MRN) on spatial memory, hippocampal local EEG, and its frequency bands' power in a central cholinergic depletion induced by 192 IgG-saporin.

Methods : 192 IgG-saporin or phosphate-buffered saline (1µl/each ventricle) was injected intracerebroventricularly (ICV). 5-HT_{1A} receptor agonist/antagonist, 8-hydroxy-2-(di-n-propyl-amino)-tetralin (8-OH-DPAT; 4 µg/0.5 µl saline) and WAY 100635 (0.2 µg/0.5 µl saline), was administered before probe trial in a water maze task.

Results : Rats treated with 192 IgG-saporin exhibited longer latencies to reach the hidden platform. Such effects were not observed when the platform was visible. The frequency bands' power of hippocampal EEG was also decreased ($P < 0.05$). 8-OH-DPAT did not prevent recall of the platform location and electrophysiological performance.

Conclusion : Therefore, an action of 8-OH-DPAT on only cholinergic neurons is not sufficient to account for the drug-induced memory impairments.

Keywords : 192 IgG-saporin; 5-HT_{1A}; Memory; EEG

Count: 437

Abstract ID: 419

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Poster

Adaptation and Validation of Persian Progressive Aphasia Language Scale (PALS): A neuropsychological tests for the assessment of speech and language disorders

Submission Author: Salimeh Jafari

Salimeh Jafari¹, Amin Modarresszadeh², Ahmad Reza Khatoonabadi³, Maryam Noroozian⁴, Nouredin Nakhostin-Ansari⁵, Cristian Leyton⁶, John Hodges⁷

1. Ph.D, Student, Department of Speech Therapy, School of Rehabilitation, Tehran University of Medical Sciences, Tehran, Iran
2. Ph.D. Student, Department of Speech Therapy, School of Rehabilitation, Tehran University of Medical Sciences, Tehran, Iran
3. Ph.D, Assistant Professor, Chair, Department of Speech Therapy, School of Rehabilitation, Tehran University of Medical Sciences, Tehran, Iran
4. MD Professor of Neurology, Director, Memory and Behavioral Neurology Division, Chair, Department of Geriatric Medicine, Tehran University of Medical Sciences, Iran
5. PT, Ph.D., Professor Department of Physiotherapy, School of Rehabilitation, Tehran University of Medical Sciences, Tehran, Iran Sports Medicine Research Center, Neuroscience Institute, Tehran University of Medical Sciences, Tehran, Iran
6. Faculty of Health Sciences, the University of Sydney, Australia
7. Brain & Mind Centre, the University of Sydney, Australia

Background and Aim : Primary Progressive Aphasia (PPA) is a neurological condition characterized by progressive dissolution of language capabilities. Speech and language impairments are the key clinical feature in several neurodegenerative disorders and PPA is the syndrome where they are the prominent features. Their accurate and early identification may increase the diagnosis in the clinical setting. This approach may allow a better discrimination between the different neurodegenerative disorders and the PPA variants, i.e., nonfluent, semantic, logopenic. The Progressive Aphasia Language Scale (PALS) is an easy-to-apply bedside clinical scale that is capable of capturing and grading the key language features essential for the classification of PPA. The objective of the present study was to develop and validate the Persian version of the PALS (PALS-P) as a clinical language assessment test.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Methods : In this cross-sectional study, PALS was translated and adapted into Persian according to the international guidelines. A total of 30 subjects (10 subjects with PPA and 20 control subjects without dementia) were included to evaluate the intra-rater reliability and discriminant validity of PALS-P.

Results : The intra-rater reliability of the PALS-P within a 14-day interval was excellent for each sub-test (ICC agreement range = 0.81-1.0). There were statistically significant differences between groups on PALS-P, suggesting its discriminative validity.

Conclusion : This preliminary study revealed that the PALS-P was successfully developed and translated. The PALS-P may be a valid and reliable screening tool to assess language skills in Persian-speaking subjects with progressive aphasia.

Keywords : Neurodegenerative disorders, PPA; Aphasia; Progressive Aphasia Language Scale; clinical validity

Count: 438

Abstract ID: 746

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Poster

Linguistic predictors of Alzheimer in Mild Cognitive Impairment; a systematic review

Submission Author: Mahdi Khodadoust

Mahdi Khodadoust¹, Ahmad pour mohammad², monavareh soti³, meisam fadaie⁴, farahnaz taheri⁵

1. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
2. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
3. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
4. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
5. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran

Background and Aim : Introduction: Mild Cognitive Impairment (MCI) is a significant diminish in cognitive skills with a risk for conversion to Alzheimer (AD). Language deficits had the largest hazard for MCI conversion to AD. Previous studies about nature of MCI and its conversion to Alzheimer have not been able to enrich clinicians to predict this debilitating disease as early as possible. The objective of this article is to review recent studies paying attention to linguistic predictors of AD in MCI.

Methods : Materials and methods: “Mild cognitive impairment”, “Alzheimer” and “language” as keyword were searched in text of articles cited in PubMed, web of science and Cochran databases (2012-2017). These articles were available in English as free full text.

Results : Findings: According to inclusive and exclusive criteria, we found 174 articles, which according to five authors’ opinion, eight of them had focused on linguistic predictors of MCI conversion to AD. These articles were aligned with our aim. The most important factors that were

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

able to predict MCI conversion to AD were “semantic fluency, semantic clustering, spontaneous verbal recall and verbal comprehension”.

Conclusion : Conclusion: To be able to diagnose dementia in MCI as early as possible, we can benefit from mentioned above skills. Although, language factors are well-known predictors, we suggest that beside these measures, it is better to use cognitive factors like memory and attention.

Keywords : Mild cognitive impairment; language; Alzheimer; predictor;

Count: 439

Abstract ID: 813

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Poster

Manufacture of herbal capsule for Alzheimer's patients by Incensole acetate, melittin and curcumin

Submission Author: Masoomeh Mohamadpour

Masoomeh Mohamadpour¹, Seyed Behnamedin Jameie², maryam mosenikia³, leila kamali⁴

1. Assistant Professor of Neuroscience Neuroscience Research Center Iran University of Medical Sciences Tehran IRAN
2. Professor of Anatomical Sciences Neuroscience Researcher Iran University of Medical Sciences Tehran IRAN
3. Neuroscience Neuroscience Research Center Iran University of Medical Sciences Tehran IRAN
4. shiraz university of medical science

Background and Aim : Alzheimer is one of the major causes of forgetting and the most important degenerative brain disease in the world. Given the aging world population, its control and treatment is one of the main concerns of the World Health Organization in the next century. Patients with Alzheimer's disease with progressive and chronic memory impairment, speech impairment, and functional impairment are known. There is currently no definitive treatment for Alzheimer's. But there are medications that can lower the speed of progression of symptoms and make life easier for the patient. Nowadays, due to the complications of many chemical drugs and the preference of patients for the use of herbal medicines, a suitable platform for the advancement of this approach has been provided

Methods : To make a plant capsule. In completely sterile conditions, the ingredients are: Incensole acetate 250, curcumin 150, maltine 100 mg (mixed with spatula to form a uniform mixture and powdered powder in a mustard), powdered mixture of 500 mg with carefully weighed Highly weighed, then poured into 500-mg capsules and stored in the refrigerator

Results : The ability to treat Alzheimer's disease is to improve the symptoms of the disease.

Conclusion : The ability to treat Alzheimer's disease is to improve the symptoms of the disease.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Curcumin, Miltinin, Incensole acetate, Alzheimer's

Count: 440

Abstract ID: 323

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Poster

The protective Effects of Betulinic Acid on vasculature related destruction in alzheimer disease

Submission Author: Seyedeh parisa Navabi

Seyedeh parisa Navabi¹, Yaghoob Farbood², Alireza Sarkaki³

1. Department of Physiology, Faculty of Medicine, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Department of Physiology, Faculty of Medicine, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3. Department of Physiology, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Background and Aim : Alzheimer's disease (AD) may be introduced as a double-edged sword that affected from β - amyloid's ($A\beta$) accumulation in cerebral vasculature or parenchyma. With a view of progressive effects of betulinic acid (BA) on microvascular responsivity, $A\beta$ agglomeration and also influence on enzymes linked-AD, we evaluated spatial memory function, microvascular degeneration and blood-brain barrier (BBB) penetration that continuously intensified AD related destructions in rats.

Methods : Intra-hippocampal administration of BA at doses of 0.2 and 0.4 μ M /10 μ l /rat (vehicle: DMSO) was executed 180 and 10 min before co-microinjection of $A\beta$ (0.1 μ M /5 μ l/rat, vehicle: PBS) in hippocampus and Streptozotocin (STZ, 1.5 mg/kg/10 μ l/rat, vehicle: aCSF) in lateral ventricles. The evaluation of spatial memory by shuttle box, microvascular responsivity (through vasoactive stimuli: phenylephrine (Phe) and sodium nitroprusside (SNP)) by Laser Doppler in rat's temporal cortex and BBB leakage via the Evans blue dye in brain tissue was done one month after injections.

Results : The indexes of passive avoidance memory, BBB performances and microvascular responsivity were significantly impaired in AD rats in contrast with the sham. Pretreatment with BA showed improvement effects on all above mentioned destructions that was clear following BA (0.4 μ M) administration.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : It is obvious that vascular and neuronal task was tightly coupled in the nervous system. In this regard, BA pretreatment could prevent AD-induced neurovascular impairment such as memory loose, microvascular damage and BBB leakage in rats specially when $0.1\mu\text{M}$ $\text{A}\beta$ exposed to the $0.4\mu\text{M}$ of BA (with 1:4 molar ratio).

Keywords : Alzheimer's disease; Betulinic acid, passive avoidance memory, microvascular damage, BBB leakage

Count: 441

Abstract ID: 828

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Oral

The Application of Nanoparticles in Stem Cell Therapy for Alzheimer's Animal Model

Submission Author: Farshid Qiyami Hour

Farshid Qiyami Hour¹, Mehdi Mehdizadeh², Ronak Shabani³, Ali Shakerizadeh⁴

1. Department of Anatomy, Iran University of Medical Sciences, Tehran, Iran
2. Department of Anatomy, Iran University of Medical Sciences, Tehran, Iran
3. Department of Anatomy, Iran University of Medical Sciences, Tehran, Iran
4. Department of Medical Physics, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : Stem cell therapy especially using mesenchymal stem cells (MSCs), is a promising tool for the treatment of several diseases, including neurodegenerative diseases such as Alzheimer's disease (AD). To understand transfused stem cells' fate, in vivo monitoring is necessary. One of the best ways to reach this aim, is cell labeling with superparamagnetic iron oxide nanoparticles (SPIONs) and tracking them by MRI.

Methods : To effectively label MSCs with dextran-coated SPIONs we used a new "bio-mimicry" method by incubating MSCs with 50 µg/ml SPIO Nanoparticles. To assess the effects of MSCs on AD animal models, they were separated into four groups: vehicle control (VCo), alzheimer model (AM), alzheimer with injection of labeled cells (AC), and alzheimer with injection of labeled cells and magnet exposure (ACM) (n=8 for each group). One month after bilaterally intracerebroventricular (ICV) injection of streptozotocin (STZ) (3mg/kg), labeled MSCs were injected via tail vein. By using an external magnet labeled cells delivered to the brain especially hippocampus area. Labeled cells were detected by Prussian blue staining and MRI. The effects of cells on AD condition were determined by behavioral tests.

Results : Our results show that by retaining native properties of MSCs, they can effectively be labeled with SPIONs. MRI showed hypointense areas in hippocampus and blue areas were detected by Prussian blue staining. Morris water maze (MWM) and passive avoidance (PA) showed significant improvement in memory.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : To conclude, using an external magnet can be useful for delivery of magnetic-labeled cells in the development of cell therapy and treatment of AD.

Keywords : Alzheimer's Disease (AD); Mesenchymal Stem Cells (MSCs); Superparamagnetic Iron Oxide Nanoparticles (SPIONs); Magnetic Resonance Imaging (MRI); Targeting Delivery.

Count: 442

Abstract ID: 111

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Oral

Pannel about neurohormones: Hormone therapy and dementia in post menopause women

Submission Author: Mehdi Shafiee sabet

Mehdi Shafiee sabet¹

1. Department of neurology, Arash women's hospital, Tehran university of medical sciences, Tehran, Iran

Background and Aim : Observational studies suggest reduced risk of dementia in users of hormone therapy (HT), but trials show higher risk. We examined whether the association of HT with dementia varies with timing or type of HT use.

Methods : We conducted a vast review to consider the correlation between hormone therapy and prevalence of dementia in post menopause women.

Results : Women who used any type of HT within 5 years of menopause had 30% less risk of dementia, especially if use was for 10 or more years. By contrast, dementia risk was not reduced among those who had initiated HT 5 or more years after menopause. Instead, rates were increased among those who began "opposed" estrogen-progestin compounds within the 3 years preceding the Cache County Study baseline.

Conclusion : Association of HT use and risk of dementia may depend on timing of use. Although possibly beneficial if taken during a critical window near menopause, HT (especially opposed compounds) initiated in later life may be associated with increased risk. The relation of AD risk to timing and type of HT deserves further study.

Keywords : Hormone therapy, Dementia, post menopause women

Count: 443

Abstract ID: 627

subject: Neural Injuries and Neurodegenerative Disorders: Dementia

Presentation Type: Poster

The effect of Linden (*Tilia platyphyllos*) extract on memory retention in alzheimeric model adult male rats

Submission Author: Mojhgan Shobeiri

Mojhgan Shobeiri¹, Dr Akram Eidi², Dr Shahrbanoo Oryan³

1. Basic Science faculty, Science and Research university of tehran, Islamic Azad university
2. Basic Science faculty, Science and Research university of tehran, Islamic Azad university
3. Basic Science faculty, Science and Research university of tehran, Islamic Azad university

Background and Aim : Trees from *Tilia* species are used around the world for their medicinal properties. In folk medicine, the linden (*Tilia platyphyllos*) flower is used as a diuretic, stomachic, antispasmodic, and sedative agent. Several phytochemical studies have been carried out on linden, in which terpenoids, phenolic acids and flavonoids were identified in flowers, bracts, and leaves. The phenolic compounds identified in linden are flavonoids, mainly quercetin glycosides (rutin, quercitrin, and isoquercitrin), kaempferol glycosides, and phenolic acids (caffeic, *p*-coumaric, and chlorogenic acids). In the present study, the effect of linden ethanolic extract on neurodegeneration induced by intracerebroventricular (ICV) administration of streptozotocin (STZ), was investigated in adult male Wistar rats.

Methods : The rats were randomly divided into 9 groups: normal control, Sham-operated control (saline, ICV), linden extract (0.05, 0.1, and 0.2 g/kg intragastrically, daily) alone, Alzheimeric control rats (STZ, 110 mg/ml, 3 μ l/site, ICV), linden extract (0.05, 0.1, and 0.2 g/kg intragastrically, daily) together with STZ, and treatment was performed accordingly. Animals were injected with STZ bilaterally, on the 1st and 3rd days. Administration of linden extract (0.05, 0.1 and 0.2 g/kg) was started 1 h before the first dose of STZ and continued up to 28 days.

Results : The learning and memory behavior was assessed by a passive avoidance test 28 days after the first dose. Our data indicated that admin of Linden extract (0.05, 0.1 and 0.2 g/kg) significantly increased STL (Step Through Latency) and decreased TDC (Time in Dark Compartment). The rats were sacrificed on day 29 and parameters of oxidative stress, catalase (CAT), and Malondialdehyde (MDA) activity, were measured in brain

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

homogenate. Histopathological changes were examined by Bielschowsky staining. Our results showed that administration of linden extract (0.1 and 0.2 g/kg) significantly improved STZ-induced cognitive impairment. Linden extract increased the level of antioxidant enzymes, including CAT, while decreased MDA levels.

Conclusion : Histopathological examination showed that linden extract decreased cell loss in cerebral cortex and hippocampus in Alzhiemic rats. These results indicate that linden extract is effective in providing protection against memory deficit, oxidative stress, and neuronal damage induced by STZ.

Keywords : Linden; *Tilia platyphyllos*; Memory; Streptozotocin; Rat; anti oxidant enzyme

Count: 444

Abstract ID: 35

subject: Neural Injuries and Neurodegenerative Disorders: Traumatic Brain Injury

Presentation Type: Poster

The effect of low frequency Electromagnetic fields and CoQ10 Co-administration in mice hippocampus following damage induced by TMT treatment

Submission Author: Akram Alizadeh

Akram Alizadeh¹, Sara Rigi², Majid Katebi³, Ali Shojaeian⁴

1. Cellular and Molecular Research Center, Shahrekord University of Medical Sciences
2. Iran University of medical Sciences
3. Hormozgan University of Medical Sciences
4. Cellular and Molecular Research Center, Shahrekord University of Medical Sciences

Background and Aim : Because of the effects of low frequency Electromagnetic fields on protective factors of cells and also because of potent antioxidant effects of CoQ10 we decided to study Neuroprotective effects of their Co-administration in mice hippocampus following damage induced by TMT treatment.

Methods : 36 Male Balb/c mice (n=36) used in the present research at 4 Study groups : 1-Intact or control: No treatment. 2-Model: treated with Neurotoxin TMT (2.5mg/kg) 3-Vehicle : treated with just sesame oil as TMT vehicle for 2 weeks then will be placed on electromagnetic field generator device while is turn off without applying EMF for 1 week.(7h/day) :4-treatment 4-1:CoQ10: following damage induced by TMT intraperitoneally(IP) treated with CoQ10(10mg/kg) for 2 week. 4-2:EMF: on week following TMT treatment will be placed on working EMF device for one week (7h/day) 4-3: CoQ10 and EMF: Co-administered treatment.

Results : Nissl staining and tunnel test revealed decrease in Necrotic and Apoptotic cell quantity following single treatment with CoQ10 and also in Co-administration treatment with both of CoQ10 and EMF. Water maze test showed memory improvement following single treatment with CoQ10 and Co-administration of CoQ10+EMF. Western blotting study showed up-regulation of Anti-apoptotic genes in single treatment of CoQ10 and Co-administration treatment groups while single treatment of EMF has no significant effects on reducing damages induced by TMT in mice hippocampus.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Co administration of low frequency Electromagnetic fields and CoQ10 can reduce damages induced by TMT in mice hippocampus.

Keywords : CoQ10, low frequency Electromagnetic fields, TMT

Count: 445

Abstract ID: 588

subject: Neural Injuries and Neurodegenerative Disorders: Traumatic Brain Injury

Presentation Type: Oral

The preventive and therapeutic effects of Ellagic acid on systemic blood pressure and cerebral vessels responsibility in male rats with traumatic brain injury

Submission Author: Mahin Dianat

Mahin Dianat¹, Alireza Sarkaki², Yaghoob Farbood³, Shahram Mashhadizadeh⁴, Ali Khodadadi⁵, Mohammad Khaksari Hadad⁶

1. Department of Physiology, Faculty of Medicine, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz-Iran
2. Department of Physiology, Faculty of Medicine, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz-Iran
3. Department of Physiology, Faculty of Medicine, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz-Iran
4. Department of Physiology, Faculty of Medicine, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz-Iran
5. Department of Immunology, Faculty of Medicine, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz-Iran
6. Department of Physiology, Faculty of Medicine, Physiology Research Center, Kerman University of Medical Sciences, Ahvaz-Iran

Background and Aim : Traumatic brain injury (TBI) remains a major clinical problem globally and is predicted to be as a major cause of death and disability by the year 2020. It has been suggested that ellagic acid (EA), a natural phenol product, exhibits cerebral vasoprotective effects against damages after brain injury. Therefore, this study was designed to investigate the preventive and therapeutic effects of EA on systemic blood pressure (BP) and cerebral vessels responsibility after induction diffuse TBI in rat.

Methods : The animal model of TBI was induced in male Wistar rats by a 200 g weight dropped from a 2-m height through a free-falling tube onto the head of anesthetized rat while a steel disc was attached to the animal's skull. Oral (gavage) for 7 days before and intraperitoneal injection of EA (100 mg/kg) for 2 days after TBI were done respectively. EA or Vehicle were administrated once every eight hours to investigate in order to preventive and therapeutic effects of EA on non-

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

invasive measuring the systemic blood pressure and Cerebral vessels responsibility to phenylephrine as a vasoconstrictor agent (measured by laser Doppler) just during and 48 h following TBI.

Results : Systemic blood pressure in Veh+TBI was elevated significantly just during and up to 48 h after TBI when compared with Veh+Sham group ($p<0.001$). In pretreated and also treated groups with EA (EA+TBI and TBI+EA), Blood pressure was lowered significantly just during TBI induction ($p<0.001$) but there were not differences at 48 h later with related to Veh+TBI and TBI+Veh groups. Cerebral vessels responsibility to phenylephrine as a vasoconstrictor agent measured by laser Doppler probe was decreased in pretreated (EA+TBI and also treated TBI rats with EA (TBI+EA) significantly when compared to Veh+TBI and TBI+Veh groups respectively ($p<0.001$).

Conclusion : These results suggest that both pretreatment and treatment protocols with EA, beside of neuroprotective and treatment effects on CNS, it has improving effects on systemic BP and cerebral vessels responsibility to vasoconstrictor agents following TBI.

Keywords : Traumatic Brain Injury; Ellagic Acid; systemic blood pressure; cerebral vessel responsibility; rat.

Count: 446

Abstract ID: 719

subject: Neural Injuries and Neurodegenerative Disorders: Traumatic Brain Injury

Presentation Type: Poster

Effect of Lipopolysaccharide (LPS) pretreatment on hippocampal apoptosis in traumatic rats

Submission Author: Mansore Eslami

Mansore Eslami¹, Leila Alizadeh²

1. Department of physiology, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Shefa Neuroscience Research Center, Khatam Alanbia Hospital, Tehran, Iran

Background and Aim : Traumatic brain injury (TBI) is a serious medical problem that affects strongly the quality of life of many people in the world. Apoptosis is a form of programmed cell death happen after trauma. Effector caspases are responsible for initiating the apoptosis. Although some studies have focused on the neuroprotection by LPS preconditioning against different destructive stimuli but the exact mechanism has not fully been understood yet. Therefore, in the present study, we investigated the effect of LPS preconditioning on apoptosis and its possible mechanisms on the expression of Caspase3 in the different hippocampal regions in traumatic rats.

Methods : Traumatic brain injury was exerted to parieto-temporal cortex of anaesthetised rats by Controlled Cortical Impact (CCI, 5 mm round tip, 4.5 mm/seconds velocity and 150 ms duration). LPS (0.1 and 0.5 mg/kg) was injected i.p. to rats 5 days before induction of CCI. TUNEL-positive cells and the expression of Caspase3 was investigated in the different hippocampal regions by using immunohistochemistry and Western blotting techniques

Results : Higher expression of Caspase 3 were accompanied by higher number of dead neurons in the hippocampal CA1 and CA3 regions at 4 and 12 hours after trauma. LPS preconditioning significantly decreased Caspase3 over-expression and the number of death neurons in the hippocampus

Conclusion : LPS preconditioning inhibits neural damage and apoptosis induced by trauma in the hippocampus

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Traumatic brain injury, LPS preconditioning, Apoptosis

Count: 447

Abstract ID: 800

subject: Neural Injuries and Neurodegenerative Disorders: Traumatic Brain Injury

Presentation Type: Poster

Listening Comprehension in Individuals with Traumatic Brain Injury

Submission Author: Seyyedeh Maryam Fazaeli

Seyyedeh Maryam Fazaeli¹, Mohammad Reza Ehsaei², Gholamreza Bahadorkhan³, Hamid Rezaei⁴

1. PhD Candidate, Department of Linguistics, Ferdowsi University of Mashhad & Trauma Research Center, Shahid Kamyab Hospital, Mashhad, Iran
2. Professor, Department of Neurosurgery, Trauma Research Center, Mashhad University of Medical Sciences, Shahid Kamyab Hospital, Mashhad, Iran (Corresponding Author, Email: ehsaeimr@mums.ac.ir)
3. Associate Professor, Department of Neurosurgery, Trauma Research Center, Mashhad University of Medical Sciences, Shahid Kamyab Hospital, Mashhad, Iran
4. Assistant Professor, Department of Neurosurgery, Trauma Research Center, Mashhad University of Medical Sciences, Shahid Kamyab Hospital, Mashhad, Iran

Background and Aim : One of the most frequently used communicative skills is listening. Listening comprehension refers to the ability to understand spoken language. Appraising this communicative skill in individuals with traumatic brain injury (TBI) is important because it can help TBI person to get back to his/her life with fewer difficulties. Therefore, this article aimed at examining the listening comprehension in Persian-speakers with TBI.

Methods : In this cross-sectional research, five male patients with TBI (mean age= 35 year, SD= 2.070; mean post-injury time= 13.6 months; SD = 6.655) and five healthy controls were participated. Two patients were diagnosed with severe TBI (Glasgow Coma Scale (GCS): 3-8) and three patients were classified as moderate TBI (GCS: 9-12). The patients had no contaminant disorders such as stuttering and visual deficits and no other neurological disorders than TBI. The patient and control groups were matched by age and years of education. Some parts of Listening Comprehension Test (Comprehension of Short Story) in Nili Pour' Aphasia Test (2012) was used as an instrument for data gathering.

Results : A significant difference was found between two groups in listening comprehension (Mann Whitney U= 0.000, Z = -2.635, p = 0.008, p < 0.05). The results showed that the TBI group had poor functioning compared to the healthy group in this skill.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The examined patients were impaired significantly in listening comprehension. Therefore, it is necessary for the clinicians to consider working on this skill in their rehabilitation services. Further work needs to be done to assess the listening comprehension in moderate and severe people with TBI to estimate the functioning of this population according to the severity levels of the injury.

Keywords : listening comprehension, traumatic brain injury, adults, Persian language.

Count: 448

Abstract ID: 141

subject: Neural Injuries and Neurodegenerative Disorders: Traumatic Brain Injury

Presentation Type: Poster

Association of traumatic brain injury with subsequent neurological and psychiatric disease

Submission Author: Sina Haghi

Sina Haghi¹, Reza Mohebi², Azar Arab Khazaei³, Azin Arab Khazaei⁴

1. Msc student of surgical technology, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran
2. surgical technology department, student research committee, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran
3. Msc student of surgical technology, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran
4. Msc student of surgical technology, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran

Background and Aim : Every year an estimated 42 million people worldwide suffer a mild traumatic brain injury (MTBI) or concussion. There is mounting epidemiological evidence that moderate or severe traumatic brain injury (TBI) is an important risk factor for neurodegenerative diseases such as Alzheimer's disease (AD) and Parkinson's disease (PD). There is also a long-recognized association between repeated concussive insults and progressive cognitive decline or other neuropsychiatric abnormalities. This study's objective was to determine the association of prior mild TBI with the subsequent diagnosis (that is, at least 1 year post injury) of neurological or psychiatric disease.

Methods : The present study is a systematic review conducted in 2017. According to the published articles related to the subject from January 2010 to September 2017, using the keywords "Traumatic brain injury, Neurodegeneration, Concussion, head injury" in 5 databases (Scopus, PubMed, Google scholar, ISI, Ovid) were searched by two searchers individually. After evaluating different articles based on entry and exit criteria, among 50 papers, 27 articles were selected and after screening the second screen, 14 articles were analyzed.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Prior TBI was associated with development of any of the neurologic and psychiatric illnesses of interest. This association was found for both neurologic and psychiatric disease in individuals with TBI, and was also found in the following diagnoses: Alzheimer's disease, Parkinson's disease, mild cognitive impairment, depression, bipolar disorder, and mixed affective disorder.

Conclusion : The collected evidence indicates that head injury causes chronic neurodegeneration and dementias that are likely multifactorial, consistent with the complex and diverse pathological changes that are observed. More than an issue of nomenclature, recognition of the important pathogenic role of persistent inflammation after TBI may lead to new therapies that attenuate progressive tissue loss after head injury.

Keywords : Traumatic brain injury; Neurodegenerative disease; dementia; psychiatry

Count: 449

Abstract ID: 775

subject: Neural Injuries and Neurodegenerative Disorders: Traumatic Brain Injury

Presentation Type: Poster

Inhibitory effect of diosmin on TNF- α protects in vivo blood-brain barrier from traumatic brain injury

Submission Author: Mohammad Ali Mirshekar

Mohammad Ali Mirshekar¹

1. Department of Physiology, School of Medicine, Zahedan University of Medical Sciences, Zahedan, Iran.
E-mail: ma_mib78@yahoo.com

Background and Aim : Traumatic brain injury (TBI) can cause sustained cognitive and mental disorders. Pro-inflammatory cytokines such as tumor necrosis factor- α (TNF- α) engages during TBI. Blood-brain barrier (BBB) disruption after TBI is intensely conjugated with high concentration of TNF- α in cerebral tissue. Cytokines such as TNF- α are proteins with multiple functions which in some cases lead to pathological disorders. Therefore, the aim of this study was to investigate the effects of the DM pre-treatment on BBB permeability and TNF- α level after TBI induction in the male rats.

Methods : Materials and Methods: A total of forty eight adult male Wistar rats were used as test subjects in this study. The rats were divided into four groups of sham, TBI, DM 50 + TBI and DM 100 + TBI. Brain injury was induced by Marmarou's method. Rats were treated with DM (i.p.) for seven consecutive days before TBI induction (once daily). Brain water content and Evans blue dye contents were measured 48 h after TBI. Veterinary coma scales as neurological scores were determined at -1, 1, 24 and 48 h post-TBI. BBB permeability was determined by measuring extra-vascular Evans blue (EB) dye concentration using a spectrophotometer device. A higher amount of dye in brain tissue represents more vascular permeability and more severe BBB disruption.

Results : The TNF- α level in the hippocampus of the TBI group of animals was significantly higher than that found in the test subjects from the Sham group ($p < 0.001$). The pre-treatment of the TBI group with diosmin significantly improved their neurological scores, memory and long-term potentiation ($p < 0.001$) when compared with the TBI group. The TNF- α level in hippocampus of the diosmin group was significantly lower than the TBI group ($p < 0.001$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Based on the results of the present study, pre-treatment with diosmin has protective effects against TBI-induced memory and long-term potentiation impairment. The effects of diosmin may be mediated through a decrement in the TNF- α concentration of hippocampus as a pro-inflammatory cytokine.

Keywords : Traumatic brain injury; Diosmin; Blood-brain barrier; TNF-alpha

Count: 450

Abstract ID: 614

subject: Neural Injuries and Neurodegenerative Disorders: Traumatic Brain Injury

Presentation Type: Poster

Assessing the methodological quality sports neuropsychology concussion

Submission Author: Ali Moghadam Zadeh

Ali Moghadam Zadeh¹

1. Assistant Professor, Department of psychometric, Faculty of psychology, University of Tehran

Background and Aim : Sports-related concussion is a frequently-occurring, serious neurological event that can produce a spectrum of potentially debilitating primary and secondary problems. Many investigators—particularly neuropsychologists—have focused their efforts on identifying cognitive changes that accompany such injuries. As such, the present review evaluated the methodological quality of neuropsychological sports-related concussion research using a comprehensive, systematic method.

Methods : Studies were assigned a Level of Evidence using the Centre for Evidence-based Medicine (CEMB) framework. Relevant information related to the methods of each study were extracted and rated for methodological quality using a standardized form-based evaluation tool.

Results : a total of 21 studies were evaluated using a Cochrane-style review format. The review revealed heterogeneity among the studies in terms of research design, as well as a number of methodological weaknesses and inconsistencies.

Conclusion : Despite the proliferation of neuropsychological research on sports-related concussion over the past decade, the methodological quality of studies appears to be highly variable, with many lacking proper scientific rigour. Future research in this area needs to be carefully controlled, repeatable and generalizable, which will contribute to developing practical, evidence-based guidelines for concussion management.

Keywords : Athletes, neuropsychological testing, cognition

Count: 451

Abstract ID: 118

subject: Neural Injuries and Neurodegenerative Disorders: Spinal Cord Injury

Presentation Type: Poster

Stem Cell Transplantation and Functional Recovery in Spinal Cord Injury: A Systematic Review and Meta-Analysis

Submission Author: Hojjat Allah Abbaszadeh

Hojjat Allah Abbaszadeh¹, yousef sadeghi², navid ahmadi roozbahani³, hadi azimi⁴, ali noorzadeh⁵, maryam sadat khoramgah⁶, shahram darabi⁷

1. shahid beheshti university of medical scincese
2. shahid beheshti university of medical scincese
3. shahid beheshti university of medical scincese
4. shahid beheshti university of medical scincese
5. ilam university of medical sciences
6. shahid beheshti university of medical scincese
7. qazvin university of medical scincese

Background and Aim : Spinal cord injury is a significant cause of motor dysfunctions. There is no cure for it, and most of the therapeutic modalities are only symptomatic. Currently, there is no cure for these types of insults by now. The aim of the current study is a systematic review and meta-analysis on the effectiveness evaluation of stem cell therapy for treating of spinal cord injuries of animal models.

Methods : A systematic search in medical databases using appropriate keywords applied. The relevant reports reviewed to find out if they fulfill the inclusion and exclusion criteria. Finally, 89 articles were considered related to this study, from which 28 had enough data for performing statistical analyses

Results : The findings showed a significant improvement of motor functions after cell therapy. This effect was related to the amount of transplanted cells, site of injury, chronicity of the injury, type of the damage and the induction of immune-suppression.

Conclusion : Stem cell therapy for treatment of spinal cord injury in animal models leads to reassuring results with predictable influencing variables.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Stem cell therapy, Spinal cord injury, Meta-analysis, Contusion

Count: 452

Abstract ID: 117

subject: Neural Injuries and Neurodegenerative Disorders: Spinal Cord Injury

Presentation Type: Oral

Decrease in Cavity Size and Oligodendrocyte Cell Death Using Neurosphere-Derived Oligodendrocyte-Like Cells in Spinal Cord Contusion Model

Submission Author: Hojjat Allah Abbaszadeh

Hojjat Allah Abbaszadeh¹, taki tiraihi², yousef sadeghi³, ali noori-zadeh⁴, hadi azimi⁵, maryam sadat khoramgah⁶, shahram darabi⁷

1. shahid beheshti university of medical scincese
2. tarbiat modares university
3. shahid beheshti university of medical scincese
4. ilam university of medical scincese
5. shahid beheshti university of medical scincese
6. shahid beheshti university of medical scincese
7. qazvin university of medical scincese

Background and Aim : Oligodendrocyte cell death is among the important features of spinal cord injury, which appears within 15 min and occurs intensely for 4 h after injury, in the rat spinal contusion model. Accordingly, the number of oligodendrocytes is progressively reduced within 24 h after injury. Administration of oligodendrocyte-like cells (OLCs) into the lesion area is one of the approaches to counterbalance this condition

Methods : Bone marrow stromal cells were transdifferentiated into neurospheres and then into neural stem cells and later were differentiated into OLCs using triiodothyronine and transplanted into the spinal cord contusion rats. The post-injury functional recovery was explored and compared with the control group using Basso-Beattie-Bresnahan and narrow beam behavioral tests. At the end of 12th week, spinal cord segments T12-L1 were histomorphologically studied by immunohistochemistry.

Results : Motor improvement was more obvious during 2nd to 4th weeks and got less prominent during 4th to 12th weeks. Histomorphometric findings indicated that cavity formation was

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

decreased in epicenter of transplantation area in experimental groups in comparison with the control groups.

Conclusion : The findings obtained in the present study showed that OLC therapy is a potential approach in the treatment of spinal cord traumatic injuries.

Keywords : Spinal cord injury, Myelin basic protein, Oligodendrocyte

Count: 453

Abstract ID: 505

subject: Neural Injuries and Neurodegenerative Disorders: Spinal Cord Injury

Presentation Type: Oral

Effects of different doses of methylprednisolone on the behavior of neural stem cells

Submission Author: Hadi Aligholi

Hadi Aligholi¹

1. Department of Neuroscience, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran

Background and Aim : Spinal cord injury (SCI) is one of the catastrophic medical problems by which the health and life of several peoples are threatened. Since there is no definite treatment for this progressive nervous system disease, scientists try to introduce novel therapeutic strategies. Based on the pathology of SCI, inflammation and cell damage are two main events observing during primary and secondary phases of SCI. In this sense, methylprednisolone (MP) is one of the anti-inflammatory drugs using at acute phase of SCI. On the other hand, utilizing neural stem cells (NSCs) has been considered as an outstanding source for cell therapy following SCI. In the context of combination therapy, simultaneous application of MP and NSCs are proposed. The aim of the present study was the evaluation of the effects of MP on the behavior of NSCs.

Methods : The ganglionic eminence of rat embryo was harvested at day 14. Then, NSCs were cultured as neurospheres in serum-free medium containing epidermal growth factor for 15 days. The obtained cells were treated with 0, 5, 10, 15 and 20 $\mu\text{g}/\text{ml}$ of MP for seven days. The survival, proliferation and migration of the cells were evaluated.

Results : Base on the results of MTT assay, the cell viability significantly decreased after treatment with 5, 10 and 15 $\mu\text{g}/\text{ml}$ of MP. The number of neurospheres didn't considerably differ among the groups. Although, the diameter of neurospheres remarkably decreased in all groups in which MP was used compare to the group without MP. Moreover, the migration of the NSCs significantly decreased after exposure to MP.

Conclusion : The behavior of NSCs can be influenced by MP in-vitro. It should be considered in combination therapy strategies for SCI.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : spinal cord injury, neural stem cells, methylprednisolone

Count: 454

Abstract ID: 10

subject: Neural Injuries and Neurodegenerative Disorders: Spinal Cord Injury

Presentation Type: Poster

Mechanisms of Spinal Cord Injury Regeneration in Zebrafish: A Systematic Review

Submission Author: Mahla Babaie

Mahla babaie¹, Zeynab noorimotlagh², Mahdi safdarian³, Tahere ghadiri⁴, Vafa Rahimi-Movaghar⁵

1. MD, Iran University of Medical Sciences, Sina Trauma and Surgery Research Center, Tehran, Iran.
2. MD, Iran University of Medical Sciences, Sina Trauma and Surgery Research Center, Tehran, Iran.
3. MD, Iran University of Medical Sciences, Sina Trauma and Surgery Research Center, Tehran, Iran.
4. Ph.D., Assistant Professor of Neuroscience, Tabriz University of Medical Sciences, Tabriz, Iran.
5. MD, Professor of Neurosurgery, Sina Trauma and Surgery Research Center, Tehran University of Medical Sciences, Tehran, 11365-3876, Iran.

Background and Aim : In mammals, spinal cord injury (SCI) results in permanent sensory-motor loss due to a failure in reinitiating local neurogenesis. However Zebrafish, a tropical freshwater fish, shows neuronal proliferation, regeneration and functional recovery even after complete spinal cord transection. The Zebrafish is an excellent model to study the mechanisms underlying successful and failed axonal regeneration after SCI; however, the molecular and cellular mechanisms involved in this phenomenon are not fully understood. This: PRISMA-guided systematic review is designed to compile the mechanisms involving in spinal cord regeneration in Zebrafish in the current literature.

Methods : Medical databases of PubMed and Scopus were searched according to standard search strategies. The review process was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) statement. Characteristics of the studies were extracted, in addition to Time course and Cellular maps were designed by using Xmind software for better illustration. The results include the main time phases of regeneration process after the spinal cord injury in zebrafish as well as origin of secretion or over expression of related molecules and functions of each molecule in the regeneration process.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Wnt/ β -catenin signaling, L1.1, L1.2, Major vault protein (MVP), contactin-2 and High mobility group box1 (HMGB1) had positive promoting effects on axonal re-growth while Ptena had an inhibitory effect. Neurogenesis is stimulated by Wnt/ β -catenin signaling as well as HMGB1, but inhibited by Notch signaling. Glial cells proliferate in response to fibroblast growth factor (fgf) signaling and Lysophosphatidic Acid (LPA). Furthermore, fgf signaling pathway causes glia bridge formation in favor of axonal regeneration. LPA and HMGB1 in acute phase stimulate inflammatory responses around injury and suppress regeneration. LPA also induces microglia activation and neuronal death in addition to glia cell proliferation, but prevents neurite sprouting.

Conclusion : This study provides a comprehensive review of the known molecules and mechanisms in the current literature involved in the SCI regeneration in zebrafish, in a time course manner. A better understanding of the whole determining mechanisms for the SCI regeneration should be considered as a main goal for future studies.

Keywords : Zebrafish ; Spinal cord injury ; Regeneration

Count: 455

Abstract ID: 582

subject: Neural Injuries and Neurodegenerative Disorders: Spinal Cord Injury

Presentation Type: Oral

Anti-oxidative effect of Flaxseed on experimental unilateral spinal cord injury in rat

Submission Author: Morteza Gholaminejhad

Morteza Gholaminejhad¹, Gholamreza Hassanzadeh², Somayeh Arabzadeh³, Mohammad Akbari⁴

1. Department of Anatomy, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Anatomy, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
3. Department of Animal Physiology, Developmental Biology Laboratory, School of Biology, College of Science, University of Tehran, Tehran, Iran
4. Department of Anatomy, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Spinal cord injury (SCI) is one of the major traumatic events in the central nervous system and affects people around the world annually. The spinal cord injury pathology consists of two primary and secondary phases. The initial phase occurs due to mechanical damage to the spinal column and leads to damage to the spinal cord tracts. In the secondary phase, due to processes such as ischemia, inflammation, oxidative stress, cell death occurs in the spinal cord. Therefore, the reduction of oxidative stress is an effective way to treat spinal cord injury. Considering the anti-oxidant properties of flaxseed, the effect of flaxseed on oxidative stress in spinal cord injury was investigated.

Methods : 30 male wistar rats were randomly assigned to five groups: control (Ctrl), laminectomy, Flaxseed, SCI and SCI+flaxseed (treatment) groups. SCI model was induced by placing a 50 g weight for 5 min on to a 2.2 mm×2.5 mm platform applied on the dura at T10 vertebral level. After 4 weeks the blood of rats in all groups were collected and the influence of flaxseed on antioxidant enzymes and oxidative stress marker level, histologic alterations and locomotion score were assessed.

Results : Our results showed that in the SCI group, the mean level of superoxide dismutase (SOD), glutathione peroxidase (GPx) and catalase (CAT) were significantly decreased ($P<0.01$), whereas the mean content of malondialdehyde (MDA) was significantly increased ($P< 0.001$) compared to

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

the laminectomy group. Furthermore, the mean level of SOD, GPx and CAT in treatment group was higher than the SCI group ($P < 0.001$), while the mean MDA content in the treatment group was significantly less than the SCI group ($P < 0.001$). In addition, comparison between SCI and treatment groups determined a significant decrease in tissue degeneration and volume of cavities in treatment group. Correspondingly, BBB scores were significantly increased in flaxseed-treated rats on days 14 ($P < 0.05$), 21 and 28 ($P < 0.001$) after surgery compared to the SCI group.

Conclusion : Our study for the first time showed the anti-oxidative effect of flaxseed on experimental unilateral spinal cord injury in rat.

Keywords : Spinal cord injury; Flaxseed; Oxidative stress; Anti-oxidative

Count: 456

Abstract ID: 164

subject: Neural Injuries and Neurodegenerative Disorders: Spinal Cord Injury

Presentation Type: Oral

Electrical stimulation in rats injured spinal cord model: Wnt, eIF2 signaling, proliferation and conversion

Submission Author: Meyssam Ghorbani

Meyssam Ghorbani¹, Meysam Ghorbani², Parviz Shahabi³, Poursan Karimi⁴, Mohammad Javan⁵, Soheila Bani⁶, Javad Mahmoudi⁷, Hamid Soltani Zangbar⁸, Mohsen Jafarzadehgharehzaiaaddin⁹

1. -
2. Neuroscience Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
3. Neuroscience Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
4. Neuroscience Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
5. Department of Physiology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
6. Neuroscience Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
7. Neuroscience Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
8. Neuroscience Research Center, Tabriz University of Medical Sciences, Faculty of Advanced Medical Sciences, Tabriz, Iran
9. Department of Psychology, Islamic Azad University of Ahar, Tabriz, Iran

Background and Aim : Spinal cord injury (SCI) is a serious neurological disease which can lead to loss of neurons, glial and precursor cells, permanently. Common therapeutic interventions are including; molecular therapy, cell transplantation, and rehabilitation. In regards to the positive influence of electrical stimulation (ES) in neurogenesis processes, we hypothesized that sub-threshold ES may increase the neurogenesis, and even astrocyte reprogramming in rats with SCI.

Methods : Forty male rats (weighing 250-280 g) randomly were used. The experimental groups divided into sham group, SCI group, SCI + injection of human astrocyte group, and the fourth group which received sub-threshold ES following the SCI and astrocyte injection. The ES was delivered 48hr after injection of astrocyte in the injured site. To investigate the neurogenesis processes at molecular and cellular levels, we evaluated the glial fibrillary acidic protein (GFAP), doublecortin (DCX), wntless-type3 (Wnt3), and eukaryotic Initiation Factor 2 (eIF2) proteins by

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

immunofluorescence and immunoblotting techniques. The one-way analysis of variance (ANOVA) and post hoc Tukey was used to analysis of results.

Results : Expression of Wnt3 and elf2a proteins in the rat spinal cord was significantly enhanced after 14 days in the group which treated by ES, in comparison with other groups ($p<0.001$ and $p<0.05$, respectively). Also, the expression of GFAP by ES was significantly increased after 14 days in comparison with other groups ($p<0.01$). The ES had no effect on the expression of DCX, so the neuroblast cells in 7 and 14 days groups were not observed.

Conclusion : Increased neurogenic factors revealed that the ES could be considered for regeneration of SCI. However, ES had no significant effect on the conversion of astrocyte to neuroblast cells. More study is necessary to clarify the underlying mechanisms of ES in the proliferation and conversion of astrocyte in the SCI.

Keywords : spinal cord injury, astrocyte reprogramming, neurogenesis, contusion model, electrical stimulation

Count: 457

Abstract ID: 131

subject: Neural Injuries and Neurodegenerative Disorders: Spinal Cord Injury

Presentation Type: Poster

The Timing of Surgical Intervention in the Treatment of Spinal Cord Injury

Submission Author: Sina Haghi

Sina Haghi¹, Reza Mohebi², Azin Arab Khazaei³, Azar Arab Khazaei⁴

1. Msc student of surgical technology, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran
2. surgical technology department, student research committee, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran
3. Msc student of surgical technology, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran
4. Msc student of surgical technology, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran

Background and Aim : Nowadays, traumatic injuries of the spinal cord are very common and impose an enormous burden on both the patient and society. Traumatic injury to the spinal cord is affecting approximately 750 per million people worldwide, and their annual incidence is increasing. Many experts believe that spinal decompression surgery has a significant role in reducing the disruption of the disorder. Although, The optimal timing of surgery remains controversial, but there is evidence that early surgical intervention may improve the patient's neurological outcomes. The purpose of this review study is to compare the effect of early and late decompression surgeries on neurological and complications After surgery in patients with spinal cord injuries.

Methods : The present study is a systematic review conducted in 2017. According to the published articles related to the subject from March 2013, using the keywords “Decompression; Early Surgical Decompression; Injured Spinal Cord; Late Surgery; Surgical” in 5 databases (Scopus, PubMed , ISI, Google scholar, Ovid) were searched by two searchers individually. After evaluating different articles based on entry and exit criteria, among 70 articles, 33 articles were selected and analyzed.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Low level evidence suggests that patients operated on <24 hours after injury exhibit significantly greater improvements in postoperative American Spinal Injury Association motor scores and the functional independence measure at 1 year than those operated on >24 hours after injury. Moderate evidence suggests that patients operated on <2 weeks after injury have a higher postoperative Japanese Orthopedic Association score and recovery rate than those operated on >2 weeks after injury. There is insufficient evidence that lengths of hospital or intensive care unit stay differ between patients who undergo early versus delayed surgery. Furthermore, there is insufficient evidence that timing between injury and surgery predicts mortality rates or serious or minor adverse events.

Conclusion : The findings of this study suggest that rapid action of spinal cord decompression surgery can improve neurologic symptoms and is associated with fewer post-operative complications. It is preferable to operate during the first hospital admission and <2 weeks after injury.

Keywords : Decompression; Early Surgical Decompression; Injured Spinal Cord; Late Surgery; Surgical

Count: 458

Abstract ID: 36

subject: Neural Injuries and Neurodegenerative Disorders: Spinal Cord Injury

Presentation Type: Poster

Transplantation of nerve growth factor–overexpressing adipose derived mesenchymal stem cells (ADMSCs) in combination with an injectable chitosan based hydrogel in contusive spinal cord injury

Submission Author: Majid Katebi

Akram Alizadeh¹, Majid katebi², Seyyed nasser Ostad³, Mahmoud Azami⁴

1. Cellular and Molecular Research Center, Shahrekord University of Medical Sciences
2. Hormozgan University of Medical Sciences
3. Tehran University of Medical Sciences
4. Tehran University of Medical Sciences

Background and Aim : Spinal cord injury (SCI) is one of the most serious clinical problems hopes to be treated with new advanced therapies. Delivery of neurotrophic factors such as nerve growth factor (NGF) by the use of genetic engineered mesenchymal stem cells (MSCs) in combination with biomaterials as scaffold or vehicle is a new approach in SCI treatment. The aim of this study was to assay the impact of lentiviral mediated overexpression NGF in Adipose-derived MSCs (ADMSCs) in combination with injectable chitosan–glycerophosphate salt–hydroxyethyl cellulose (CH-β-GP-HEC) hydrogel in contusive SCI in rat.

Methods : Human ADMSCs is isolated and genetically modified and transduced using pseudo lentiviruses to overexpress NGF and is labeled with green fluorescent protein (GFP).NGF Overexpression was evaluated by RT PCR and western blot analysis. Injectable CH-β-GP-HEC hydrogel in the ratio of 1.5%: 15%: 0.18% was prepared. Morphological and rheological properties and cytotoxicity of the hydrogel was analyzed by scanning electron microscope (SEM), rheometry analysis and MTT assay. Weight drop moderate contusive SCI induced after laminectomy in rats. One week later 1×10^5 transduced hADMSCs/10 μl CH-β-GP-HEC hydrogel (transduced hADMSCs+CH) injected into the lesion site. Basso, Beattie and Bresnahan (BBB) tests were used weekly to evaluate locomotor function after the treatment for 8 weeks.

Results : To sum up, hADMSC was easily transduced with pseudo lentiviruses and under fluorescent microscope express GFP at least for 8 weeks and after freeze thawing. NGF

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

overexpression in transduced hADSCs was confirmed immediately after transduction with RT PCR and after 8 weeks using western blot analysis. CH- β -GP-HEC hydrogel at 40C can be considered an injectable transparent solution. Gelation started at 37oC after 30 min. We found that hydrogel had a long linear viscoelastic region and a stable structure among the wide range of frequencies. Hydrogel behaved as shear thinning material with a viscosity of about 3000 Pa.s in low shear rate. Storage modulus (G') of this hydrogel at 37 oC was almost constant over a wide range of strain and frequencies and was similar to rat's brain. Transduced hADMSC and transduced hADMSCs+CH in treated rats showed a significant motor improvement compared to SCI group. Combination therapy of transduced hADSCs CH- β -GP-HEC hydrogel has led to a greater locomotor recovery compared to transduced hADSCs.

Conclusion : Transplantation of lentiviral mediated NGF-overexpressing ADMSCs in combination with injectable CH- β -GP-HEC hydrogel in contusive spinal cord injury exhibited more significant functional recovery than single therapy using either of them. These results may be applicable in selecting the best therapeutic strategy based on gene therapy and tissue engineering approach for SCI.

Keywords : CH- β -GP-HEC hydrogel, NGF, ADMSCs

Count: 459

Abstract ID: 497

subject: Neural Injuries and Neurodegenerative Disorders: Spinal Cord Injury

Presentation Type: Oral

The role of low level laser therapy on neuropathic pain relief and interleukin-6 expression following spinal cord injury: An experimental study

Submission Author: Negin Mojarad

Farinaz Nasirinezhad¹, Negin Mojarad², Atousa Janzadeh³

1. Physiology Research Center and Department of Physiology, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran
2. Physiology Research Center and Department of Physiology, Faculty of Medicine, International Campus, Iran University of Medical Sciences, Tehran, Iran
3. Physiology Research Center and Department of Physiology, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : The effect of Low Level Laser Therapy (LLLT) as a non-invasive treatment of spinal cord injury (SCI) is still under investigation. Therefore, the present study aimed to evaluate the effectiveness of LLLT on neuropathic pain and interleukin-6 (IL-6) expression following SCI in male rats.

Methods : 46 adult male rats were divided into 5 groups of control, SCI, treatment with methylprednisolone sodium succinate (MPSS), 1-week LLLT and 2-week LLLT. Animals underwent behavioral evaluations for motor behavior, level of allodynia and hyperalgesia every week. At the end, spinal cord was extracted and IL-6 level was assessed by ELISA method.

Results : Treatment with MPSS and 2-week LLLT had led to motor function recovery (df: 24, 145; F = 223.5; p < 0.001). SCI did not affect mechanical (df: 24, 145; F = 0.5; p = 0.09), and cold allodynia (df: 24, 145; F = 0.3; p = 0.17) but significantly increased mechanical (df: 24, 145; F = 21.4; p < 0.001) and heat hyperalgesia (df: 24, 145; F = 16.1; p < 0.001). Treatment with MPSS and 1 and 2-weeks LLLT improved mechanical hyperalgesia (p < 0.05) and heat hyperalgesia (p < 0.01). The increased level of IL-6 following SCI was also compensated by administration of MPSS or LLLT (df: 4, 10; F = 8.74; p = 0.003).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Findings show that long periods of LLLT have better effects in improving the complication of SCI. In summation, since LLLT does not cause the side effects of MPSS, long-term use of LLLT may be a proper alternative for MPSS in decreasing post SCI side effects.

Keywords : Low level laser therapy , Spinal cord injury , Neuropathic pain , Interleukin-6

Count: 460

Abstract ID: 96

subject: Neural Injuries and Neurodegenerative Disorders: Spinal Cord Injury

Presentation Type: Poster

Combined treatment with minocycline and olfactory ensheathing cells reduce cyst cavity and preserve white matter after spinal cord contusion

Submission Author: Soheila Porkhodadad

Soheila Porkhodadad¹

1. Department of Animal Physiology, Faculty of Biology, Kharazmi (Tarbiat Moallem) University, Tehran, Iran

Background and Aim : Traumatic spinal cord injury is one of the most devastating medical conditions that lead to neuronal disruption and the mechanism involved remains elusive. Minocycline is a clinically available antibiotic and anti-inflammatory drug that has been shown to target a broad range of secondary injury mechanisms via its anti-inflammatory, anti-oxidant, and anti-apoptotic properties. In recent years, transplantation of olfactory ensheathing cells (OECs) into the spinal cord has been used as an experimental strategy to promote regeneration of damaged axons. The aim of this study is to reduce inflammation with minocycline and axonal regeneration after spinal cord injury by OEC cells.

Methods : Adult female Wistar rats (220-250 g) used and were randomly divided into five groups (n = 10 in each group). Rats received intraperitoneal injections of minocycline immediately after SCI and then 24 h after injury at a dose of 90 mg/kg . Transplantations were performed 7 days after the injury. Locomotor function was evaluated using the Basso, Beattie and Bresnahan (BBB) test and electrophysiology. Thereafter, the animals were sacrificed and T10–T12 segment of the spinal cord was removed for the histopathological and immunohistochemistry studies. Myelin basic protein and glial scar formation were assessed 5 weeks after transplantation by immunohistochemical analyses using anti-MBP and glial fibrillary acidic protein (GFAP) antibodies, respectively.

Results : Results showed combination of an OEC graft and minocycline reduced functional deficits and diminished cavitation, astrogliosis and preserved motor neurons in the spinal tissue. Moreover, increased myeline basic protein compared to SCI group

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : In conclusion These results suggest that OEC grafts combined with minocycline promote additive repair of spinal cord injuries may be a potential therapeutic agent for the treatment of SCI.

Keywords : minocycline, olfactory ensheathing cells, spinal cord injury

Count: 461

Abstract ID: 151

subject: Neural Injuries and Neurodegenerative Disorders: Spinal Cord Injury

Presentation Type: Poster

Purinergic signaling in neurogenic bladder after spinal cord injury

Submission Author: Hanieh Salehi pourmehr

Hanieh Salehi pourmehr¹, Nasrin Abolhasanpour², Sakineh Hajebrahimi³, Abbas Ebrahimi kalan⁴

1. Neuroscience research center, Tabriz University of medical sciences, Iran
2. Physiology department, Science and research branch of Azad University of Tehran.
3. Professor of Urology Department, Research Center for Evidence-Based Medicine, Tabriz University of Medical Sciences, Tabriz, Iran.
4. Assistant professor of Anatomical Sciences, Neurosciences and Cognitive Department, School of Advanced Medical sciences, Tabriz University of Medical Sciences, Tabriz, Iran. Sakineh Hajebrahimi Assistant professor of Anatomical Sciences, Neurosciences and Cognitive Department, School of Advanced Medical sciences, Tabriz University of Medical Sciences, Tabriz, Iran.

Background and Aim : Neurogenic bladder (NGB) and urinary incontinence is a common embarrassing condition in most of the neurological diseases like as Spinal Cord Injury (SCI). The prevalence of NGB in patients with SCI is 70% to 84%. Sacral micturition center (S2–S4), pontine micturition center, and cerebral cortex are responsible for normal urination cycle with facilitation and inhibition of voiding. In SCI, the lesions between these pathways lead to losing normal bladder function with manifestation of neurogenic detrusor overactivity that exhibits as uninhibited bladder contraction and detrusor-sphincter- dyssinergia. Scientists discovered exocytotic vesicular release of ATP (a purine) as a co-transmitter with acetylcholine from parasympathetic neurons lead to bladder contraction and voiding reflex in many species. In healthy human the principal neurotransmitter that initiates muscle contraction is acetylcholine and the role of ATP is minor. However, in pathological conditions such as neurogenic bladder purinergic components increased to about 40% and its signaling (the binding of Adenosine triphosphate to its receptors) is introduced as a new pathway in pathogenesis of many types of NGB. Physiological roles of purinergic signaling in living bladder and urethra tissues consist of control of contraction/relaxation of mammalian bladder and relaxation of mammalian urethra. Beside it ATP plays a role in cell proliferation, differentiation, and death in development and regeneration, as well as in disease. ATP is a signaling molecule that can act as neurotransmitter and bind with 2 groups of receptors: ionotropic (P2X) and metabotropic (P2Y). P2X and P2Y receptors are present

in urothelial cells. In both sensory transduction (by releasing ATP from the umbrella cells) and the function of bladder the purinergic signaling is play a critical role and is involved in numerous conditions like as spinal cord injury. The relationship between purinergic signaling and bladder function is demonstrated by knockout of P2X2/P2X3 in experimental models. After ATP release, P2X3 receptors on suburothelial sensory nerves initiate the voiding reflex and mediate the sensation of bladder filling and urgency. The other mechanism of ATP is its effect on suburothelial interstitial cells/myofibroblasts generating via Ca(2+) transient through gap junctions with sending signals from urothelium to detrusor muscle. Prolonged purinergic receptors activation leads to excitotoxicity and neurodegeneration. The results of immunohistochemistry staining of these receptors showed that P2X2 staining is stronger. And in animals study by using of A-317491 (as a selective P2X2/P2X3 purinergic receptor antagonist) showed a therapeutic effect in SCI developed overactive bladder by increasing the intervals of contractions. Beside it Brilliant blue G (P2X7 receptor antagonist) decrease astrocytes and microglia activation and lead to neuron protection from excitotoxicity and inflammatory responses. In SCI, ATP release is seen in response to mechanosensory cholinergic receptor activation followed by P2X7 receptor activation, hence inhibition of P2X7 receptors can improve SCI recovery by oxidizing ATP and PPADS and decrease in cell death. Also purinergic signaling affects bladder function in both central and peripheral (afferent and efferent components) nervous system. Beside it this signaling can altered smooth muscle of bladder and also urothelial.

Methods : .

Results : .

Conclusion : .

Keywords : Neurogenic bladder, purinergic signaling, Spinal Cord Injury

Count: 462

Abstract ID: 309

subject: Neural Injuries and Neurodegenerative Disorders: Spinal Cord Injury

Presentation Type: Poster

Comparison of Granulocyte Colony-stimulating Factor (G-CSF) and Methylprednisolone (MPSS) for Reduction of AIS Grade after Spinal Cord Injury (SCI): A Meta-analysis

Submission Author: Ahmed Sayahi

Ahmed Sayahi¹, Seyyed Amir Yasin Ahmadi², Babak Alijani³, Shahrokh Yousefzadeh Chabok⁴

1. Department of Clinical Biochemistry, Lorestan University of Medical Sciences, Faculty of Medicine, Khorramabad, Iran.
2. Scientific Society of Evidence-based Knowledge, Lorestan University of Medical Sciences, Faculty of Medicine, Khorramabad, Iran.
3. Guilan Road Trauma Research Center, Guilan, Iran.
4. Neurosurgery Department, Guilan University of Medical Sciences, Guilan, Iran.

Background and Aim : We are trying to compare Granulocyte colony-stimulating factor (G-CSF) and methylprednisolone (MPSS) on spinal cord injuries (SCI) based on American-spinal-cord-injury-association impairment scale (AIS) as a meta-analysis on the related clinical trials. We intend to investigate that whether G-CSF shift the complications to lower grades or not in comparison to MPSS.

Methods : The meta-search engines Google Scholar, PubMed and Scopus were used to search. Most of them were animal studies. Finally we found only 3 studies comparing MPSS and G-CSF in human clinical trials. Since meta-analyses are two tailed, we used chi-square 2 by 2 with Yate's correction and Fisher's exact test if necessary. To do meta-analysis, we used comprehensive meta-analysis version 2 software.

Results : Totally the data of 223 acute SCI patients from 3 studies have been analysed in different conditions of AIS grade including A vs B+C+D, A+B vs C+D, and A+B+C vs D. The doses of G-CSF and MPSS in the studies were 10 µg/kg/day and 15mg/kg/day respectively; the grades of AIS were reported after 3 months of follow up. All three conditions showed a trend of non-significant lower protecting effects of G-CSF compared to MPSS, of course they were not statistically significant.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Although G-CSF protects nerve cells and oligodendrocyte from SCI-induced cell death, but based on the current meta-analysis, it does not shift the grades of AIS into A and B in comparison to MPSS. Hereby our suggestion for future researches is investigation of combined G-CSF and low dose of MPSS.

Keywords : spinal cord injuries; Granulocyte Colony-Stimulating Factor; methylprednisolone; meta-analysis

Count: 463

Abstract ID: 556

subject: Neural Injuries and Neurodegenerative Disorders: Spinal Cord Injury

Presentation Type: Poster

A novel model of spinal cord injury in rat

Submission Author: Mahdi Sharif Alhoseini

Mahdi Sharif Alhoseini¹, Mahdi Sharif-Alhoseini², Vafa Rahimi-Movaghar³, Taki Tiraihi⁴, Ahmad-Reza Dehpour⁵, Kourosh Mansouri⁶

1. -
2. Sina Trauma and Surgery Research Center, Tehran University of Medical Sciences, Tehran, Iran.
3. Sina Trauma and Surgery Research Center, Tehran University of Medical Sciences, Tehran, Iran.
4. Department of Anatomical Sciences, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.
5. Research Development Center, Sina Hospital, Tehran University of Medical Sciences, Tehran, Iran.
6. Iran University of Medical Sciences.

Background and Aim : The majority of human spinal cord injury (SCI) cases occur at the cervical level. But, the most commonly used experimental model for studying SCI is the thoracic contusion model. However, thoracic SCI models are not precisely comparable to cervical SCI. In this study, a new unilateral cervical compression model of SCI in rat was designed and characterized.

Methods : We designed and established a new device named unilateral spinal cord compression (USCC) and examined its ability to produce graded injury severities, defined by the amount of force applied to the exposed spinal cord at C5 of adult Wistar rats at five different survival times (0, 1 hour, 1 day, 1 week, and 1 month). Behavioral (grooming test, mBBB, forelimb asymmetry test, and horizontal ladder test), electromyographic (EMG) and histological (hematoxylin and eosin, luxol fast blue, and cresyl violet) outcomes of the injury were evaluated.

Results : The injury is well tolerated by the animals. Compared to controls, animals receiving 1.5 and 2 mm compression exhibited injury severity-specific deficits in forelimb, locomotor, and hindlimb function persisting for 4-weeks post-SCI. EMG of diaphragm showed the elimination of the ipsilateral diaphragm activity, without significantly change in the respiratory function. Histological analysis revealed ipsilateral containment of the injury, and differentiation between groups on all measures except motor neuron counts.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : This characterized model of unilateral cervical spinal cord compression injury could be a valid model for researchers to evaluate potentially promising therapies prior to human translation.

Keywords : Spinal Cord Injuries; Spinal Cord Compressions; Experimental Animal Models

Count: 464

Abstract ID: 808

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Ophthalmic manifestations of patients with Human T Lymphotropic Virus-1 associated myelopathy

Submission Author: Samaneh Abolbashari

Samaneh Abolbashari¹, Zahra Meshkat², Majid Ghayour-Mobarhan³, Sara Samadi⁴

1. Student Research Committee, Department of Modern Sciences and Technology, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Antimicrobial Resistance Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
3. Department of Modern Sciences and Technology, Mashhad University of Medical Sciences, Mashhad, Iran
4. Department of Modern Sciences and Technology, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : Human T cell lymphotropic virus-1 (HTLV-1) is an oncogenic retrovirus and is the causative agent for a neurologic disease named HTLV-I- associated myelopathy/tropical spastic paraparesis (HAM/TSP) and adult T-cell leukemia lymphoma (ATL). Paraparesis of the lower limbs which appears gradually is the most common clinical feature in HAM/TSP. In some patients, other symptoms such as ophthalmic ones are also seen. We reviewed the literature relevant to ophthalmic signs and symptoms in HAM/TSP patients.

Methods : The databases of PubMed, Scopus, ISI Web of SCIENCE, MEDLIB and SID were searched using HTLV-1, HAM/TSP, ophthalmic manifestation and ocular or eye involvement.

Results : Uveitis and corneal pathology are among the common ophthalmic manifestations of HTLV-1 infected patients; but they have a higher prevalence in HAM/TSP patients. Optic disc changes due to vasculitis or uveitis is also a finding in some patients. Papiolitis and Optic neuritis have been reported in some HAM/TSP patients. Optic atrophy and pigmented degeneration of the retina are rare findings which have been reported in only a few number of patients affected with HTLV-1 myelopathy

Conclusion : The different ophthalmic manifestations in HAM/TSP makes it necessary to examine the eye in all patients infected with HTLV-1.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : HTLV-1, HAM/TSP, Ophthalmic manifestation

Count: 465

Abstract ID: 771

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Oral

JNK3 mitogen activated protein kinase is increased in the hippocampus of a rat model of hepatic encephalopathy

Submission Author: Shamseddin Ahmadi

Shamseddin Ahmadi¹, Shiler Khaledi²

1. Department of Biological Science, Faculty of Science, University of Kurdistan, Sanandaj, Iran
2. Department of Biological Science, Faculty of Science, University of Kurdistan, Sanandaj, Iran

Background and Aim : Chronic liver failure induces hyperammonemia that finally leads to hepatic encephalopathy (HE). It has been shown that HE is associated with alterations in cerebral and cognitive functions. According to previous researches, mitogen-activated protein (MAP) kinases are affected at transcriptional and post-transcriptional levels in HE in response to inflammation induced by hyperammonemia. The aim of the present study was to investigate expression of JNK3 MAP kinase in the hippocampus of rats with hepatic encephalopathy.

Methods : Male Wistar rats weighing 300-350 g were used. Chronic liver failure was induced in a group of rats as a model of HE using a common bile duct ligation (BDL). Sham control operation consisted of laparotomy and bile duct identification without ligation and resection. On day 28 after the surgery, the animals were decapitated, their brain were removed from the skull and the hippocampi were dissected bilaterally from both hemispheres of each rat on an ice chilled surface. A real-time PCR and western blotting methods were used for evaluating gene and protein expressions of the JNK3 MAP kinase in the hippocampus. The results were analyzed with independent sample t-test and $p < 0.05$ was defined as statistical significant level.

Results : The result of gene expression with real-time PCR revealed a significant increase at mRNA level of JNK3 MAP kinase in the hippocampus in a group of rats as a model of HE compared to the sham control group. The result of western blotting method for protein expression of JNK3 MAP kinase in the hippocampus also showed a significant increase in the group with HE compared to sham control group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : It can be concluded that brain inflammation and cognitive impairment in the animals with HE are associated, at least partly, with changes in activation of JNK3 MAP kinase in the hippocampus.

Keywords : JNK3 MAP Kinase, Hepatic encephalopathy, Real-time PCR, Gene expression, Western blotting, rat

Count: 466

Abstract ID: 33

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Adenosine Receptor Agonist and Ascorbic Acid protect Ultrastructure of Hippocampal CA1 Neurons after Ischemia-Reperfusion Injury

Submission Author: Akram Alizadeh

Akram Alizadeh¹, Majid katebi², Mohammad Zamani³

1. Cellular and Molecular Research Center, Shahrekord University of Medical Sciences
2. Hormozgan University of Medical Sciences
3. Hormozgan University of Medical Sciences

Background and Aim : In brain ischemia, blood and oxygen supply decrease and after reperfusion, free radicals and reactive oxygen species (ROS) cause severe damage. As hippocampal injury after ischemia-reperfusion causes some complications, in this study we analyzed the effect of adenosine receptor agonist (N6-cyclopentyladenosine or CPA) and ascorbic acid on ultrastructure of hippocampal CA1 neurons after ischemia-reperfusion.

Methods : 35 male rats in 5 groups were used. Ischemia-reperfusion performed by occlusion of common carotids for 15 minutes. CPA and ascorbic acids were intraperitoneally injected for 7 days after ischemia, and 2 weeks before and for 7 days after ischemia, respectively. After 20 days, brain samples were isolated, prepared, and assayed using transmission electron microscopy (TEM)

Results : Ultrastructure assay of hippocampal CA1 neurons after ischemia-reperfusion with transmission electron microscopy showed recovery of intracellular organelles particularly mitochondria of treated groups. In combination therapy, these improvements were better.

Conclusion : Intraperitoneal injection of CPA and ascorbic acid after ischemia-reperfusion can reduce neural damage in CA1 region of hippocampus.

Keywords : CA1 region; Hippocampal; N6-cyclopentyladenosine; Ascorbic acid; Ultrastructure

Count: 467

Abstract ID: 591

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

β -Amyrin, a type 2 cannabinoid receptors agonist, abrogates mice brain microglial cells inflammation induced by lipopolysaccharide/interferon- γ and regulates MQ1/MQ2 balances

Submission Author: Vahid Reza Askary

Vahid Reza Askary¹, Vafa Baradaran Rahimi²

1. Student Research Committee, Department of pharmacology, Faculty of medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Student Research Committee, Department of pharmacology, Faculty of medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : Inflammation is a primary response to infection that can pathologically lead to various diseases including neurodegenerative diseases. The purpose of this study was to evaluate the effect of β -Amyrin, a naturally occurring pentacyclic triterpenoid compound, on inflammation induced by lipopolysaccharide (LPS) and interferone- γ (IFN- γ) in rat microglial cells.

Methods : Cytotoxicity of β -Amyrin (3-100) μ M on microglial cells was evaluated using the MTT assay. Also, the protective effect of various β -Amyrin (2-16 μ M) concentrations with specified amount of LPS/IFN- γ -induced mice microglial cells was studied. The concentrations of TNF- α (Tumor Necrosis Factor- α), IL-1 β (Interleukin-1 β), IL-6 (Interleukin-6) and PGE-2 (Prostaglandin E2) were evaluated using ELISA. Gene expression of TNF- α , IL-1 β , IL-6, COX-2 (Cyclooxygenase-2), iNOS and arginase-1 was also evaluated using the Real-Time PCR method. Nitrite oxide and urea were measured using biochemical methods.

Results : The studied concentrations of β -Amyrin did not affect the viability of microglial cells but improved the viability after treatment of cells with LPS/IFN- γ . The concentrations and expression levels of pro-inflammatory factors (TNF- α , IL-1 β , IL-6, PGE-2, COX-2) was reduced after β -Amyrin treatment in LPS/IFN- γ -induced microglial cells. β -Amyrin also decreased the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

levels of nitric oxide, increased urea and down regulated the expression of nitric oxide synthesis while arginase-1 expression was enhanced.

Conclusion : β -Amyrin reduces inflammation in microglial cells and can be used as a potential anti-inflammatory agent in central nervous system diseases.

Keywords : β -Amyrin; inflammation; LPS/IFN- γ -induced cell; microglia

Count: 468

Abstract ID: 552

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Morphine pre- and post-conditioning exacerbates apoptosis in rat hippocampus cells in a model of homocysteine-induced oxidative stress

Submission Author: Amin Ataie

Amin Ataie¹, RAMIN ATAEE², AHMAD KARKHAH³

1. Neuroscience Research Center, Babol University of Medical Sciences, Babol University of Medical Sciences, Babol
2. Pharmaceutical Sciences Research Center, Department of Pharmacology and Toxicology, Mazandaran University of Medical Sciences, Sari, Mazandaran, Iran
3. 1 Neuroscience Research Center, Babol University of Medical Sciences; 2 Student Research Committee, School of Medicine, Babol University of Medical Sciences, Babol;

Background and Aim : Recent investigations indicated that morphine has protective effects in different ischemia/reperfusion models and may protect against neuronal cell death, while other evidence showed that morphine induces apoptosis in neurons. Therefore, the current study was conducted to investigate pre-and post-conditioning effects of morphine on hippocampal cell apoptosis in a rat model of homocysteine (Hcy)-induced oxidative stress.

Methods : In the present study, 0.5 $\mu\text{mol}/\mu\text{l}$ Hcy was injected into bilateral intrahippocampal in the rat brain and morphine at a therapeutic dose of 10 mg/kg was injected intra-peritoneally 5 days before and after Hcy injection in rats. The left and right rat hippocampus were removed for biochemical and histopathological analysis. In addition, hippocampal cell apoptosis was assayed by the TUNEL kit

Results : Our results indicated that malondialdehyde (MDA) and superoxide anion (SOA) levels in the Hcy group were increased significantly compared to the control group ($P<0.001$). In addition, morphine pre-and post-treatment increased the MDA and SOA levels significantly in rat hippocampus compared with other groups ($P<0.001$). It was found that Hcy alone induced apoptosis in hippocampus cells and significantly increased the number of TUNEL-positive cells in rat hippocampus compared to the other group ($P<0.001$). Notably, our results indicated that

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

pre- and post-treatment by morphine increased apoptosis in hippocampus cells compared with the other group ($P < 0.001$)

Conclusion : In conclusion, morphine neuroprotection and neurotoxicity needs to be further investigated to determine morphine side-effects in medical applications and to identify new targets for potential therapies.

Keywords : homocysteine, morphine, TUNEL, hippocampus, rat, apoptosis, oxidative stress

Count: 469

Abstract ID: 589

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Oral

Terminalia chebula has promising effects on mice microglial cells inflammation induced by lipopolysaccharide and regulates MQ1/MQ2 balances

Submission Author: Vafa Baradaran Rahimi

Vafa Baradaran Rahimi¹, Vahid Reza Askari²

1. Student Research Committee, Department of pharmacology, Faculty of medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Student Research Committee, Department of pharmacology, Faculty of medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : Inflammation is a protective and major response to infection or injury, which in Central nervous system (CNS) disorders caused by ischemia, hypoxia or others, leads to produce cytokines carrying signals for activation of microglial cells. Occurrence of Neuro inflammation is a Commonplace properties of neurodegenerative disease such as dementia, multiple sclerosis and Alzheimer. Terminalia chebula (TC) is accredited as medicinal plant from Combretaceae with anti-inflammatory, anti- arthritis and analgesic properties. Based on these sufficient and important features of this plant, we were to assess the possible anti inflammatory effects of TC extract on primary rat brain microglia and identify the ratio of type 1 and 2 macrophages in presence of LPS.

Methods : Cytotoxicity of β -Amyrin (5-80) μ g/ml on microglial cells was evaluated using the MTT assay. Also, the protective effect of various β -Amyrin (20-80 μ g/ml) concentrations with specified amount of LPS-induced mice microglial cells was studied. The concentrations of TNF- α (Tumor Necrosis Factor- α), IL-1 β (Interleukin-1 β), IL-6 (Interleukin-6) and PGE-2 (Prostaglandin E2) were evaluated using ELISA. Gene expression of TNF- α , IL-1 β , IL-6, COX-2 (Cyclooxygenase-2), iNOS and arginase-1 was also evaluated using the Real-Time PCR method. Nitrite oxide and urea were measured using biochemical methods.

Results : We observed that the effect of TC extract on cell proliferation at range concentrations of 5-80 $\mu\text{g/ml}$ have no toxicity on rat microglial cells compared to control group. Incubation with LPS led to a significant reduction in cell proliferation in comparison to normal control group. In contrast, TC extract at concentrations equal or more than 20 $\mu\text{g/ml}$ significantly increased cell proliferation in presence of LPS compared to LPS treated group. The concentrations and expression levels of pro-inflammatory factors (TNF- α , IL-1 β , IL-6, PGE-2, COX-2) was reduced after TC treatment in LPS/IFN- γ -induced microglial cells. TC also decreased the levels of nitric oxide, increased urea and down regulated the expression of nitric oxide synthesis while arginase-1 expression was enhanced. We observed that LPS could significantly increase NO/urea ratio and reduce Arg1/iNOS ratio in LPS induced microglial cells, while TC extract could significantly reverse these changes.

Conclusion : TC reduces inflammation in microglial cells and can be used as a potential anti-inflammatory agent in central nervous system diseases.

Keywords : Terminalia chebula; inflammation; LPS-induced cell; microglia

Count: 470

Abstract ID: 542

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Protective effect of ALOE VERA gel on diabetic peripheral neuropathy: Role of anti-inflammatory and antioxidative stress.

Submission Author: Marzieh Eskandarzadeh

Marzieh Eskandarzadeh¹, Amin hasanvand²

1. student research committee, faculty of pharmacy, Lorestan university of medical science, Khorram Abad, Iran
2. Department of pharmacology, school of medicine, Tehran university of medical sciences, Tehran, Iran; Department of pharmacology and toxicology, Faculty of pharmacy, Lorestan university of medical science, Khorram ABAD, IRAN

Background and Aim : Aloe Vera, by scientific name *Aloe Barbadensis*, as containing antioxidants, have been widely used from distant past for inflammation suppress, antimicrobial effects, wound healing and anti-tumors aims. Antioxidant compounds are found in the form of vitamins A, B, C, E, essential fatty acids in different parts of the plant. In this study, we examine the effects of Aloe Vera and its antioxidant properties for prevention of diabetic neuropathy.

Methods : After animal preparation, 50 rats were divided into five groups 10 rats in each. Group I: Normal rats as base line, Group II: Diabetic rats for control, Group C: Diabetic rats + Metformin, Group IV: Diabetic rats + Aloe Vera, Group V: Diabetic rats + Aloe Vera. Hot plate test and Tail flick experiments were performed on 0, 15 and 30 days after diabetes induction. MNCV and SNCV were performed on 30 days after induced diabetes. After testing behavioral test in thirty days, blood samples were taken to measure cytokines and oxidative marker levels.

Results : Our results showed that both oral administration of Aloe Vera (100 and 200 mg/kg) and metformin (200 mg/kg) inhibited neuropathy. Treatment of diabetic rats with Aloe Vera decreased the cytokines levels and prevented neuropathy. The results showed that treatment by Aloe Vera significantly reduced the level of oxidative stress enzymes, inflammation cytokines and improved behavioral tests.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The results showed that Aloe Vera have protective effects in diabetic neuropathy dysfunction through diminish levels of oxidative enzymes and inflammation cytokines

Keywords : Aloe Vera, Antioxidant, Anti-inflammatory, diabetic neuropathy

Count: 471

Abstract ID: 335

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Resveratrol Protects Purkinje Neurons and Restores Muscle Activity in Rat Model of Cerebellar Ataxia

Submission Author: Zeynab Ghorbani shemshadsara

Zeynab Ghorbani shemshadsara¹, masteri farahani .reza², aliaghaei .abbas³

1. anatomy depatman of shahid beheshti university
2. anatomy depatman of shahid beheshti univesity
3. anatomy depatman of shahid beheshti univesity

Background and Aim : Cerebellar ataxia (CA) is a miscellaneous cluster of brain disorders with ataxia as the leading symptom. Resveratrol is a naturally-occurring polyphenolic compound. Piece of evidence indicates that resveratrol confers neuroprotection in various animal models of brain disorder.

Methods : We actually considered it invaluable to investigate whether a treatment with resveratrol has a therapeutic role against CA induced by 3-acetylpyridine (3-AP) in rats. In addition, no investigation has examined neuroprotective effect of resveratrol in rat model of CA. Initially, 3-AP administration generated CA rat models followed by intraperitoneal injection with resveratrol. Then, motor performance and muscle EMG activity were assessed. Moreover, the anti-apoptotic role of resveratrol in CA and its relationship to protection of purkinje cells were explored.

Results : According to what we have found, resveratrol administration improved the muscle activity and movement coordination in 3-AP-lesioned rats. Also under resveratrol treatment, the total number of the purkinje neurons increased whereas a reduction in apoptotic bodies was observed

Conclusion : In conclusion, post-treatment with resveratrol evidently ameliorated motor performance as well as muscle activity accompanied by protection of purkinje cells in ataxic rats.

Keywords : Resveratrol, Cerebellar Ataxia, Purkinje Neuron

Count: 472

Abstract ID: 162

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Oral

Study of anti-oxidant effect of curcumin-linoleic acid on BDNF gene expression changes during multiple sclerosis disease induction in male rats

Submission Author: Homeira Hatami

Homeira Hatami¹, Khadem Hossein Khamene Maryam², Charchinezhadamou Maral³, Barzegarzedeh Behnaz⁴, Seyedeh Saideh Daryabari⁵, Dehghan Gholamreza⁶, Hossein Pour Feizi Mohammad Ali⁷, Safaralizadeh Reza⁸, Hatami Homeira⁹

1. -
2. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
3. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
4. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
5. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
6. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
7. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
8. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
9. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.

Background and Aim : Multiple sclerosis or MS is a chronic inflammatory central nervous system disease. The etiology of MS is unclear, but oxidative stress and changes in levels of neurotrophic factors are involved in the pathogenesis of this disease. Curcumin and polyunsaturated fatty acid especially omega-6 group have antioxidant and anti-inflammatory effects which make a potent substance for MS treatment. The aim of this study is to evaluate the antioxidant effects of curcumin (alone) and curcumin-linoleic acid on BDNF gene expression alteration in brains of male rats during multiple sclerosis disease induction.

Methods : 56 adult male Wistar rats weighting 250 ± 20 g were randomly divided into seven groups: control, sham (DMSO), lesion or MS group [receiving 0.1% of ethidium bromide in saline (4 microliter, bilaterally)], curcumin (5 and 10 microgram/rat) and curcumin-linoleic acid groups (5 and 10 microgram/rat). One week after MS induction by I.C.V injection of ethidium bromide,

each of treated groups were microinjected by above mentioned doses of curcumin and curcumin-linoleic acid for 5 consecutive days. Brains of rats were extracted after the last injection and expression of BDNF gene was measured by RT-PCR and with the use of GapDH as a house keeping gene. Data analysis was done by one way ANOVA.

Results : In current study, BDNF gene expression amount in Multiple Sclerosis group has shown a significant decrease in comparison with control and sham groups ($P<0.05$). Also the multiple sclerosis stricken rats which were treated with curcumin 10 $\mu\text{g}/\text{rat}$ and curcumin-linoleic acid 10 $\mu\text{g}/\text{rat}$ shown a significant increase in $P<0.05$ levels than multiple sclerosis group.

Conclusion : Amount of changes in BDNF gene expression in MS stricken rats, and the rats which have been treated with curcumin-linoleic acid 10 $\mu\text{g}/\text{rat}$ implies the critical role of neurotrophic pathways in pathogenesis of multiple sclerosis disease. Also curcumin-linoleic acid as an anti-oxidant can increase the BDNF gene expression which had been decreased before, due to multiple sclerosis disease.

Keywords : Multiple Sclerosis, BDNF gene expression, Curcumin- Linoleic acid, Rat

Count: 473

Abstract ID: 163

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Study of NT4 gene expression changes in male rats stricken with Multiple Sclerosis and treated with curcumin-linoleic acid

Submission Author: Homeira Hatami

Homeira Hatami¹, Charchinezhadamouei Maral,² Khadem Hossein Khamene Maryam³, Barzegarzaddeh Behnaz⁴, Seyedeh Saideh Daryabari⁵, Dehghan Gholamreza⁶, Hossein Pour Feizi Mohammad Ali⁷, Safaralizadeh Reza⁸, Hatami Homeira⁹

1. -
2. 1. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
3. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
4. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
5. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
6. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
7. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
8. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.
9. Department of Animal Biology, Faculty of Natural sciences, University of Tabriz, Tabriz, Iran.

Background and Aim : Multiple sclerosis (MS) is an inflammatory disease damaging the myelin in the central nervous system. The reason is not clear. Oxidative stress and changes in levels of neurotrophic factors has been known as a causative agent for the MS. The aim of this study is to evaluate the alterations of NT4 gene expression in rat model of multiple sclerosis which are treated with antioxidant curcumin and curcumin-linoleic acid.

Methods : 56 adult male Wistar rats weighting 250 ± 20 g were randomly divided into seven groups: control, sham (DMSO), lesion or MS group [receiving 0.1% of ethidium bromide in saline (4 microliter, bilaterally)], curcumin (5 and 10 microgram/rat) and curcumin- linoleic acid groups (5 and 10 microgram/rat). One week after MS induction by I.C.V injection of ethidium bromide, each of treated groups were microinjected by above mentioned doses of curcumin and curcumin-linoleic acid for 5 consecutive days. Brains of rats were extracted after the last injection and

expression of NT4 gene was measured by RT-PCR and with the use of GapDH as a house keeping gene. Data analysis was done by one way ANOVA.

Results : According to the results of the current study, the level of NT4 gene expression significantly decreased in multiple sclerosis group in comparison with control and sham groups ($P < 0.05$). Treatment of multiple sclerosis group with curcumin (5, 10 $\mu\text{g}/\text{rat}$) and with curcumin-linoleic acid (5, 10 $\mu\text{g}/\text{rat}$) caused an increase in NT4 gene expression than multiple sclerosis group however, this increase was not statistically significant.

Conclusion : Upon results shows that NT4 gene expression decreased in the brain of rats during induction of multiple sclerosis. So it seems that changes in neurotrophins signalling has a main role in the pathogenesis of multiple sclerosis disease.

Keywords : Multiple Sclerosis, NT4 gene expression, Curcumin, Curcumin and curcumin-linoleic acid, Rat

Count: 474

Abstract ID: 170

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

The effect of *Matricaria chamomilla* ethanolic extract on histopathological changes of hippocampus and passive avoidance memory of male rats treated with formaldehyde

Submission Author: Iraj Jafari anarkooli

Iraj Jafari anarkooli¹, Zahra Sayyar², Alireza Yazdinezhad³, Maryam Hassan⁴, shabnam jafari⁵

1. Department of anatomy, Medicine Faculty, ZUMS
2. Department of anatomy, Medicine Faculty, ZUMS
3. Department of pharmacognosy, pharmacy Faculty, ZUMS
4. Department of food and drug control, pharmacy Faculty, ZUMS
5. Department of pharmacognosy, pharmacy Faculty, ZUMS

Background and Aim : Formaldehyde (HCHO) is a major chemical substance in science, industry, and home use. Studies have shown that formaldehyde has the ability to cross the blood brain barrier and leads to the increase of the age-dependent endogenous formaldehyde, phosphorylation and deposition of Tau protein, and cell death in hippocampal cells which cause memory impairment. In this study, the effect of chamomile ethanolic extract on histopathological changes in hippocampus in rats and their passive avoidance memory were examined.

Methods : In this study, 48 male Wistar rats (200-250 g) of 8-10 weeks of age divided in six groups: control group (C), daily receiving 10 mg/kg of normal saline through intraperitoneal (IP) injection; treatment with formaldehyde group (F), daily receiving 10 mg/kg formaldehyde through IP injection; treatment groups (F200 and F500) in which in addition to formaldehyde, daily received 200 and 500 mg/kg ethanolic extract of chamomile through IP injection; control groups which only daily received 200 and 500 mg/kg chamomile through IP injection. After one month of injection and evaluation of behavioral test, rats were sacrificed and their brains were removed, and then the hippocampi were isolated to evaluate the total antioxidant capacity and malondialdehyde (MDA) and evaluation of cell death with TUNEL assay and Acridine orange techniques was performed, as well.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results of this study showed that intraperitoneal injection of formaldehyde increased cell death and time spent in dark room, decreased total antioxidant capacity of the hippocampus, increased malondialdehyde free radicals. And administration of ethanolic extract of chamomile may improve these symptoms.

Conclusion : According to the results of this study, it is possible that the ethanolic extract of chamomile can improve the formaldehyde-induced memory impairment by decreasing cell death, increasing total antioxidant capacity and decreasing of MDA level in the area of the hippocampus.

Keywords : Formaldehyde, hippocampus, chamomile, passive avoidance memory, total antioxidant capacity, malondialdehyde

Count: 475

Abstract ID: 180

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Oral

Investigation of protective effects of coenzyme Q10 on impaired synaptic plasticity in rat with Alzheimer's disease

Submission Author: Hamidreza Komaki

Hamidreza Komaki¹, Siamak Shahidi², Nafiseh Faraji³, Alireza Komaki⁴

1. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
2. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
3. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
4. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran

Background and Aim : Alzheimer's disease (AD) is the leading cause of dementia. In addition, because age is the primary risk factor for the disease, the worldwide population aging has resulted in an increase in the prevalence of AD. Importantly, increased oxidative stress has been implicated in the aging process and AD occurrence. Oxidative damage plays a key role in contributing to β -amyloid deposition in the AD. Coenzyme Q10 (Q10) is a powerful antioxidant that buffers the potential adverse consequences of free radicals produced during oxidative phosphorylation in the inner mitochondrial membrane. In this study, we investigated the neuroprotective effects of Q10 on $A\beta$ amyloid-induced impairments in hippocampal synaptic plasticity Long-term potentiation (LTP), a widely researched model of synaptic plasticity that occurs during learning and memory, in AD model rats.

Methods : In this study, 50 adult male Wistar rats were randomly assigned to five groups: control group; received saline via oral gavage once a day, sham group; neurosurgery and Intraventricular PBS injections were performed, $A\beta$ group; neurosurgery and Intraventricular $A\beta$ injections were performed, Q10 group; received Q10 via oral gavage once a day and Q10+ $A\beta$ group; received Q10 via oral gavage once a day and neurosurgery and intraventricular $A\beta$ injections was performed. After the treatment period, the rats were anesthetized with intraperitoneal injections of urethane and placed in a stereotaxic apparatus for surgery, electrode implantation, and field potential recording. In vivo, electrophysiological recordings were then performed to measure population spike (PS) amplitude and excitatory postsynaptic potential (EPSP) slope in the hippocampal

dentate gyrus. LTP was induced by high-frequency stimulation of the perforant pathway. Blood samples were then collected to measure oxidant and antioxidant profiles.

Results : After induction of LTP, PS amplitude and EPSP slope were significantly decreased in A β -injected rats compared to sham and control groups. Q10 treatment of A β -injected rats significantly attenuated these decreases, suggesting that Q10 decreased the effects of A β on LTP. The A β significantly increased serum malondialdehyde levels and total oxidant status; whereas, Q10 supplementation significantly reversed these parameters and increased total antioxidant capacity levels.

Conclusion : These findings suggest that Q10 treatment is neuroprotective against the detrimental effects of A β on hippocampal synaptic plasticity via its antioxidant activity.

Keywords : Alzheimer's disease; Coenzyme Q10; Synaptic plasticity; Oxidative stress; Antioxidants; Rat

Count: 476

Abstract ID: 186

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Neuroprotective effects of curcumin on the rat's model of ataxia induced by 3-AP

Submission Author: Maede Mahmoodi

Maede Mahmoodi¹, Mohammad hasan Heidari², abbas ali aghayi³

1. master of science in shahid beheshti medical university
2. professor of shahid beheshti medical university
3. assistant professor in shahid beheshti medical university

Background and Aim : Cerebellar ataxia is a group of disorders with ataxia as the leading symptom. Although the current therapeutic approaches have evaluate the potential effect of neurotrophic factors, but there is not a confident and approved treatment for ataxia. So, the present study was design to evaluate the neuroprotective effects of curcumin preparation to relief the symptom of 3-acetylpyridin induced ataxia in adult rats as a standard animal based model of ataxia.

Methods : thirty male adult rats were divided to one control and two experimental groups. The second groups were a 3-acetylpyridin (3-AP) induced ataxia and the third one was the rats who received curcumin after 3-AP administration. The rats underwent, behaviorally, the experimental procedure consisting "accelerating cylinder", electromyography (EMG), and in molecular section their cerebellar samples assess by immunoblotting assay and the total number of cerebellar purkinje was estimated by the proper immunohistochemical techniques.

Results : Administration of curcumin in 3-AP induced ataxia was improved motor coordination ($P < 0.05$) and muscle EMG activity and reduced apoptotic marker of caspase-3 and increased total volumes of the molecular layer, significantly ($P < 0.05$). Also, curcumin increased total volumes of the granular layer, volume of white matter and restores the number of purkinje cells and potentiated the antiapoptotic and antioxidant capacity in curcumin treated rats.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : despite of the need to additional study to determine the detail of mechanism by which curcumin excises its neuroprotection the 3-AP induced ataxia, it could be concluded that curcumin is a potential agent to cure symptoms of ataxia.

Keywords : Cerebellar ataxia, 3-Acethylpyridine, Curcumin, Neuroprotection

Count: 477

Abstract ID: 27

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Effect of Multiple Intraperitoneal Injections of Human Bone Marrow Mesenchymal Stem Cells in Cuprizone Model of multiple sclerosis

Submission Author: Mohsen Marzban

Mohsen Marzban¹, Anahita Torkaman-Boutorabi², Kazem Mousavizadeh³, Masoomeh Bakhshayesh⁴, Nasim Vosoughi⁵, Gelareh Vakilzadeh⁶

1. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
3. Cellular and Molecular Research Center and Department of Molecular Medicine, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran.
4. Cellular and Molecular Research Center and Department of Molecular Medicine, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran.
5. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
6. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Bone marrow mesenchymal stem cells (BM-MSCs) elicit neuroprotective effects. Their repair ability has been investigated in different experimental models. We aimed to investigate the effect of multiple intraperitoneal BM-MSCs injections in cuprizone model of multiple sclerosis (MS) in mice.

Methods : Adult male C57/BL6 mice (n=40) were fed regular diet or diet containing cuprizone (0.2% w/w) for 6 wee. Bone marrow samples obtained from Royan Institute and from patients with spinal cord injury. BM-MSCs (2×10^6 in 1 milliliter medium) were administered in the 4th week for two repeated weeks. Animals (n=12) were perfused with 10% paraformaldehyde at the end of 6th week. The brains were sectioned coronally in 6–8 μ m-thickness (-2.3 to 1.8 mm from bregma). The sections were stained by luxol-fastblue/cresyl violet (LFB) and images were captured via microscope. Demyelination ratio was estimated in corpus callosum a blind manner.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

A quantitative real-time PCR (qPCR) was used to measure the myelin basic protein gene expression at 6th week.

Results : Histologically, cuprizone induced demyelination in the corpus callosum. Demyelinated area was diminished in corpus callosum of cell-administered group. Cuprizone could significantly decrease MBP mRNAs expression in corpus callosum which was significantly recovered after BM-MSCs injections.

Conclusion : our data indicated a remyelination potency of multiple intraperitoneal BM-MSCs in cuprizone model of MS in mice.

Keywords : stemcell,remyelination,cuprizone

Count: 478

Abstract ID: 60

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Oral

Disrupting Blood Brain Barrier with Mannitol in Cuprizone Model of Multiple Sclerosis for Stem Cell Delivery

Submission Author: Mohsen Marzban

Mohsen Marzban¹, Anahita Torkaman-Boutorabi², Kazem Mousavizadeh³, Masoomeh Bakhshayesh⁴, Nasim Vosoughi⁵, Gelareh Vakilzadeh⁶

1. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
3. Cellular and Molecular Research Center and Department of Molecular Medicine, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran.
4. Cellular and Molecular Research Center and Department of Molecular Medicine, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran.
5. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
6. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Researchers now use different animal models to simulate multiple sclerosis (MS) disease. Each model has its own advantages and disadvantages. Cuprizone model is one of the cheapest and easiest model for MS. But in this model, the blood brain barrier is not damaged and stem cells cannot be brought to the lesion by systemic injection method. In this project, we used mannitol to solve this problem.

Methods : Twelve male wistar rats, were divided into four groups after the cuprizone (0.3%) model that was given to the rats for 8 weeks. The first group received PBS, the second group receiving mannitol only, the third group received the only cell and the fourth group received the cell and mannitol together. One million doses of human bone marrow were injected in the fifth week with mannitol. At the end of the sixth week, the rats were sacrificed and MAB1281 immunohistochemistry assay was traced to stem cells.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : MAB1281 Immunohistochemically tissue evaluation showed that cells injected into rats in the fifth week were seen in the corpus callosum area. Also, in an elevated maze plus behavior test, rats receiving both a cell and mannitol at the same time showed better improvement than other groups.

Conclusion : We conclude from the above information that mannitol can provide new perspectives for chronic diseases of the central nervous system, where the blood and brain barrier is impenetrable and stem cell cannot be passed from the systemic injection into the lesion.

Keywords : stemcell.BBB,Cuprizone

Count: 479

Abstract ID: 341

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Clavulanic acid as a neuroprotective agent against neurotoxins: Role of oxidative stress and apoptosis

Submission Author: Soghra Mehri

Soghra Mehri¹, Hossein Hosseinzadeh², Fatemeh Shabani³, Samaneh Silakhori⁴

1. Pharmaceutical Research Center, Institute of Pharmaceutical Technology, Mashhad University of Medical Sciences, Mashhad, Iran
2. Pharmaceutical Research Center, Institute of Pharmaceutical Technology, Mashhad University of Medical Sciences, Mashhad, Iran
3. School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran
4. School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : Clavulanic acid (CA) as a non-competitive inhibitor of β -lactamase has negligible antibiotic activity and is normally given in combination with some beta-lactam antibiotics overcome resistance in bacteria which can secrete the β -lactamase enzyme. Recent studies Oral bioavailability, good CNS penetration and low antibiotic activity and are important properties of CA, which selected this compound for evaluation further neuromodulatory effects. In this study, possible neuroprotective effects of CA against acrylamide (ACR) and trimethyltin (TMT) as potent neurotoxins were evaluated. ACR is a water-soluble monomer, which has various applications. Additionally, ACR is formed in starchy foods when cooked at high temperatures. ACR monomer is a potent neurotoxic and damages the central and the peripheral nervous system in human and animals. TMT is a short-chain trialkyltin used as a stabilizer of plastics and is also a known neurotoxin, producing significant and selective neurodegeneration in the limbic system of both human and animals, and is particularly toxic to the hippocampal formation.

Methods : PC12 cells were cultured and exposed to different concentrations of CA for 24 h. Then TMT (20 μ M) or ACR (5 mM) were added to cells. After that, MTT test was performed to assay cytotoxicity. Reactive oxygen species production (ROS) was determined using 2,7-dichlorofluorescein diacetate (DCFH-DA) method. Also, the levels of Bax, Bcl-2 and caspase 3 proteins were evaluated using western blot analysis.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Exposure to TMT or ACR markedly elevated ROS production, Bax/Bcl-2 and caspase 3 protein levels while decreased cell viability. Pretreatment of cells with CA reduced ROS production and increased viability. Additionally CA could modulated the level of proteins involved in apoptosis pathway.

Conclusion : CA exhibited significant neuroprotective effects against neurotoxicity of ACR and TMT mainly throughout reduction of ROS production and modulation of apoptosis.

Keywords : Clavulanic acid, Acrylamide, Trimethyltin, Apoptosis

Count: 480

Abstract ID: 165

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

The effects of early exposure to ethyl-mercury on impairments of social and stereotyped behaviors and the number of Purkinje cells of Cerebellum in rat

Submission Author: Zahra Namvarpour

Zahra Namvarpour¹, Abdollah Amini², Mohammad Nasehi³

1. Institute for Cognitive Science Studies (ICSS), Tehran, Iran
2. Department of Biology & Anatomy, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Cognitive and Neuroscience Research Center (CNRC), Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran

Background and Aim : Thimerosal (THIM)(49.55% ethyl-mercury by weight) is an inexpensive preservative in many pharmaceutical products, including vaccines. Information's about the impact of this substance on fetal neurodevelopment and incidence of behavioral and tissue defects, especially in higher doses (teratogenic) is very controversial. Here we investigated neonatal administration of Thimerosal in high dose on behaviors, such as locomotor activity, social interactions and stereotyped behaviors in male and female Wistar rats. Since the development of cerebellum continues for some time after birth and it's importance in movement, balance and sensory integration, the number of cerebellum purkinje cells also were counted.

Methods : The experiments were directed on 40 young adult male and female Wistar rats, which were in four subgroups: 1&2. Male and female experimental groups (which received Thimerosal (30000µg Hg/kg), intramuscular injections, on postnatal days (7, 9, 11, 15), according to childhood vaccination timing pattern, 3&4. Male and female control(saline) groups. After drug interventions, on 4th week after birth, rats were examined with open field test and in the 8th post natal week, Three-chamber paradigm test was conducted on animals. After the end of the behavioral tests, Histological studies were done.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : rats, which were exposed to Thimerosal(30000 μ g Hg/kg), demonstrated impairments in locomotor activity and social interactions were reduced. While the duration of freezing, grooming as stereotyped behaviors were increased significantly. The results of histological studies also showed a significant decrease in the number of purkinje cells in both sexes.

Conclusion : These data document that early postnatal Thimerosal administration in high dose causes lasting neurobehavioral and histological impairments and if similar changes occur in Thimerosal /mercurial-exposed children, they could contribute to neurodevelopmental disorders.

Keywords : thimerosal, behavioral impairments, cerebellum

Count: 481

Abstract ID: 426

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Deferoxamine Preconditioning of Neural-Like Cells Derived from Human Wharton's Jelly Mesenchymal Stem Cells as a Strategy to Promote Their Tolerance and Therapeutic Potential: An In Vitro Study.

Submission Author: Fatemeh Nouri

Fatemeh Nouri¹, Seyed Nouredin Nematollahi-mahani², Ali Mohammad Sharifi³

1. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
2. Department of Anatomy, Afzalipour School of Medicine, Kerman University of Medical Sciences, Kerman, Iran
3. Razi Drug Research Center, Department of Pharmacology, School of Medicine, Iran University of Medical Science, Tehran, Iran

Background and Aim : Transplantation of neural-like cells is considered as a promising therapeutic strategy developed for neurodegenerative disease in particular for ischemic stroke. Since cell survival is a major concern following cell implantation, a number of studies have underlined the protective effects of preconditioning with hypoxia or hypoxia mimetic pharmacological agents such as deferoxamine (DFO), induced by activation of hypoxia inducible factor-1 (HIF-1) and its target genes. The present study has investigated the effects of DFO preconditioning on some factors involved in cell survival, angiogenesis, and neurogenesis of neural-like cells derived from human Wharton's jelly mesenchymal stem cells (HWJ-MSCs) in presence of hydrogen peroxide (H₂O₂).

Methods : HWJ-MSCs were differentiated toward neural-like cells for 14 days and neural cell markers were identified using immunocytochemistry. HWJ-MSC-derived neural-like cells were then treated with 100 μ M DFO, as a known hypoxia mimetic agent for 48 h. mRNA and protein expression of HIF-1 target genes including brain-derived neurotrophic factors (BDNF) and vascular endothelial growth factor (VEGF) were examined using RT-PCR and Western blotting in the presence and absence of HIF-1 α inhibitor pretreatment. Moreover Gene and protein expression of Akt-1, Bcl-2, and Bax, as important factors in cell survival, were studied. Protein

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

expression of all of these factors in DFO-treated cells were examined after exposure to 500 μ M H₂O₂ and compared with non-treated cells with DFO.

Results : mRNA and protein expression of BDNF and VEGF significantly increased after exposure to 100 μ M DFO for 48h, which were reversed by HIF-1 α inhibitor while, gene expression of Akt-1, Bcl-2, and Bax did not change significantly but pAkt-1 was up-regulated as compared to poor DFO group. However, addition of H₂O₂ to DFO-treated cells resulted in higher resistance to H₂O₂-induced cell death. Western blotting analysis also showed significant up-regulation of HIF-1 α , BDNF, VEGF, and pAkt-1, and decrease of Bax/Bcl-2 ratio as compared to poor DFO.

Conclusion : These results may suggest that DFO preconditioning of HWJ-MSC-derived neural-like cells improves their tolerance and therapeutic potential and might be considered as a valuable strategy to improve cell therapy.

Keywords : BDNF; Deferoxamine; Neural-like cells; Preconditioning; VEGF

Count: 482

Abstract ID: 660

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Evaluation of the Relationship Between Growth and Thyroid Stimulating Hormones Level of Pituitary Gland with Received Dose to the Hypothalamus-Pituitary Axis in the Non-Pituitary Tumors

Submission Author: Jalal Ordoni

Jalal Ordoni¹, Zeynab Yazdi sotoodeh², Vida Sargazi³

1. , MSC of Radiobiology ,Department of Radiology, faculty member of paramedicine, Zahedan University of Medical Science, Zaheden, Iran
2. , MSC of Medical Imaging ,Department of Radiology, faculty member of paramedicine, Zahedan University of Medical Science, Zaheden, Iran
3. MD of medical physic,Department of Radiology, faculty of paramedicine, Zahedan University of Medical Science, Zaheden, Iran

Background and Aim : Despite technical advances, such as the introduction of three-dimensional treatment planning systems and new dose delivery techniques (stereotactic radiation therapy, stereotactic radiosurgery, intensity-modulated radiation therapy, gamma knife, cyber knife, and image guided radiation therapy), irradiation to nontarget organs like the pituitary gland and HPA during radiation therapy for patients with brain tumors remains inevitable.

Methods : Thirty-one (31) patients treated with primary or postoperative radiotherapy (RT) for various cancers in the brain region without pre-existing hypothalamic pituitary (HP) disorder from other causes were prospectively evaluated. Serum samples were obtained from the patients to determine levels of growth hormone (GH), thyroid-stimulating hormone (TSH), and free thyroxine (FT4). Serum samples were measured before treatment, 3 and 6 months after completion of radiation therapy (RT). The hypothalamus-pituitary axis (HPA) and dose volume histograms (DVH) of the patients were derived from their computed tomography-based treatment plans. The doses of radiation to the HPA region ranged from 241 to 5941 cGy (2.4-59.4 Gy).

Results : Clinical hypopituitarism was not observed, but 83% of patients who tested for hypopituitarism demonstrated subclinical hypopituitarism after a median interval of 6 months.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Subclinical GH and TSH deficiency were observed in 17 (54%) and 9 (29%) participants, respectively. Significant declines in TSH ($p < 0.021$), FT4 ($p < 0.009$), and T4 ($p < 0.036$) levels after the RT course that can be interpreted as subclinical central hypothyroidism were observed. Adjuvant chemotherapy and surgery did not significantly influence the hypopituitarism ($p = 0.698$, $p = 0.287$, respectively). The mean received dose (Dmean) and biological effective dose (BED) to the pituitary were 36 and 59.6 Gy, respectively.

Conclusion : Subclinical findings of late radiation effects were observed in the HPA. Radiation-induced hypopituitarism and central hypothyroidism are regarded as primary damage to the pituitary gland. The damage is dependent on follow-up. Neuronal cell death and degeneration because of the direct effects of radiation seem to play basic roles.

Keywords : hypothalamus-pituitary axis, hypopituitarism, growth hormone, thyroid-stimulating hormone, hypothyroidism

Count: 483

Abstract ID: 554

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Effect of hydro-alcoholic extract of *Spinacia oleracea* on TNF- α and IL-1 β genes expression in the hippocampus of rats exposed to chronic restraint stress

Submission Author: Sogand Pezeshkinia

Sogand Pezeshkinia¹, Masoumeh Asl-roosta², Sanaz Mahmazi³

1. Department of genetics, faculty of basic sciences, Zanjan Branch, Islamic Azad University, Zanjan, Iran
2. Department of animal physiology, faculty of basic sciences, Zanjan Branch, Islamic Azad University, Zanjan, Iran
3. Department of genetics, faculty of basic sciences, Zanjan Branch, Islamic Azad University, Zanjan, Iran

Background and Aim : restraint stress causes inflammation in nervous system that leads to emersion of neurodegenerative diseases. studies demonstrate that spinach (*Spinacia oleracea* L.) has antioxidant, anti-apoptosis, and hepato-protective properties. The aim of this study was to investigate the effect of spinach hydro-alcoholic extract on expression of pro-inflammatory cytokines IL-1 β and TNF- α in hippocampus of male wistar rats exposed to chronic restraint stress.

Methods : 30 male Wistar rats were divided into six groups of five including: 1) control (intact), 2) S200, 3) S400, 4) Stress, 5) Stress-S200, 6) Stress-S400. Groups No. 2, 3, 5, 6 have been received *Spinacia* extract in 200 and 400 mg/kg doses for 21 consecutive days by gavage. Groups No. 4, 5, 6 have been put in restrainer 6 hours per day for 21 consecutive days. At the end of the study, IL-1 β and TNF- α mRNA expression was determined by real-time PCR in hippocampus of rats.

Results : the results showed that the expression of IL-1 β and TNF- α was increased in hippocampus of rats exposed to stress in comparison to controls ($p < 0.05$). Furthermore, the expression of these pro-inflammatory cytokines was decreased in the Stress-S200 and Stress-S400 groups compared with stress group ($p < 0.05$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Spinach decreases neuroinflammation in hippocampus of stressed rats probably due to its abundant antioxidant components. The results of this study suggest that spinach probably could be an effective therapeutic candidate for the prevention and treatment of neurodegenerative diseases.

Keywords : Spinacia oleracea; restraint stress; IL-1 β ; TNF- α ; rat

Count: 484

Abstract ID: 172

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Oral

Kidney inflammatory response to experimental autoimmune encephalomyelitis model (EAE)

Submission Author: Sahar Rostami Mansoor

Sahar Rostami Mansoor¹, Sajad Imami Aleagha², Abdolamir Allameh³, Hadi Parsian⁴

1. Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
2. Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
3. Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
4. Department of Biochemistry and Biophysics, Babol University of Medical Sciences, Babol, Iran

Background and Aim : Multiple sclerosis is an inflammatory demyelinating disease which has been considered as a common autoimmune disorders in young adults. Previous studies demonstrated that the brain injuries exert effect on the kidney function through several mechanisms: Neuro-inflammation, can lead to neurohumeral changes that directly affect the kidney by increased the activation of neuro-sympathetic and hypothalamo-pituitary axis. Intracranial inflammatory cytokines pass into the systemic circulation via a dysfunctional BBB, and elevated levels of cytokines in plasma as well as cerebrospinal fluid. In addition, brain injury affects the kidney as a distant organ by haemodynamic instability, hormonal disturbance and increased immunologic response. In the present study we evaluated the expression of TNF- α and NF κ B-1 as inflammatory factors in the kidney, brain and spinal cord of Experimental autoimmune encephalomyelitis (EAE) mice “the most commonly used experimental model for human inflammatory demyelinating disease”.

Methods : for EAE induction, 20 mice (C57BL/6) were immunized by Hooke Kit (myelin oligodendrocyte glycoprotein (MOG) 35-55/ Complete Freund's Adjuvant (CFA) Emulsion, pertussis toxin (PTX), Hooke Labs, EK-2110) according to the manufacturer's instructions. Nineteen out of 20 immunized mice (95%) were induced successfully. These mice started to show clinical scores on day 9 and 10. Ten mice were sacrificed on day 9 and 10 as onset group. The clinical scores of immunized mice increased gradually until day 14, so the remaining mice were sacrificed at day 15 as peak group. Control group received CFA and PTX (without MOG peptide)

(n=10) and mice in sham group were injected with PBS alone (n=10). All mice were anesthetized and brain, spinal cord and kidney tissue were experimented for RNA extraction and real time PCR analysis for detection of gene expression.

Results : The TNF- α and NF κ B-1 expression level increased significantly in brain and spinal cord obtained from immunized mice (onset and peak groups) consistent with the clinical signs ($p < 0.001$ and $p < 0.001$ respectively). The expression of TNF- α and NF κ B-1 in kidney from onset group was within the range of that measured in control and sham groups but the mRNA level was elevated significantly in peak group ($p < 0.05$).

Conclusion : In conclusion our study revealed that, CNS may not be the only tissue in which inflammatory factors increase during EAE progression. Kidney is the other tissue that was affected in EAE model. So, due to the substantial role of kidney in homeostasis and secretion important hormones in return to inflammation and oxidative stress, it is plausible that, kidney response to autoimmunity in EAE model of mice.

Keywords : multiple sclerosis, EAE, inflammation, kidney

Count: 485

Abstract ID: 105

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Effect of simultaneous consumption of vitamins C and K on avoidance memory of male rats

Submission Author: Laya Safarkhani

Laya Safarkhani¹, Behrooz Khakpour Taleghani,phd², Malek moien Ansar,phd³, Mohammad Rostampour,phd⁴

1. school of medicine, Guilan university of medical science, Rasht, Iran
2. 1. Neuroscience research center, school of medicine, Guilan university of medical science, Rasht, Iran. 2. Department of physiology, Faculty of medicine, Guilan university of medical science, Rasht, Iran
3. 1. Neuroscience research center, school of medicine, Guilan university of medical science, Rasht, Iran. 2. Department of biochemistry, Faculty of medicine, Guilan university of medical science, Rasht, Iran
4. 1. Neuroscience research center, school of medicine, Guilan university of medical science, Rasht, Iran. 2. Department of physiology, Faculty of medicine, Guilan university of medical science, Rasht, Iran

Background and Aim : Introduction: Learning and memory impairment is one of the main characteristics of some neurodegenerative disorders such as Alzheimer's disease. Many efforts have taken place to find drugs to improve memory impairment. The aim of this study was to evaluate the Effect of simultaneous administration of vitamins C and K on memory disorder in hippocampus CA1 area damage by NMDA in male rats.

Methods : Materials and Methods: In this experimental study, 72 male Wistar rats were divided into 9 groups 8 in groups: sham, NS (normal saline), N: (NMDA), NNS (NMDA + NS), NC (NMDA + Vit C), NE (NMDA+Vit K solvent), NK (NMDA + Vit K), NSE (NMDA + NS + Vit k solvent), NCK (NMDA + Vit C + VitK). A week after the surgery and cannulae in the CA1, NMDA (20 µg/µl, 0.2 µl) injected into this region. Immediately started injection of vitamins C and K (respectively, 100 mg/kg/i.p. and 10 mg/kg/s.c.) and continued for 30 days. The animal's avoidance memory was assessed by passive avoidance learning test. The results were analysed using SPSS version 22. To check normal data was used of one-way ANOVA test and post hoc Tukey test, and abnormal data was used kruskal - wallis test.

Results : Results: The results showed that Step Through Latency (STLr) in Group N, significantly lower than group Sham and NS (respectively, $P<0.001$ and $P<0.5$). Also Time in Dark Compartment (TDC) in Sham and NS groups were significantly lower than group N (respectively, $P<0.01$ and $P<0.05$). NC group was showed a significant increase in STLr and decrease in TDC in compared with NNS group ($P<0.01$). In NK group, was observed a significant increase in STLr and a significant decrease in TDC compared to the NE group ($P<0.01$). STLr in the NCK group was significantly higher than NSE group ($P<0.01$), and also in TDC, was showed a significant reduction compared to the NSE group ($P<0.01$). STLr in groups of NC, NK and NCK was significantly higher than N group ($P<0.05$) and also were a significant reduction in these groups TDC compared to N group ($P<0.01$). NCK group had no significant differences in STLr and TDC with NC and NK groups.

Conclusion : Conclusion: Our results showed that injection of toxic doses of NMDA into the CA1 area, cause memory deficit in passive avoidance learning task. Consumption of Vitamins C and K alone and concurrent administration of these vitamins improved memory deficit induced by NMDA toxicity. Therefore it can be concluded that taking vitamins C and K can be improved memory impairment.

Keywords : Learning; Memory; NMDA; Vitamin C; Vitamin K; Rat.

Count: 486

Abstract ID: 381

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

The effect of riboflavin supplementation on migraine: A systematic review and meta-analysis of clinical trials studies

Submission Author: Neda Soveid

Neda Soveid¹, Mahsa Hatami², Sakineh shab-bidar³, Kurosh Djafarian⁴

1. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences (TUMS), Tehran, Iran.
2. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences (TUMS), Tehran, Iran.
3. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences (TUMS), Tehran, Iran.
4. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences (TUMS), Tehran, Iran.

Background and Aim : Several studies have evaluated the effect of riboflavin supplementation on migraine attack with conflicting results. To estimate the conformity of the data on the topic, we accomplished a systematic review and meta-analysis of the available randomized clinical trials studies. To evaluate the effects of Riboflavin supplementation on frequency and duration of migraine attack.

Methods : systematic research of randomized controlled trials has been conducted on Medline and EMBASE through PubMed, Scopus, and Google Scholar that was completed by a manual review of the literature up to May 2015. Pooled effect estimated by using random-effect model and heterogeneity was assessed by Cochran's Q and I² tests.

Results : Of 411 articles finally 5 RCTs were met inclusion criteria. The results of this meta-analysis showed that the WMD of migraine attack duration from baseline was -11.58 hr. (95% confidence interval = -15.93 to -7.22, $p < 0.001$) and the WMD of migraine attack frequency from baseline was -2.68 number of migraine attack per month (95% confidence interval = -4.03 to -1.32, $p < 0.001$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : This meta-analysis confirmed that riboflavin supplementation has beneficial effects in relieving migraine attacks as adjunctive therapies and it can reduce the frequency and duration of migraine but additional RCTs in which enough randomization methods are used for evaluating the effects of riboflavin supplementation on migraine attacks are warranted.

Keywords : migraine, riboflavin supplementation , randomized controlled trials

Count: 487

Abstract ID: 383

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

The effects of ω -3 fatty acids and Nano-curcumin supplementation on Intercellular Adhesion Molecule-1 (ICAM-1) gene expression and serum level in migraine patients

Submission Author: Neda Soveid

Neda Soveid¹, Mahsa Hatami², Mina abdolahi³, mahmoud Djalali⁴, Niyaz mohammadzadeh honarvar⁵

1. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences (TUMS), Tehran, Iran.
2. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences (TUMS), Tehran, Iran.
3. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences (TUMS), Tehran, Iran.
4. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences (TUMS), Tehran, Iran.
5. Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences (TUMS), Tehran, Iran.

Background and Aim : Migraine is an episodic headache that endothelial disorder and neuro inflammation basic. Intercellular Adhesion Molecule-1 (ICAM-1) as an endothelial factor lead to adhesion of leukocytes to the walls of cerebral blood vessels which it's an important step in the inflammation process. Curcumin and omega-3 fatty acids by affecting on transcription factors can regulate the gene expression and serum level of ICAM-1. Thus we aimed to evaluate synergistic effects of ω -3 fatty acids and nano-curcumin on ICAM-1 gene expression and serum levels in migraine patients.

Methods : this clinical trial study was conducted on 72 episodic migraine patients in 4 groups for 2 month and patients received ω -3 fatty acids, nano-curcumin, and combination of them or placebo during study. At the beginning and end of the study, the gene expression and serum level of ICAM-1 was measured by real-time PCR and ELISA method.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Our results showed No significant change in ICAM-1 gene expression in none of 4 groups. The ICAM-1 serum concentration in combination group and omega-3 alone show a significant reduction at the end of the study compared to the beginning. In addition, significant reduction in attack frequency was observed in the combination group.

Conclusion : considering to our results supplementation with omega-3 fatty acids plus curcumin lead to reduction of both attack frequency and ICAM-1 serum level in patients. It seems that supplementation with these two nutrients, not only lead to improve the function of metabolic pathways, but also can be used effectively as a treatment or prevention of migraine complications.

Keywords : Migraine; Curcumin; ω -3 fatty acids; ICAM-1

Count: 488

Abstract ID: 6

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Determination of cytokine levels in multiple sclerosis patients and their relevance with patients' response to Cinnovex

Submission Author: Mohammad Taheri

Mohammad Taheri¹, Mehrdokht Mazdeh², Soudeh Ghafouri-fard³, Mir Davood Omrani⁴, Ghasem Solgi⁵, Arezou Sayad⁶, Maziar Ganji⁷

1. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
2. Department of Neurology, Hamadan University of Medical Sciences, Hamadan, Iran.
3. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
4. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
5. Department of Immunology, Hamadan University of Medical Sciences, Hamadan, Iran.
6. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
7. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Background and Aim : Multiple sclerosis (MS) is a heterogeneous chronic immune-mediated disorder of the central nervous system (CNS) with several environmental and genetic factors participating in its development and disease course. Interferon (IFN)- β therapy is considered as the first line treatment in this disorder

Methods : The present study enrolled 231 relapsing-remitting MS patients who were diagnosed as IFN- β responders (n=146) and non-responders (n=85). Serum cytokine levels were analyzed by commercially available ELISA kits in distinct groups based on HLA-A, -B and -DRB1 alleles

Results : IFN- γ levels were significantly higher in responders compared with non-responders, whereas IL-17A and IL-6 had the opposite trend. The levels of IL-10 and IL-4 were not significantly different between two groups. IFN- γ and IL-17A levels were associated with response to IFN- β . Comparison of cytokine levels revealed higher IFN- γ levels in HLA-DRB1*04 positive patients (n=72) compared with HLA-DRB1*04 negative patients (n=159). In responder group, patients who were positive for HLA-DRB1*15 had significantly higher levels of IL-6 compared

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

to HLA-DRB1*15 negative patients. IL-17A levels tend to be higher in responder patients who were positive for HLA-DRB1*04 compared with those were negative for the same allele.

Conclusion : This study suggests that the serum levels of pro- and anti-inflammatory cytokines are different among IFN- β responders and non-responders. Future studies are needed to confirm their efficiency in determination of response to IFN- β in MS patients.

Keywords : Cytokine; IFN- β ; Multiple sclerosis

Count: 489

Abstract ID: 347

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Protective effect of Noscapiene on 1-methyl-4-phenyl pyridinium ion-induced neurotoxicity in PC12 cells

Submission Author: Gelareh Vahabzadeh

Reihaneh Namazi Yousefi¹, Gelareh Vahabzadeh², Somayyeh Nasiripour³, Parvaneh Najafizadeh⁴

1. School of Medicine, Department of Pharmacology, Iran University of Medical Sciences, Tehran, Iran
2. School of Medicine, Department of Pharmacology, Iran University of Medical Sciences, Tehran, Iran
3. School of Medicine, Department of Pharmacology, Iran University of Medical Sciences, Tehran, Iran
4. School of Medicine, Department of Pharmacology, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : the aim of the present study is to explore the neuroprotection of noscapiene (a phthalideisoquinoline non-narcotic alkaloid of opium poppy papaver somniferum plant) against 1-methyl-4-phenylpyridinium ion (MPP⁺)-induced PC12 cells.

Methods : Cell viability was determined by 3-(4, 5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide (MTT) assay.

Results : Exposure of PC12 cells to 100 μ M of MPP⁺ decreased cell viability denoted by 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. However, noscapiene increased PC12 cellular viability and markedly attenuated MPP⁺ induced cell death in a dose-dependent manner.

Conclusion : Noscapiene protected PC12 cells against neurotoxicity induced by MPP⁺. There for, noscapiene may be a promising neuroprotective agent for the treatment of neurodegenerative disorders such as Parkinson's disease.

Keywords : neurodegenerative, PC12, MPP⁺, MTT, noscapiene

Count: 490

Abstract ID: 572

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Oral

Pituitary gland lesions of MRI

Submission Author: Zeynab Yazdi sotoodeh

Zeynab Yazdi sotoodeh¹, jalal ordoni², vida sargazi³

1. , MSC of Medical Imaging ,Department of Radiology, faculty member of paramedicine, Zahedan University of Medical Science, Zaheden, Iran
2. , MSC of Radiobiology ,Department of Radiology, faculty member of paramedicine, Zahedan University of Medical Science, Zaheden, Iran
3. MD of medical physic,Department of Radiology, faculty of paramedicine, Zahedan University of Medical Science, Zaheden, Iran

Background and Aim : Pituitary gland plays a central role in body growth, metabolism, and reproductive function. Pituitary lesions, albeit relatively infrequent, can significantly alter the quality of life. The sellar and parasellar region is an anatomically complex area where a number of neoplastic, infectious, inflammatory, developmental and vascular pathologies can occur. Differentiation among various etiologies may not always be easy, since many of these lesions may mimic the clinical, endocrinologic and radiologic presentations of pituitary adenomas. The diagnosis of sellar lesions involves a multidisciplinary effort, and detailed endocrinologic, ophthalmologic and neurologic testing are essential. CT and, mainly, MRI are the imaging modalities to study and characterise normal anatomy and the majority of pathologic processes in this region. Recent advances in neuroimaging helps the radiologists and endocrinologists to study the pituitary region in greater detail. Magnetic resonance imaging (MRI) is the imaging modality of choice for evaluating hypothalamic-pituitary-related endocrine diseases.

Methods : The radiographic size of sella is not a sensitive indicator of pituitary gland abnormality, as the empty sella may itself lead to enlargement of size. Thus the plain radiographs have been replaced by cross-sectional imaging techniques such as CT scanning and MRI. MRI is the examination of choice for sellar and parasellar pathologies due to its superior soft tissue contrast, multiplanar capability and lack of ionizing radiation. In addition, MRI also provides useful

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

information about the relationship of the gland with adjacent anatomical structures and helps to plan medical or surgical strategy.

Results : The aim of MR imaging is to obtain a high-spatial-resolution image with a reasonable signal to noise ratio. Conventional MRI findings were expressed as the ratio of the signal intensity (SI) in the lesions to the SI of the normal white matter and the degree of contrast enhancement.

Conclusion : There have been substantial advances in pituitary imaging in the last half-century. In particular, magnetic resonance imaging is now established as the imaging modality of choice, providing high quality images of the hypothalamic–pituitary axis and adjacent structures. MRI is the investigation of choice for evaluating hypothalamic-pituitary-related endocrine diseases. MRI not only helps in the diagnostic differentiation of these lesions but also provides useful information about the relationship of the gland with adjacent anatomical structures and helps to plan medical or surgical strategy.

Keywords : Pituitary gland, lesions ,MRI

Count: 491

Abstract ID: 571

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

Diffusion Imaging of Brain Tumors

Submission Author: Zeynab Yazdi sotoodeh

Zeynab Yazdi sotoodeh¹, Vida Sargazi², jalal ordoni³

1. MSC of Medical Imaging ,Department of Radiology, faculty member of paramedicine, Zahedan University of Medical Science, Zaheden, Iran
2. MD of medical physic,Department of Radiology, faculty of paramedicine, Zahedan University of Medical Science, Zaheden, Iran
3. , MSC of Radiobiology ,Department of Radiology, faculty member of paramedicine, Zahedan University of Medical Science, Zaheden, Iran

Background and Aim : Magnetic resonance imaging(MRI) plays an important role in the detection of brain tumors. It is generally accepted that conventional magnetic resonance imaging (MRI) tends to underestimate the size of tumor, which in turn can lead to a suboptimal treatment. New functional magnetic resonance imaging sequences such as diffusion tensor imaging (DTI) and diffusion-weighted imaging (DWI) have been widely used to evaluate such tumors. Diffusion-weighted imaging(DWI) is an acceptable technique for study the movements of water molecules of tissue. In diffusion-weighted imaging we may face with drastically different signals, depending on cell density and the type of tissue. Measuring the diffusion coefficient in brain tumors allows the classification of tumor types and provide a definitive diagnosis of some kinds of tumors. Information obtained by diffusion for cellular response to drug treatment and/or radiation therapy are important in tumor diagnosis. The high signal diffusion-weighted is used for spatial separation of malignant brain tumors, Pretumoral edema and normal brain tissue. The diffusion-weighted imaging findings describes the special differences in the structure of membrane and its limitations, and finally they are useful in measuring the spreading direction and evaluating integration of white matter. Such information are useful for treatment planning, especially for advanced post-processing methods. Diffusion-weighted imaging technique which allows information analysis and spreading direction specification, is usually used for patients with brain tumors. Other advanced techniques need an improvement in speed and spatial resolution to obtain clinical information.

Methods : The main goal of any non-invasive imaging technique is to determine the location and size of tumor and also the detection of its infiltration in brain tissue. Many attention was paid to proper identification of reversible changes of tumor in normal brain tissue, such as edema and translocation. This information are very important in reaching a favorable treatment results with the least damage to the basic functional structures of the brain. DWI technique has become an important part of MRI for patients with brain tumors. Actually DWI becomes a very promising method for assessment of brain tumors.

Results : Differential diagnosis for benign and malignant tumors of brain are vital, and it helps doctors to choose strategies for treatment of malignant tumors. Several studies have described the usefulness of DWI in brain tumors.

Conclusion : DWI technique has become an important part of MRI for patients with brain tumors. Actually DWI becomes a very promising method for assessment of brain tumors. DWI does not need to contrast enhancement, so it is non-invasive method. Measuring the average of ADC map is helpful, especially when T1 and T2 images do not give enough diagnosis information, because it provides the study of tissue definitive features. However, DWI technique is used in treatment duration. However, DWI technique is not enough for studying brain tumors and it should be combined with information received from Structural sequence MRI For decreasing the scan time and other limitations in spatial resolution , we need more improvements in this regard.

Keywords : Brain tumors-DWI-ADC map- MR imaging

Count: 492

Abstract ID: 722

subject: Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

Presentation Type: Poster

The Effect of Thiamin on the Level Of Consciousness in Patients with Severe Traumatic Brain Injury

Submission Author: Mohammadreza Zeraati

Mohammadreza Zeraati¹, Zeraati Mohammad-Reza², Kordestani-Moghadam Parastou³, Jamshidi Mohammad-Reza⁴

1. -
2. Assistant professor of subspecialty of Critical Care Medicine, Zanzan University of Medical Science (ZUMS), Zanzan, Iran
3. Assistance professor of Cognitive Neuroscience, Lorestan University of Medical Science (LUMS), Khoramabad, Iran
4. Assistant professor of Cardiac Anesthesia, Zanzan University of Medical Science (ZUMS), Zanzan, Iran

Background and Aim : In the critical care units, prevention of brain ischemia is the first goal for achievement to limit secondary brain injury. The main problem among the critically ill patients is increased oxidative stress on damaged organs. Ultimately, involvement of the immune system, increased metabolic rate and the vulnerability of mitochondrial enzymes and products which could increase the oxidative stress Cause disruption of cell structure. Critically ill patients with severe brain injury have the highest level of oxidative stress. Antioxidants have the protective main role of cell wall and organelles. For instance, to energy supply, the use of glucose by neural tissues imply the presence of vitamin B1. Among the antioxidant micronutrients, thiamin has a key role in protecting of mitochondrial neural cells.

Methods : we studied the effect of vitamin B1 on the level of consciousness for five comatose patients with severe traumatic brain injury. The subjects consisted of both lesioned and non-lesioned traumatic brain injury. All of them had GCS=4-5 on the arrival. They were under treatment by a standard neuroprotective protocol for severe traumatic brain injury. Furthermore, in this study, we started 300 mg Vitamin B1 daily for 10 days, via nasogastric tube. They were followed by control of vital signs, GCS, Brain CT scanning and the other clinical and Para clinical evaluations as needed

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The level of consciousness in the Scale of GCS increased to 10-11 after ten days treat with vitamin B1. The findings of Brain CT scanning show the evidences of relative degree of cure for lesions. Based on our observation in this study, it seems that the use of antioxidant especially vitamin B1 as a neural cell protector and an energy consumption regulator for mitochondria has a beneficial role to increase the consciousness of severe traumatic brain injury. Also Thiamin has been decreased the morbidity and mortality rate of our subjects in the ICU ward.

Conclusion : Thiamin is an efficient antioxidant for cure the patients with severe traumatic brain injury.

Keywords : Traumatic Brain Injury, Vitamin B1, Consciousness, Oxidative Stress, Brain Metabolism.

Count: 493

Abstract ID: 363

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

A technical overview on the neuronal dysfunction induced by heat stroke on the C57 mice model

Submission Author: Aida Aghazadeh

Aida Aghazadeh¹, mohammad hossein pourfeizi², leila mahdizadeh fanid³, javad mahmoodi⁴

1. faculty of natural science , tabriz university
2. faculty of natural science , tabriz university
3. faculty of natural science , tabriz university
4. tabriz university of medical science , neuroscience research center

Background and Aim : the effect of extra heat on health has become a growing public concern according to world's climate change. Severity form of illness result of extreme heat is heat stroke (HS) , That is defined as rising core body temperature above 40°C , with defeats on central nervous system (CNS) such as coma , delirium , and convulsions . heat stroke may disrupts the cells abilities to tolerate the inner stress and led to multi organ dysfunction (MOD) in kidneys, gut, liver , heart , and brain . epidemiological studies in heat_ related illness were limited to special groups of population as , athletes , mining workers and military personnel. In this study we able to perform heat stroke on C57 mice model .

Methods : male C57 mice were treated with special heat stroke protocol in different groups. Then ,mice were deeply anesthetized , after decapitation brains were dissected out and used for genetic analyzes . total RNA was extracted from brain tissue , CDNA was synthesized and RT_ PCR was used to study of genes expression in brain tissue.

Results : it has been shown that many genes are widely expressed in the brain during heat stroke in order to increase neuronal survive against the heat. And it may have effect on animal behavior .

Conclusion : in this study we provide the C57 heat stroke mice model and expression of the genes , with increasing heat waves globally heat stroke could be a risk factor to a larger population in the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

future , so , studying the nature and molecular and genetical aspects of heat stroke is recommended for future research .

Keywords : heat stroke ; multi organ dysfunction ; gene ; expression

Count: 494

Abstract ID: 702

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Nutrition, Primary Prevention, Second Prevention, Stroke

Submission Author: Niloofar Bagheri

Niloofar Bagheri¹, Neda Kalkatehchi², Mohammad Bagher Maljaei³

1. B.S nutrition sciences; Zahedan University of Medical sciences, Zahedan, Iran.
2. B.S nutrition sciences; Isamic Azad University of Medical sciences, Tehran, Iran.
3. Department of Nutrition, School of public health, Iran University of medical sciences, Tehran, Iran

Background and Aim : Due to the prevalence of stroke in today's societies and its mortality, with proper prevention and increased awareness of people, significantly this outbreak can be reduced. by examining the causes of stroke, It can be said that nutrition plays an important role in prevention. the purpose of this review study, the role of nutrition in prevention of stroke and related complications.

Methods : This review study was conducted with keywords: nutrition, primary prevention, second prevention, stroke in PUBMED and ISI between 2010-2017.

Results : Investigating the factors involved in stroke suggests that nutrition can play a role as primary and secondary prevention. Initial prevention includes lifestyle modification, obesity prevention and appropriate physical activity and secondary prevention involves limited salt intake, reduced consumption of simple, refined carbohydrates and saturated fatty acids and instead increase the consumption of fiber, fresh fruits and vegetables and the consumption of unsaturated fatty acids.

Conclusion : With changes in lifestyle and industrialization of societies, reducing physical activity and increasing fried and salt foods, increasing the consumption of simple carbohydrates without bran, can expect that there are serious consequences for this new lifestyle. This lifestyle has started with an increase in blood lipids, obesity and high blood pressure and eventually end in cardiovascular disease, metabolic problems and stroke. Therefore, it can be said that nutrition undoubtedly plays the most important role in preventing these harmful effects.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : nutrition, primary prevention, second prevention, stroke

Count: 495

Abstract ID: 306

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Effect of voluntary exercise on AKT protein in sciatic nerve of castrated diabetic male rats

Submission Author: Sona Barkabi zanjani

Sona Barkabi zanjani¹, Parviz Shahabi², Fariba Mirzaei Babil³

1. Tabriz University of Medical Sciences Tabriz, Iran.
2. Neuroscience Research Center of Tabriz University of Medical Sciences (NSRC), Tabriz, Iran
3. Department of Physiology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran

Background and Aim : Diabetic neuropathy is one of the microvascular disorders which eventually cause significant morbidity. Angiogenesis is an important process that increases density of blood vessels in injured regions. Exercise through reducing cardiovascular risk factors, cellular and molecular remodeling exerts its profitable impression on the cardiovascular system and can stimulate angiogenesis. So that in this study we investigated effect of voluntary exercise on the amount of AKT protein in sciatic nerve

Methods : Adult Male Wistar rats (weight 250-300 gr) were used in the present research. . The rats were divided randomly in four groups including (n=6): 1-diabetic (Dia) 2- diabetic + castration (Dia-Cas) 3- diabetic + exercise (Dia-E) 4- diabetic + castration +exercise (Dia- Cas-E). At the end of the study P-AKT protein level was measured by ELISA Kits according to the manufacturer's protocol

Results : Our data shows that after 6 weeks voluntary exercise in diabetic castrated groups (p<0.05) P-AKT protein levels significantly decreased in the sciatica tissue compared to diabetes group.

Conclusion : Our study provided that voluntary exercised in diabetic rats had no effect on P-AKT protein activity

Keywords : Diabetic Neuropathies, Angiogenesis, Sciatic Nerve, voluntary exercise

Count: 496

Abstract ID: 527

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Iranian Brown Propolis possess neuroprotective effect against ischemic neuronal damage in mice

Submission Author: Gholamreza Bazmandegan

Gholamreza Bazmandegan¹, Mohammad Allahtavakoli², Mohammad Taher Boroushaki³, Ali Shamsizadeh⁴, Amin Taghavi⁵, Elham Hakimizadeh⁶, Mohsen FathiNajafi⁷

1. Physiology-Pharmacology Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran
2. Physiology-Pharmacology Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran
3. Pharmacological Research Center of Medicinal Plants, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
4. Physiology-Pharmacology Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran
5. Physiology-Pharmacology Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran
6. Physiology-Pharmacology Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran
7. Department of Epidemiology and Biostatistics, Rafsanjan University of Medical Sciences, Rafsanjan, Iran

Background and Aim : Stroke is one of the leading causes of death and disability worldwide. Propolis is a polyphenol-rich resinous product processed by honey bees from a variety of plant sources result in a set of biological activity. We investigated the neuroprotective effect of Iranian brown propolis (IBP) in a mouse model of permanent middle cerebral artery occlusion (MCAO).

Methods : Experimentally, propolis water extracts (WEPs) were obtained from Kerman (KeWEP) and Khorasan Razavi (KhWEP) provinces, Iran. The chemical characterization of total polyphenol content was done on the samples using the Folin–Ciocalteu assay and GC-MS. Animals were divided into eight experimental groups: surgical sham, control and three groups, each of which KeWEP- and KhWEP-treated mice. The drugs were administered at the doses of 30, 100 and 200 mg/kg/i.p during four different time points. Infarct volume and brain edema were measured at 48 hours. Behavioral tests were evaluated at 4, 24 and 48-hour post stroke.

Results : The total polyphenol content was 1100 and 1400 mg/lit in KhWEP and KeWEP respectively. The polyphenols diversity varied from sample to another. Compared to the control

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

group, the doses of 100 and 200 mg/kg in both samples decreased infarct volume. Brain edema was also reduced in all treatment groups. The dose of 200 mg/kg in both samples and 100 mg/kg in the KeWEP-treated group significantly increased grasping ability. Sensory-motor function improved in all groups in all groups as well.

Conclusion : These results suggest that IBP may reduce ischemic brain injury by its neuroprotective effect on focal cerebral ischemia.

Keywords : Focal cerebral ischemia, Stroke, Neuroprotection, Iran Brown Propolis

Count: 497

Abstract ID: 272

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Vanillic acid attenuates blood-brain barrier disruption, cerebral hyperemia and anxiety-like behaviors in rats following transient bilateral common carotid occlusion and reperfusion

Submission Author: Yaghoob Farbood

Yaghoob Farbood¹, Seyed Esmail Khoshnam², Hadi Fathi Moghaddam³, Alireza Sarkaki⁴,
Mohammad Badavi⁵, Layasadat Khorsandi⁶

1. Department of Physiology, Faculty of Medicine, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Department of Physiology, Faculty of Medicine, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3. Department of Physiology, Faculty of Medicine, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
4. Department of Physiology, Faculty of Medicine, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
5. Department of Physiology, Faculty of Medicine, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
6. Department of Physiology, Faculty of Medicine, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Background and Aim : Cerebral hypoperfusion induced by transient bilateral common carotid arteries occlusion (tBCCAO), is associated with deleterious alterations in several physiological parameters of the animals. In the present study we aimed to investigate the probable effects of Vanillic acid (VA) on some physiological parameters including cerebral hyperemia, blood brain barrier disruption, anxiety behaviors and neurological deficits induced by bilateral common carotid arteries occlusion and reperfusion (BCCAO/R) in rats.

Methods : Rats were randomly divided into four groups; Sham, BCCAO/R, VA and VA+ BCCAO/R. Chronic cerebral hypoperfusion was induced after two weeks of pretreatment by VA. Subsequently, sensorimotor scores, elevated plus maze tests, cerebral hyperemia, and BBB disruption were evaluated 72 hours after 30 min of BCCAO.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Pretreatment of rats by VA improved sensory motor signs, anxiolytic behavior in BCCAO/R rats compared with the untreated rats ($p < 0.05$). Hence, VA attenuated reactive hyperemia and BBB disruption in BCCAO/R rats compared with the untreated rats ($p < 0.01$).

Conclusion : Our data confirm the protective role of VA against transient cerebral ischemia and reperfusion in rats. Moreover, it proposes that VA has a beneficial role in cerebrovascular insufficiency states.

Keywords : Vanillic acid, Bilateral common carotid artery occlusion, Reperfusion, Hyperemia, Blood-brain barrier, Anxiety.

Count: 498

Abstract ID: 729

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

The role of autophagy in brain ischemia, survival or neuronal degeneration?

Submission Author: Raheleh Gholamzadeh

Raheleh Gholamzadeh¹, dr.nahid aboutaleb²

1. Physiology Research Center and Physiology Department, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran
2. Physiology Research Center and Physiology Department, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : brain ischemia is one of the most common causes of mortality on the worldwide, which despite many advances in medicine appropriate treatment has not been found so far. Today, targeted therapy of stroke based on activated signaling pathways following injury is the main researchers interests. One of the signaling pathways, which has recently been highly regarded, is autophagy. Various studies have shown that autophagia increases after cerebral ischemia, but yet its role in neuronal survival and protection of post ischemic brain injury is uncertain. In present review we aimed the increased aoutogay effect on neuronal survival after cerebral ischemia.

Methods : In the present study, researches that have been done on the role of autophagy enhancement after brain ischemia were randomly evaluated from 2008 to 2017.

Results : Autophagy is a basic physiologic mechanism in cells which by eliminating damaged organelles into lysosomes and restoring nutrients plays a role in energy conversation, homeostasis, and survival of cells. It has been observed that oxidative stress, endoplasmic stress, mitochondrial and intracellular organelles damage after cerebral ischemia accompanied by an increase in autophagic markers, such as the ratio of LC3 ?? to LC3? ,beclin1,BcL2, autophagosoms, aoutolysosims, cathepsin B from the first time. The highest increase in autophagia was observed from 6 to 72 hours after stroke. Some studies showed that inhibition of autophagy with 3-methyladenine (3-MA) , baflomycin A1 (BFA) , Carnosine, cathepsin B inhibitor Z-FA-fmk after

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

ischemia induction increased neuronal survival ,reduced infarct size and improved neurological defects. Other studies have shown that autophagy inhibition by using wortamin and 3-MA reduced neuronal survival and increased cytochrome c release from mitochondria and apoptosis process. Also aoutophagy stimulation with rapamycin (mTORC1 inhibitor) resulted in neuronal survival.

Conclusion : In this review, we found that role of autophagy in neuronal survival and reduction of apoptosis is associated with severity of cerebral ischemia, the degree of autophagy activation and the time of starting treatment after stroke. Increasing moderate autophagy in the acute phase is likely to have a neuroprotective effect, but its continuous and sustained increase leads to delayed neuronal death.

Keywords : autophagy, brain ischemia , neuronal survival

Count: 499

Abstract ID: 174

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Erythropoietin pre-treatment effect on platelets , bleeding and clotting time and its association with mortality following cerebral ischemic reperfusion injury

Submission Author: Raheleh Gholamzadeh

Raheleh Gholamzadeh¹, Hossein Mostafavi², Mehdi Eskandari³, Mohammad Reza Bigdeli⁴

1. Department of Physiology and Pharmacology, Faculty of Medicine , Zanzan University of Medical Sciences, Zanzan, Iran
2. Department of Physiology and Pharmacology, Faculty of Medicine , Zanzan University of Medical Sciences, Zanzan, Iran
3. Department of Physiology and Pharmacology, Faculty of Medicine , Zanzan University of Medical Sciences, Zanzan, Iran
4. Department of Physiology, Faculty of Biological Sciences, Shahid Beheshti University, Tehran, Iran

Background and Aim : Erythropoietin is a hemoatopoetic hormone used to treat anemia. Recently, the protective effects of this hormone have been shown in various studies. Despite the positive laboratory results on stroke, the use of this drug in the clinic has failed. Studies have also shown that platelet elevation and activation is a possible risk factor for stroke. Therefore, in this study, the erythropoietin pretreatment effect on the platelet, bleeding and clotting time and its association with the stroke outcome were targeted.

Methods : Thirty adult male Wistar rats randomly divided into 5 groups: sham, control and 3 pretreatment groups: single-dose, double dose and triple-time dose that received 1000 U/Kg of Erythropoietin before stroke induction in different times intraperitoneally. A rat model of IRI was established by middle cerebral artery occlusion (MCAO) for 60 minutes. Platelet count, bleeding and clotting time, mean platelet volume (MPV) and mortality rate was evaluated 24 hours after reperfusion.

Results : The results of this study showed that the platelet count in the stroke groups model were significantly lower than the sham group. This decrease was also significant in the single dose

($p < 0.01$) and triple times dose ($p < 0.001$) groups compared to the control group. The bleeding and clotting time in pretreatment groups was reduced compared to the control group, which was significantly lower in the double ($p < 0.01$) and triple times ($p < 0.05$) doses. Also, MPV in pretreatment groups increased, which was significant in double doses ($p < 0.05$). The mortality rate decreased in the single dose group, but in the double dose and triple times doses were similar to the control group.

Conclusion : Conclusion: The results of this study showed that single-dose of erythropoietin reduced mortality rate after stroke, but higher doses by activating platelets because of drug side effects increased mortality.. Our results suggest that the use of erythropoietin possibility of reversible effects should be taken with caution. However verification of these results requires further studies.

Keywords : Erythropoietin pre-treatment ,bleeding and clotting time ,mortality, cerebral ischemia

Count: 500

Abstract ID: 256

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

The effect of Pomegranate seed hydroalcoholic extract on pain and motor coordination in animal model of permanent global cerebral hypoperfusion/ischemia

Submission Author: Somayeh Hajipour

Somayeh Hajipour¹, Alireza Sarkaki², Mohammad Taghi Mansouri³, Asghar Pilevarian⁴

1. Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences
2. Physiology Research Center and Medicinal Plants Research Center, Ahvaz Jundishapur University of Medical Sciences
3. Department of Pharmacology, Medicine Faculty, Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences
4. Department of Biology, Sciences Faculty, Isfahan Payamenoor University

Background and Aim : Cerebral hypoperfusion reduces brain blood flow and oxygen supply to the brain. Due to received studies and results based on strong antioxidant activity of flavenoid compounds existed in pomegranate seed extract (PGSE), we aimed to evaluate the effects of the PGSE after permanent bilateral common carotid arteries occlusion (2CCAO) on pain sense and motor coordination in male adult rats

Methods : In this study, 60 male Wistar rats (200 ± 50 g) were randomly divided into 6 groups with 10 in each: 1) sham operated (Sh), 2) hypoperfusion/ischemia (H/I) received normal saline (I+Veh), 3) H/I groups treated with pomegranate seed hydroalcoholic extract (I+PGSE: 100, 200, 400 and 800 mg/kg, orally for 14 days). In order to make 2CCAO as an animal model of H/I, common carotid arteries were ligatured and then cut bilaterally. Antinociceptive activity of PGSE was examined using the tail flick test and motor coordination activity using standard behavioral test by rotarod apparatus was evaluated

Results : Following ischemia, the latency time of tail-flick significantly decreased in comparison to sham group ($p < 0.001$). Furthermore, the latency time of this reflex in ischemic rats received 200 and 400 mg/kg PGSE was improved significantly versus non-treated ischemic groups

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

($p < 0.001$). Treatment with different doses of PGSE after H/I showed that bar descent latency (s) improved significantly when compared with I and I+Veh groups ($p < 0.001$)

Conclusion : The results of this study show that PGSE has an antinociceptive effect and improved impairment of motor coordination after brain injury induced by H/I. PGSE has antioxidant substances with high ability to remove or scavenging the oxidative free radicals and antioxidant effects

Keywords : Cerebral hypoperfusion/ ischemia; pomegranate seed extract; Pain; motor coordination; Rat

Count: 501

Abstract ID: 388

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Oral

Development and Audiological Monitoring of Auditory Neuropathy Model in Rats with Streptozotocin-induced Diabetes

Submission Author: Fatemeh Heidari

Fatemeh Heidari¹, Akram Pourbakht², Seyed Kamran Kamrava³, Mohammad Kamali⁴

1. Department of Audiology, School of Rehabilitation Sciences, Shahid Beheshti University of Medical Sciences (SBMU), Tehran, Iran.
2. Department of Audiology, Rehabilitation Research Center, School of Rehabilitation Sciences, Iran University of Medical Sciences (IUMS), Tehran, Iran.
3. ENT-Head & Neck Research Center, Hazrate Rasoul Akram Hospital, Iran University of Medical Sciences, Tehran, Iran.
4. Department of Basic Sciences in Rehabilitation, School of Rehabilitation Sciences, Iran University of Medical Sciences, Tehran, Iran.

Background and Aim : Auditory neuropathy (AN) is a unique hearing disorder with variable auditory presentations, which makes its diagnosis challenging. Therefore, the aim of this study was to develop a rat model of AN in streptozotocin (STZ)-induced diabetes mellitus (DM) to monitor its effects on auditory function by using cochlear microphonic (CM) and, auditory brainstem response (ABR) and, histopathological evidence of spiral ganglion cells.

Methods : Thirty-five male adult Wistar rats were divided into two (control and experimental) groups, randomly. The animals in the experimental group were injected with 55 mg/kg STZ, intraperitoneally. Blood glucose, body weight and auditory tests were measured at baseline, 4, 12 and 20 weeks later. CM and ABR were recorded at 2, 4, 8 and 16 kHz at 80 dB SPL. ABR was elicited by two different repetition rates. Then, spiral ganglion cells were observed. Data were analyzed using repeated measures ANOVA test.

Results : CM potentials were observed at all frequencies in different weeks between two groups. In experimental group, the only significantly different ABR parameter was threshold shift) at 4 kHz(4 weeks later. However, at 12th week, absolute latencies of waves I (at 2, 4, 16 kHz), II (at

2 kHz), and IV (at 4, 16 kHz) were significantly increased ($P<0.05$). By using high rate, wave IV absolute latency was also increased at 2 kHz. The inter peak latencies of waves I-II (at 2 kHz), I-IV (at 16 kHz), and II-IV (at 4 kHz) were prolonged significantly, waves I-IV inter peak latency was also increased (at 4 kHz) by high rate ($P<0.05$). Threshold shifts were statistically significant at all frequencies mostly occurred at 16 kHz ($P<0.001$). Morphological changes were observed, especially with high rate. The number of spiral ganglion neurons were significantly reduced ($P<0.05$). Histologically, atrophy, hydropic degeneration, and coagulative necrosis were observed. The total score of these pathological parameters indicated moderate lesion of spiral ganglion cells.

Conclusion : These findings indicates that DM has heterogeneous effects on peripheral auditory system. It seems that threshold estimation approach of ABR recording with tonal stimuli at different frequencies, especially at high frequency is a primary cue for early diagnosis of hearing impairment in DM patients. In addition to threshold estimation, the other parameters of ABR including morphological changes and high rate recording must be taken into consideration.

Keywords : Auditory Neuropathy; Type I Diabetes Mellitus; Animal Model; Auditory Brainstem Response; Cochlear Microphonic Potential; Spiral Ganglion Cells.

Count: 502

Abstract ID: 307

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

The protective effect of Ellagic acid on electrocardiogram waves and blood pressure against : ischemic reperfusion(I/R) rat experimental models

Submission Author: Khojasteh Hoseinynejad

Khojasteh Hoseinynejad¹, Mahin Dianat², Alireza Sarkaki³, Mohammad Kazem Gharib-Naseri⁴, Mohammad Badavi⁵, Yaghoub Farbood⁶

1. Physiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Department of Physiology, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3. Department of Physiology, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
4. Department of Physiology, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
5. Department of Physiology, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
6. Department of Physiology, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Background and Aim : ischemic reperfusion(I/R) arises in patients that are revealed a variety of clinical difficulty including cardiac arrest, asphyxia, and shock. In spite of improvements in understanding of the brain, ischemia and protective effects to improve ischemic injury still remain unknown. The aim of our study was to investigate the effect of ellagic acid (EA) pretreatment in the rat models of ischemic reperfusion(I/R) .

Methods : Adult male Wistar rats (250-300 g) were used in this study. I/R was induced by bilateral vertebral and common carotid arteries occlusion (4-VO). 32 rats were divided randomly to four groups: 1) So (Sham) received normal saline as vehicle of EA, 2) EA, 3) normal saline + I/R, and 4) EA + I/R. After anesthesia (xylazine and ketamine), animal subjected to 20 minutes of ischemia followed by 30 minutes of reperfusion in related groups. EA (100 mg/kg, dissolved in normal

saline) or 1.5 ml/kg normal saline was administered (gavage, 10 days) to the related groups. EEG was recorded from NTS in I/R treated groups.

Results : Present data showed that: 1) EEG in I/R treated groups was flattened; 2) Blood pressure, voltage of QRS and P-R interval were reduced significantly in the ischemic groups compared to before ischemia, and pretreatment with EA prevented this reduction; and 3) MDA level and heart rate was increased by I/R and pretreatment with EA reduced MDA level and restored the HR to normal level.

Conclusion : Results indicate that ischemic reperfusion(I/R) impairs certain heart functions and ellagic acid as an antioxidant can restore these parameters. The results of this study recommend the possible utility of EA in patients with brain stroke

Keywords : ischemic reperfusion(I/R); ECG; Rat; Ellagic acid; Blood pressure; MDA

Count: 503

Abstract ID: 80

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Release of Vascular Endothelial Growth Factor (VEGF) in hypoxic condition correlated with increasing Matrix Metalloproteinases -9 in the hypoxic brain

Submission Author: Fezzeh Hosseinzadeh

Fezzeh Hosseinzadeh¹, Hossein Hassanzadeh²

1. Faculty of Medical Sciences, Sarab, Tabriz University of Medical Sciences, Tabriz, Iran
2. Faculty of Medical Sciences, Sarab, Tabriz University of Medical Sciences, Tabriz, Iran

Background and Aim : Matrix metalloproteinase-9 (MMP9) and endothelial growth factor (VEGF) cause blood brain barrier (BBB) disruption and cytotoxic and vasogenic brain edema in the hypoxic conditions. The present study was conducted to determine the functional interplay between VEGF and MMP9 expressions in the hypoxic brain.

Methods : Adult male Wistar rats were divided into acute and chronic controls, acute or chronic hypoxia groups. The hypoxic groups were kept in the hypoxic chamber (O₂ 10-11%) for two days (acute) or ten days (chronic). Effect of hypoxia on VEGF and MMP9 protein expression was assessed using immunoblotting.

Results : Our results showed that increasing the VEGF protein expression positively correlated with increasing expression of MMP9 in the acute and chronic systemic hypoxia (p<0.05).

Conclusion : Increasing VEGF and MMP9 proteins may be as markers to indicate pathological BBB damage and brain edema formation in the hypoxic brain.

Keywords : Metalloproteinases 9, Brain, Hypoxic

Count: 504

Abstract ID: 736

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

How diet can prevent stroke

Submission Author: Neda Kalkatehchi

Neda Kalkatehchi¹, Niloofar Bagheri², Mohammad Bagher Maljaei³, Iman Namjoo⁴

1. B.S nutrition sciences; Isamic Azad University of Medical sciences, Tehran, Iran.
2. B.S nutrition sciences; Zahedan University of Medical sciences, Zahedan, Iran.
3. Department of Nutrition, School of public health, Iran University of medical sciences, Tehran, Iran
4. Food Security Research Center and Department of Community Nutrition, Isfahan University of Medical Sciences, Isfahan, Iran.

Background and Aim : cerebral disease is known as the second cause of death in the world. In addition, stroke is the fourth cause of death in the United States. Improvement in lifestyle and nutrition can prevent this problem up to 80 %. This review suggests some foods that help prevention of stroke.

Methods : This review collects papers from 2010-2012 that was submitted in ISI and PUBMED website in the relevant area. Results: results of studies show that fruits, vegetables, soybean, fish, whole grains, fiber sources and physical activity can have a protective influence against stroke.

Results : results of studies show that fruits, vegetables, soy bean, fish, whole grains, fiber sources and physical activity can have a protective influence against stroke.

Conclusion : cerebral disease is the fourth cause of mortality and morbidity in the world. In other hand, High blood pressure is one of the main reasons for stroke. Also, the main mechanism of stroke is not thoroughly known yet, nutritional intervention can have an important role in management and control of risk factors. These interventions are contained consumption of natural anti-oxidant, unsaturated fatty acids- omega3, whole grains and fibers that can manage high blood pressure, obesity, diabetes, lipid profile disorders and metabolic syndrome. In addition, physical activity and limitation of saturated fatty acids, trans fatty acids, refined carbohydrates and salt can reduce stroke considerably.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Diet; nutrition; stroke

Count: 505

Abstract ID: 97

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

The effect of abdominal aortic clamp on the motor deficit index scores in the hind limbs of the rats

Submission Author: Masumeh Mohammadpour

Masumeh Mohammadpour¹, Dr.Gholam Hossein Farjah²

1. MSc Student in Anatomical Sciences, Department of Anatomy, School of Medicine, Urmia University of Medical Sciences, Urmia, Iran.
2. Associate Professor, Neurophysiology Research Center, Department of Anatomy, Faculty of Medicine, Urmia University of Medical Science, Urmia, Iran.

Background and Aim : Thoracoabdominal aortic surgery and aortic cross clamping may induce transient spinal ischemic/ reperfusion (I/R) and lead to various degrees of spinal cord injury, including paraplegia. Paraplegia is a serious complication that can occur after surgical repair of thoraco - abdominal aortic aneurysms. This complication has been attributed to temporary or permanent. The purpose of this experimental study was in comparison of the Motor Deficit Index (MDI) scores in the hind limbs of the rats after abdominal aortic clamp.

Methods : Twelve adult male Sprague-Dawley rats (weighing 250 to 300 g) were randomized into 2 groups: (1) Sham Surgery (without clamp), (2) I/R (the abdominal aorta was done clamp). The abdominal aorta was clamped for 60 minute with mini aneurysm clamps followed by reperfusion for 72 h. MDI was scored using the assessment of ambulation and the placing/stepping reflex as 72 hours after ischemia.

Results : The mean of the MDI scores were in the right hind limb 0.16 (0%), 2.5 (33.33%) and the left hind limb 0.33 (0%), 3.16 (83.33%) in sham and I/R groups, respectively. There were statically significant differences in the mean of MDI between right and left hind limbs in I/R group ($p < 0.05$). There was not statically significant difference in the mean of MDI between right and left hind limbs in sham group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The result showed that abdominal aort cross clamp may increase paraplegia 72 h after reperfusion in rats.

Keywords : aort clamp, MDI, paraplegia, I/R, rat

Count: 506

Abstract ID: 173

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Neuroprotective effects of *Nigella sativa* extract on cell death in hippocampal neurons following experimental global cerebral ischemia-reperfusion injury in rats

Submission Author: Yousef Molaei

Yousef Molaei¹, R. Hobbenaghi², J. Javanbakht³, Sh. Sadeghzadeh⁴, Y. Mollaei⁵, D. Kheradmand⁶, F.S. Abdi⁷, M.R. Mohammadiyan⁸, F. Khadivar⁹

1. -
2. Department of Pathobiology, Faculty of Veterinary Medicine, Urmia University, Urmia, Iran
3. Department of Pathology, Faculty of Veterinary Medicine, Tehran University, Tehran, Iran
4. Faculty of Veterinary Medicine, Urmia University, Urmia, Iran
5. Faculty of Veterinary Medicine, Urmia University, Urmia, Iran
6. Islamic Azad University of Mashhad, Faculty of Medicine, Mashhad, Iran
7. Small Animal Internal Medicine Resident of Islamic Azad University, Science and Research Branch of Tehran, Iran
8. Department of Food Hygiene, Faculty of Veterinary Medicine, Tehran University, Tehran, Iran
9. Faculty of Veterinary Medicine, Tehran University, Tehran, Iran

Background and Aim : Global cerebral ischemia followed by reperfusion, leads to extensive neuronal damage, particularly the neurons in the hippocampal CA region. Recent studies have demonstrated that pharmacological agents, such as *Nigella sativa* L. (Ranunculaceae) that is an annual herbaceous flowering plant, given at the time of reperfusion afforded protection against ischemia, which is referred to as pharmacological post conditioning.

Methods : In the present study 30 Wister rats (200–250 g) were divided into 5 groups namely sham (operated without treatment), control (operation with normal saline treatment), and 3 treatment groups with *Nigella sativa* 1 mg/kg, 10 mg/kg and 50 mg/kg. Firstly, the animals were anesthetized by ketamin and xylazine, and then the right carotid artery was operated upon dissection of the soft tissues around it and ligation by a clamp for 20 min. The *Nigella sativa*

extraction was used during surgery through IP route and after 72 h the animals were euthanized and their brain removed, fixed and prepared for histopathological examinations.

Results : In treatment group (1 mg/kg) the interstitial neuron frequency which contains cytoplasmic edema, along with CA, was 28 cells, whereas the edematous astrocyte number along with CA in this group was 115 cells. In the treatment group (10 mg/kg) the interstitial neurons of cornua ammonis (CA) were 15 and the edematous astrocytes were 122 cells and in the treatment group (50 mg/kg) the number of edematous interstitial neurons was 7 cells in distance of 2900 μ of CA. In such group the number of edematous interstitial neurons was less as well. In this group the appearance of CA cells was more similar to control group, not only the edema decreased in interstitial and astrocyte cells, but it dramatically decreased in pyramidal cells. Our study revealed that the *Nigella sativa* extraction could prevent intracellular edema of interneurons in 50 mg/kg group significantly compared to sham group (91.6%) and the extraction (50 mg/kg) decreased edematous astrocytes 67.1% dramatically compared to sham group. Furthermore there was no significant difference between control and two treatment groups (1 and 10 mg/kg) (P N 0.05).

Conclusion : Our finding suggested that the *N. sativa* extraction could prevent the cerebral edema which the best result was obtained in 50 mg/kg group; consequently such extraction is able to prevent ischemia/reperfusion in the hippocampus tissue of the brain.

Keywords : *Nigella sativa*; Histopathological; Cornu ammonis; Right carotid artery; Rats; Surgery

Count: 507

Abstract ID: 668

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Effects of combination therapy with candesartan and normobaric oxygen against cerebral ischemic/ reperfusion injury in normotensive rat

Submission Author: Hamdollah Panahpour

Hamdollah Panahpour¹, Elmira Pasban², Akbar Vahdati³

1. 3Department of Physiology, Medical School, Ardabil University of Medical Sciences, Ardabil, Iran
2. Department of Biology, Fars Science and Research Branch, Islamic Azad University, Fars, Iran._
Department of Biology, Shiraz Branch, Islamic Azad University, Shiraz, Iran.
3. Department of Biology, Fars Science and Research Branch, Islamic Azad University, Fars, Iran._
Department of Biology, Shiraz Branch, Islamic Azad University, Shiraz, Iran.

Background and Aim : Stroke is third leading cause of death and disability in the most of human communities. Single neuroprotective drugs have so far failed because ischemic stroke has complex pathophysiology and multiple interactive processes. Several experimental studies have shown that combination therapy with drugs that act via different mechanisms can produce amplified protective effects. In addition, combination therapy may reduce doses of drugs and decrease incidence of adverse effects. We examined the effects of post-ischemic combination therapy with candesartan and normobaric oxygen (NBO) therapy on neurological deficits and cerebral infarction in a rat model of ischemic stroke.

Methods : Male Sprague-Dawley rats were divided into five groups (n=9), sham, control ischemic, candesartan treated (0.3 mg/kg), normobaric oxygen treated (3L/min for 90min) and combined treated ischemic groups. Transient focal cerebral ischemia was induced by 90-min-long occlusion of the left middle cerebral artery followed by 24-h-long reperfusion. Sensory and motor deficits were evaluated with hotplate and grip strength test. Thereafter, the animals were used for measurement of the infarct volumes with TTC staining method.

Results : Induction of cerebral ischemia in the control group produced considerable brain infarction in conjunction with severely impaired sensory and motor functions. Combined treatment

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

with candesartan and NBO significantly reduced the infarct volume and improved the above functions.

Conclusion : The combination therapy with candesartan and normobaric oxygen therapy can noticeably decrease ischemic brain injury and improve sensorimotor deficits.

Keywords : Stroke, neurological deficits, candesartan, normobaric oxygen therapy.

Count: 508

Abstract ID: 545

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Effects of the treatment with magnesium sulfate on sensorimotor deficits of brain injury in experimental model of ischemic stroke

Submission Author: Hamdollah Panahpour

Hamdollah Panahpour¹, Javad Shadman², Alireza Mouradi³, Nooshin Sadeghian⁴

1. Physiology department, Ardabil University of Medical Sciences, Ardabil, Iran
2. Physiology department, Ardabil University of Medical Sciences, Ardabil, Iran
3. Physiology department, Ardabil University of Medical Sciences, Ardabil, Iran
4. Physiology department, Ardabil University of Medical Sciences, Ardabil, Iran

Background and Aim : Stroke is one of the most important causes of death and disability in the most of human communities. Due to complicated pathophysiology no effective treatment is available for ischemic stroke. Magnesium is widely accepted for its important roles in multiple cellular processes. It was suggested that treatment with magnesium may reduce brain injury induced neuronal death and cognitive dysfunctions. But its effects on ischemic stroke is not exactly clear. We examined the effects of the treatment with magnesium sulfate on sensorimotor deficits caused by experimentally induced ischemic stroke.

Methods : 30 Male Sprague-Dawley rats were divided into three groups, sham, control ischemic and magnesium sulfate treated (400 mg/kg) ischemic groups. Transient focal cerebral ischemia was induced by 60-min-long occlusion of the left middle cerebral artery followed by 24-h-long reperfusion. Neurological sensorimotor deficits were evaluated by hotplate and grip strength tests at the end of the reperfusion period. Measurement of the infarct volumes were performed with TTC method.

Results : Cerebral ischemia and reperfusion in the control group produced considerable brain infarction in conjunction with impaired sensorimotor functions. Treatment with magnesium sulfate significantly reduced the infarct volume ($p < 0.001$) and improved the sensorimotor functions ($p < 0.05$ and $p < 0.001$ respectively).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Treatment with magnesium sulfate can significantly decrease ischemic brain injury and improve ischemia induced sensorimotor disabilities. These findings suggest a noticeable neuroprotective role for magnesium in ischemic stroke.

Keywords : Stroke, sensorimotor deficits, magnesium sulfate, rat.

Count: 509

Abstract ID: 568

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Oral

Neuroprotective effects of ghrelin result in prevention or restitution of ischemia-induced impairment of long-term potentiation and hippocampal synaptic plasticity, leading to memory enhancement

Submission Author: Bahman Sadeghi

Bahman Sadeghi¹, Fatemeh Goshadrou², Maryam Eslami³

1. Institute of Biochemistry and Biophysics, University of Tehran, Iran
2. School of Allied Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Department of Physiology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Ischemic stroke is the leading cause of death and long-term disabilities or health issues worldwide, while very few effective treatments are available for brain stroke patients. Affected patients are at increased risk for future cardiovascular events as well as cognitive and learning difficulties. Therefore, prevention or controlling these adverse outcomes is a major goal to reduce social and economic burden on societies. Ghrelin receptors (growth hormone secretagogue receptors) are expressed in the brain, including the hippocampus. The activation of ghrelin receptors facilitates high frequency stimulation (HFS)-induced long-term potentiation (LTP) and improves learning and memory.

Methods : Here, it is reported that chronic intraperitoneal administration of ghrelin (10 µg/kg for 7 days) before and after cardiac arrest prevented ischemia-induced impairment of LTP and led to restitution of long-lasting potentiation of excitatory postsynaptic potentials (EPSPs) and population spikes (PSs) in dentate gyrus (DG) area of anesthetized rats. Animals were subjected to 4-VO ischemia following a single dose of ghrelin and received daily ghrelin injections for a week after surgery. To assess cognitive performance, the Morris water maze task was performed for 5 consecutive days. Intrahippocampal field potential recordings were done, brains were removed and immunohistochemistry to Bcl-2 and Bax was examined to observe the expression of these proteins in DG neurons.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results showed that ghrelin enhanced spatial memory by significantly reducing escape latencies in ischemic rats and also increased the EPSP slope and PS amplitude, suggesting the involvement of ghrelin in postsynaptic mechanisms of hippocampal LTP. It seems that the Bcl-2/Bax ratio is enhanced and the expression of Bcl-2 was sufficient to prevent apoptosis of hippocampal neurons.

Conclusion : It was revealed that neuroprotective effects of chronic ghrelin not only can enhance but also can restore LTP in DG area of global cerebral ischemic rats through inhibition of the mitochondrial pathway of apoptosis. Thus, it is suggested that exogenous ghrelin not only could be as a promising neuroprotective agent to maintain or even enhance memory function in normal subjects but also may have therapeutic value in cognitive deficits following a brain stroke.

Keywords : Ischemic stroke; Ghrelin; Long-term potentiation; Synaptic plasticity; Dentate gyrus; Memory

Count: 510

Abstract ID: 166

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Effects of the Oral Ingestion of Probiotics on Brain Damage in a Transient Model of Focal Cerebral Ischemia in Mice

Submission Author: Jafar Sadeghzadeh

Jafar Sadeghzadeh¹, Abedin Vakili¹, PhD;², Kobra Akhoundzadeh¹, M-Phill;³, Mahdi Shadnough^{1,2}, PhD;⁴

1. 1Research Center and Department of Physiology, Faculty of Medicine, Semnan University of Medical Sciences, Semnan, Iran
2. 1Research Center and Department of Physiology, Faculty of Medicine, Semnan University of Medical Sciences, Semnan, Iran
3. 1Research Center and Department of Physiology, Faculty of Medicine, Semnan University of Medical Sciences, Semnan, Iran
4. 1Research Center and Department of Physiology, Faculty of Medicine, Semnan University of Medical Sciences, Semnan, Iran

Background and Aim : Probiotics are microorganisms that may influence brain function via altering brain neurochemistry. New research evidence suggests that probiotic bacteria might protect tissue damage through diminishing the production of free radicals and/or inflammatory cytokines. Therefore, this study was designed to evaluate the effects of probiotic bacteria on the prevention or reduction of brain damage in an experimental model of stroke in mice.

Methods : In this study, 30 male BLC57 mice were randomly divided into 6 equal groups. Focal cerebral ischemia was induced via middle cerebral artery occlusion for 45 minutes, followed by 24 hours of reperfusion, in the mice. Probiotics at a concentration of 107 CFU/mL were administered by oral gavage daily for 14 days before ischemia. Infarct size, neurological outcome, and biochemical markers were measured 24 hours after brain ischemia. Statistical analysis were performed using the one-way ANOVA and/or Kruskal–Wallis ANOVA on rank by Sigma Stat (2.0; Jandel Scientific) software.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Our results indicated that pretreatment with probiotics significantly reduced infarct size by 52% ($P=0.001$) but could not improve neurological function ($P=0.26$). Moreover, the administration of probiotics significantly decreased the malondialdehyde content ($P=0.001$) and the tumor necrosis factor- α level ($P=0.004$) in the ischemic brain tissue.

Conclusion : The findings of the present study showed that probiotic supplements might be useful in the prevention or attenuation of brain ischemic injury in patients at risk of stroke. Probiotics may open new therapeutic alternatives for the prevention of stroke. More preclinical and clinical studies are, however, needed to clarify their efficacy in cerebral stroke.

Keywords : Probiotics • Focal cerebral ischemia • Tumor necrosis factor- α • Mice

Count: 511

Abstract ID: 780

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Roles of bone marrow stem cells evaluation in stroke therapy

Submission Author: Sepideh Sayadi

Sepideh Sayadi¹, zahra moghimi², shiva dehghan³, pegah yabande jahromi⁴, Dr Abdulghani Ameri⁵

1. Department of pharmacy, Ahvaz jundishapur university of medical sciences, Ahvaz, Iran
2. Department of pharmacy, Ahvaz jundishapur university of medical sciences, Ahvaz, Iran
3. Student of medical sciences, Isfahan University of medical sciences, Isfahan, Iran
4. Student of medical sciences, Ahvaz jundishapur University of medical sciences, Ahvaz, Iran
5. Microbiology Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Background and Aim : Cerebrovascular accident (CVA) or stroke occurs when the blood supply to part of your brain is interrupted or severely reduced, depriving brain tissue of oxygen and nutrients. Within minutes, brain cells begin to die. A stroke may be caused by a blocked artery (ischemic stroke) or the leaking or bursting of a blood vessel (hemorrhagic stroke). Some people may experience only a temporary disruption of blood flow to their brain (transient ischemic attack, or TIA). A stroke is a medical emergency, therefore, prompt treatment is crucial. Early action can minimize brain damage and potential complications. The good news is that strokes can be treated and prevented. Bone marrow mononuclear cells (BMMCs), containing mesenchymal stem cells (MSCs), hematopoietic cells and other cells, are readily isolated from whole bone marrow by density-gradient centrifugation. Several studies have shown that BMMCs are a potential treatment for limb ischemia, myocardial infarction and chronic heart failure. The aim of this study is evaluate effect of bone marrow mononuclear cells on cerebrovascular accident.

Methods : This review article was carried out by searching studies in electronic databases such as PubMed, Google Scholar, Sciencedirect, by using the search terms “Bone marrow mononuclear cells,” “Cerebrovascular accident,” “Stroke”. A selection of relevant English-language clinical trials, systematic reviews, and metaanalyses within the last 17 years (2000–2017) were performed. Previous references and case reports were also included when basically supporting the first selection.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Previous studies showed that BM-MCs improve regeneration of motor and sensory axons, increase survival of dorsal root ganglion (DRG) neurons, increase proliferation of schwann and satellite cells and increase glial proliferation in the spinal cord. Also, BM-MCs include endothelial progenitor cells and various angiogenic growth factors, cytokines, trophic factor. Supplementation of the progenitor endothelial cells results in augmentation of neovascularization of ischemic tissue and repair of mature endothelial cells that release nitric oxide.

Conclusion : All the mechanisms listed above decrease infarct volume and enhanced functional recovery after stroke. So, intra-arterial administration of bone marrow mononuclear cells are effective on cerebrovascular accident.

Keywords : Bone marrow mononuclear cells ; Cerebrovascular accident ; Stroke

Count: 512

Abstract ID: 444

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Focal Brain Lesions in children

Submission Author: Elham Seihei

Elham Seihei¹, Fazlollah Shahraki², Alireza Mollaei³

1. speech language Pathologist.Email: elhamseihei@gmail.com
2. M.Sc. Cognitive Scientist- Educational Neuroscience; Zahedan University Of Medical Sciences.
3. Doctor of physiotherapy student

Background and Aim : Lesions that are focal, or localized to a specific area of the brain, are usually caused by cerebrovascular accidents (CVAs) such as strokes, and are relatively rare in children; however, children with congenital heart defects are particularly vulnerable to CVAs and premature babies may suffer focal damage as a result of intracranial bleeding during their first weeks of life outside the womb.

Methods : Science Direct, Pubmed, CINAHL, PsycINFO, ProQuest, Web of Science, and Google Scholar (2010 through 2017) were searched for English-language studies using a list of keywords. The books about medicine, speech therapy were studied too.

Results : A body of work by researchers has prospectively followed the developmental trajectories of language and cognition in children with focal lesions, considering outcomes in relation to side and site of lesion and developmental timing of lesion. The delays were followed by rapid acceleration of language function such that, by school-age, children with focal lesions were largely indistinguishable from typical peers on measures of vocabulary, grammar, tense marking, and narrative production. More recent studies have suggested that, although language performance on standardized tasks may be within normal limits, children with early left hemisphere lesions may have subtle deficits in language processing relative to peers and that measures of narrative may be particularly sensitive to subtle language differences.

Conclusion : Children with early focal lesions produced shorter stories that were structurally less complex, used less diverse vocabulary, and made fewer inferences regarding the cognitive states

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

of the story characters. These deficits occurred despite the fact that the children with focal lesions did not differ from the comparison group on standardized measures of grammar and vocabulary. Thus, most children with focal lesions make more or less complete recoveries in terms of speech, language, and communication, though the clinician should be alert to subtle deficits in higher-level language tasks that may interfere with academic achievement.

Keywords : Focal Brain Lesions, cognition, language

Count: 513

Abstract ID: 485

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Reelin glycoprotein, as a new material for treatment of stroke

Submission Author: Zahra Shabani nabikandi

Zahra Shabani nabikandi¹, Dr mohammad karimi pour², sajjad ghorani³

1. PHD student of neurosciences, Tabriz university of medical sciences, Tabriz, Iran
2. PHD of anatomy , Tabriz university of medical sciences, Tabriz, Iran
3. occupational therapy

Background and Aim : Neural tissue regeneration in the stroke has been a major challenge in the context of regenerative medicine for a long time. Recently, cell therapy is seems as a promising therapeutic intervention. But it is not quite successful and we need a novel therapeutic solution. Reelin is a large glycoprotein which is secreted by extracellular matrix in the brain of embryos and also adults. In the developing brain, Reelin is secreted by Cajal-Retzius cells and help in the early laminar organization of the cortex. In the adult, Reelin continues to be expressed by GABAergic interneurons in the cortex and hippocampus. Reelin signals through two lipoprotein receptors: very-low density lipoprotein receptor (VLDLR) and Apolipoprotein E receptor 2 (ApoER2). Receptor binding activates a number of neuronal signal transduction pathways in the central nervous system (CNS) that subsequently modulate synaptic function and ultimately learning and memory. As well as Reelin has some other advantages in the brain. Reelin is required for normal development of dendritic structures, developmental maturation of N-methyl-d-aspartate (NMDA) receptors, and enhancement of glutamate-mediated function in the adult brain. Reelin can be mentioned as an impressive treatment in stroke. Stroke occurs when the blood supply to part of brain is interrupted or severely reduced, depriving brain tissue of oxygen and nutrients. Focal impairment of cerebral blood flow restricts the delivery of substrates, particularly oxygen and glucose, consequently, somato dendritic as well as presynaptic voltage-dependent Ca⁺² channels become activated and excitatory amino acids are released into the extracellular space and results in excitotoxicity through NMDA receptors. Reelin signaling is a critical player in the modulation of synaptic function and modulate the NMDA Receptors via binding to its receptors and has an inhibitory control on continuing excitotoxicity. Reelin deficiency could worsen outcome after stroke by reducing inhibitory control of excitatory transmission thereby exacerbating excitatory

damage. In addition to this, Reelin coordinates neuronal cell survival by inhibiting apoptosis and may play a protective role in the response to cerebral ischemia–reperfusion injury. Based on previous studies, Reelin level was decreased in the brain of stroke patients and reelin-deficient mice were more susceptible to injury after transient cerebral ischemia. Given the above mentioned comments Reelin supplementation in the infarct cavity combined with cells is able to promote cortical lamination, and inhibit excitotoxicity and apoptosis in stroke.

Methods : in this review article, have used of 15 article from 2000 up to 2017 with key words including Reelin, excitotoxicity, stroke pathology, and etc

Results : Reelin consumption in infarct cavity has a protective effect on stroke treatment.

Conclusion : Reelin transplantation in the infarct cavity combined with cells is able to promote cortical lamination, and inhibit excitotoxicity and apoptosis in stroke.

Keywords : stroke, Reelin, NMDA, VLDLR,

Count: 514

Abstract ID: 316

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Oral

The Effect of Carvacrol in Vascular Cognitive Impairment in the CCH Rats

Submission Author: Azadeh Shahrokhi raeini

Azadeh Shahrokhi raeini¹, Fatemeh Zare Mehrjerdi², Mohammad Ebrahim Rezvani³, Fatemeh Safari⁴

1. M.Sc Neuro BioMedical Center, Department of physiology, Faculty of Medicine, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
2. Ph.D Neuro BioMedical Center, Department of physiology, Faculty of Medicine, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
3. Ph.D Neuro BioMedical Center, Department of physiology, Faculty of Medicine, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
4. Ph.D Neuro BioMedical Center, Department of physiology, Faculty of Medicine, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

Background and Aim : Purpose: The main objective of this study is to focus on the beneficial role of Carvacrol against cognitive dysfunction in chronic cerebral hypoperfusion (CCH).

Methods : Methods: CCH was modeled by occlusion of common carotid arteries permanently. The Morris water maze (MWM) was used to investigate whether Carvacrol can ameliorate cognitive deficits in CCH rats after ischemia. Rats were treated orally by Carvacrol after CCH for 60 days.

Results : Results: The results showed that the escape latency and traveled distance of CCH rats in the MWM was reduced by Carvacrol treatment. Also Carvacrol elevated the time spent in the target quadrant in the probe trial test in the CCH rats.

Conclusion : Discussion: Increasing evidence suggested that chronic cerebral hypo perfusion is associated with various neuro degeneration diseases characterized by cognitive impairment. Pharmacological invention can be critical for reducing neuro degeneration and memory deficit.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Carvacrol is a compound isolated from some plants and herbs, and is specially abundant in oregano. Carvacrol has displayed antimicrobial, antitumor, antioxidative activities. The results of the present study indicated the protective effects of Carvacrol on cognitive impairment caused by CCH. Conclusion: According to the findings, Carvacrol can ameliorate cognitive dysfunction caused by chronic cerebral hypo perfusion.

Keywords : Key words: Rats ;Chronic cerebral hypoperfusion ;Morris water maze ;Carvacrol

Count: 515

Abstract ID: 103

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Poster

Neuroprotective Effects of Stiripentol on Oxygen-Glucose Deprivation in Primary Culture of

Submission Author: Gelareh Vahabzadeh

Gelareh Vahabzadeh¹, Noorolhoda Fotovat Eskandari², Parvaneh Najafizadeh³, Samira Khani⁴

1. Department of Pharmacology, School of Medicine, Iran University of Medical Sciences
2. Cellular and Molecular Research Center, Iran University of Medical Sciences, Tehran, Iran
3. Department of Pharmacology, School of Medicine, Iran University of Medical Sciences
4. Department of Pharmacology, School of Medicine, Iran University of Medical Sciences

Background and Aim : Excessive activation of NMDA receptors in ischemic injury as well as reduction of GABAergic system leads to discrepancies of ionic homeostasis and neuronal death. The aim of the present study was to evaluate the effect of different concentrations of stiripentol (0.01, 0.1, 1, 5, 10, 30 μ M) as a GABAA receptor agonist on primary cortical culture of mice on 4 h oxygen-glucose deprivation (OGD).

Methods : After 24h of incubation of neuronal cells with stiripentol, the cells were transferred to glucose-free DMEM (Dulbecco's Modified Eagle Medium) and were exposed to 4h hypoxia in a small anaerobic chamber and incubated in standard condition for 24h. Cell viability was evaluated by MTT assay.

Results : The results showed that different concentrations of stiripentol could increase the cell viability after 4h OGD Recovery (OGD/R). However, the protective effect of stiripentol was lower than the control group (the cells did not expose to OGD/R).

Conclusion : Our results indicated that stiripentol could be a potential drug for treatment of brain ischemic condition. However, additional studies are needed to evaluate the mechanisms of stiripentol effect.

Keywords : gamma-Aminobutyric Acid, Ischemia, Mice

Count: 516

Abstract ID: 639

subject: Neural Injuries and Neurodegenerative Disorders: Ischemia, Stroke, and Neurovascular Disorders

Presentation Type: Oral

Central administration of irisin peptide protect brain against ischemic injury in a transient model of focal cerebral ischemia in mice

Submission Author: Abedin Vakili

Abedin Vakili¹, Yasin Asadi², Sedigheh Behrouzifar³

1. Research Center and Department of Physiology, Faculty of Medicine, Semnan University of Medical Sciences, Semnan, Iran
2. Research Center and Department of Physiology, Faculty of Medicine, Semnan University of Medical Sciences, Semnan, Iran
3. Research Center and Department of Physiology, Faculty of Medicine, Semnan University of Medical Sciences, Semnan, Iran

Background and Aim : Evidence have showed therapeutic potential of irisin in cerebral stroke. Present study aimed to assess the outcomes of recombinant irisin administration before ischemic injury in terms of neurological outcome, BBB permeability, apoptosis and brain-derived neurotrophic factor (BDNF) expression in a mouse model of stroke.

Methods : Temporary model of focal cerebral ischemia established by middle cerebral artery occlusion (MCAO) for 45 minutes and followed reperfusion for 23 hours in mice. Recombinant irisin administrated at doses of 0.1, 0.5, 2.5, 7.5, and 15 $\mu\text{g}/\text{kg}$, intracerebroventricular (ICV), on the MCAO beginning. Neurological outcome, infarct size, brain edema and blood brain barrier (BBB) permeability were evaluated by modified neurological severity score (mNSS), 2,3,5-Triphenyltetrazolium chloride (TTC) staining and evans blue (EB) extravasations methods, respectively, at 24 h after ischemia. Apoptotic cells and BDNF protein were detected by immunohistochemistry technique.

Results : ICV irisin administration at doses of 0.5, 2.5, 7.5 and 15 $\mu\text{g}/\text{kg}$, significantly reduced infarct size, whereas only in 7.5 and 15 $\mu\text{g}/\text{kg}$ improved neurological outcome ($P < 0.001$). Treatment with irisin (7.5 $\mu\text{g}/\text{kg}$) reduced brain edema ($P < 0.001$) but did not change BBB

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

permeability ($P > 0.05$). Additionally, irisin ($7.5 \mu\text{g/kg}$) significantly diminished apoptotic cells and increased BDNF immunoreactivity in the ischemic cortex ($P < 0.004$).

Conclusion : Finding of the current study indicated that irisin attenuates brain damage via reducing apoptosis and increasing BDNF protein of cortex in the experimental model of stroke in mice. It appears that irisin may be a candidate for the treatment of stroke.

Keywords : Ischemic brain injury, BBB permeability, Brain edema, Immunohistochemistry, BDNF, Apoptosis, Mice

Count: 517

Abstract ID: 98

subject: Neural Injuries and Neurodegenerative Disorders: Demyelinating Disorders

Presentation Type: Poster

The anti-inflammatory and myelin repair effects of nano-hesperetin in experimental model of multiple sclerosis disease

Submission Author: Saeideh Baradaran

Saeideh Baradaran¹, Maryam Ghasemi-Kasman², Akbar Hajizadeh Moghaddam³

1. Department of Biology, Faculty of Basic Sciences, University of Mazandaran, Babolsar, Mazandaran, Iran
2. Cellular and Molecular Biology Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, Mazandaran, Iran
3. Neuroscience Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, Mazandaran, Iran

Background and Aim : Multiple sclerosis (MS) is the one of the most autoimmune neurological and inflammatory disease in worldwide. Demyelination and disturbance of action potential conductance are regarded as main signs of MS disease. Hesperetin (Hst) is a flavonoid from citrus species, that possesses various biological properties such as antioxidant and anti-inflammatory. The present study attempts to examine the effect of nano-Hst on myelin repair and astrocytes activation in lysolecithin (LPC)-induced demyelination

Methods : Local demyelination was induced by administration of LPC (1%, 2 μ L) into the rat' optic chiasm. Animals have received oral administration of Hst or nano-Hst at dose of 20 mg/kg for 14 and 21 days. Visual evoked potential (VEPs) records were performed on days 0, 7, 14 and 21 post lesions. Immunostaining against PLP (mature myelin marker) and GFAP as astrocytes marker was carried out for evaluation of myelination and astrocytes activation.

Results : Electrophysiological evidence emphasize that oral administration of nano-hesperetin could reduce the P1-N1 latency and increase the amplitude of VEPs waves compared to the saline and Hst groups. Immunostaining showed that myelin repair was improved in animals which have received nano-Hst treatment. In addition, nano-hesperetin effectively reduced the expression of GFAP in optic chiasm.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : This study indicated that oral administration of nano-Hst significantly enhances myelin repair and ameliorates astrocytes activation of optic chiasm following local injection of LPC.

Keywords : Optic chiasm; Lysolecithin; Demyelination; Nano-hesperetin; Myelin repair; Astrocytes activation

Count: 518

Abstract ID: 283

subject: Neural Injuries and Neurodegenerative Disorders: Demyelinating Disorders

Presentation Type: Poster

Investigation of the role of apoptosis, necroptosis and DNA damage signaling pathways in multiple sclerosis

Submission Author: Romina Dastmalchi

Romina Dastmalchi ¹, Arezou sayad²

1. Shahid beheshti university of medical sciences
2. Shahid beheshti university of medical sciences

Background and Aim : Multiple sclerosis (MS) as the most common autoimmune disorder in the central nervous system is a major health problem. MS is a complex disease with multiple environmental and genetic factors participating in it.

Methods : In the present study, we evaluated the expression of 3 genes named BCL2, CASP2 and CASP8 in peripheral blood of 50 MS patients and 50 healthy controls by taqman real time PCR to investigate the role of apoptosis, necroptosis and DNA damage signaling pathways in MS.

Results : Statistical analysis showed a significant increase in BCL2 and CASP2 expressions while a significant decrease in CASP8 expression in patients compared with the control group. The over-expression of the pro-apoptotic BCL2 is anticipated to induce accumulation of auto-reactive T cells which are involved in MS pathogenesis. In patients with MS, levels of oxidative damage increase. The level of Casp2 has increased in our study due to DNA damage in response to oxidative stress to cause DNA repair using the NHEJ method. Since caspase 8 is vital for the suppression of necroptosis pathway, defective activation of caspase 8 can cause inflammation and be involved in the pathogenesis of MS disease.

Conclusion : In brief, we have demonstrated altered levels of BCL2, CASP2 and CASP8 in MS patients compared with healthy subjects which potentiates these genes as biomarkers or therapeutic targets in MS. Further researchers are needed to evaluate the clinical relevance of these markers.

Keywords : multiple sclerosis, apoptosis, necroptosis, oxidative stress, Genetics

Count: 519

Abstract ID: 14

subject: Neural Injuries and Neurodegenerative Disorders: Demyelinating Disorders

Presentation Type: Poster

Ecotropic Viral Integration Site 5 (EVI5) expression analysis in multiple sclerosis patients

Submission Author: Maziar Ganji

Maziar Ganji¹, Mohammad Taheri²

1. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Multiple sclerosis (MS) is a complex immune-related disorder of the central nervous system (CNS) in which dysregulation of different classes of T cells are involved. Variants in Ecotropic Viral Integration Site 5 (EVI5) gene has been shown to be significantly associated with MS in different populations. However, there is no data regarding the relative expression of this gene in peripheral blood of MS patients compared with healthy controls.

Methods : In the present study we assessed expression of EVI5 in 50 Iranian MS patients compared with healthy subjects by means of quantitative real time RT-PCR.

Results : Statistical analyses showed no significant difference in EVI5 relative expression neither between total MS patients and healthy controls nor between age- and sex-based subgroups of patients and controls except for a trend toward significance in patients aged between 30 and 40 years compared with healthy subjects in both sexes ($P = 0.068$ and 0.075 for males and females, respectively). No significant correlation was found between the expression level of this gene and disease duration, age at onset or Expanded Disability Status Scale (EDSS).

Conclusion : Future studies are needed to explore the role of EVI5 in the pathogenesis of MS.

Keywords : Multiple sclerosis, gene expression, EVI5

Count: 520

Abstract ID: 231

subject: Neural Injuries and Neurodegenerative Disorders: Demyelinating Disorders

Presentation Type: Oral

Gold nanoparticles show an improvement of myelin in the rat's corpus callosum exposed to microinjection of L-Arginine

Submission Author: Mahjabin Khosravi bonjar

Mahjabin khosravi bonjar¹, Manizhe Karami², Mohamad reza Jalali nadoushan ³, Abazar Haj norouzi⁴

1. MSc student, Department of Biology, Faculty of Basic Sciences, Shahed University, Tehran, Iran
2. Department of Biology, Faculty of Basic Sciences, Shahed University, Tehran, Iran
3. Department of Pathology, Faculty of Medicine, Shahed University, Tehran, Iran
4. Department of Physics, Faculty of Basic Sciences, Shahed University, Tehran, Iran

Background and Aim : Multiple sclerosis (MS) is a disabling chronic disease of the nervous system in which the myelin system of the central nervous system is deteriorated. This study aimed to evaluate for improvement of demyelination induce by microinjection of L-Arginine into the rat's corpus callosum with gold nanoparticles.

Methods : In this study, the L-Arginine as a precursor of nitric oxide (NO) with the assumption of an inflammatory demyelinating resonator and axon injury was directly injected into corpus callosum (cc) of adult Wistar male rat. To do this, skull was cannulated according to the coordinates of corpus callosum. Following one week recovery the animals were injected I-Arginine (0/05-3 µg/rat, intra-corporis callosum) once per day through a 3-5 day period. Gold nanoparticles (0/001-0/01 µg/rat, intra-corporis callosum) alone or prior to the injection of L-Arginine injected intra corporis callosum for 3-5 day. Control group solely received saline intra-corporis callosum. In the end of experiments the brains were collected and studied histopathologically using myelin specific staning (luxol fast blue).

Results : Lonely injection of NO producer intra-corporis callosum caused myelin destruction while gold nanoparticles in low doses had no significant effect. They showed no demyelination evidence when used with together.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The NO pro-inflammatory may be responsive into the brain to induce demyelination. The application of gold nanoparticles regardless to their heavy metal may have an improvement effect on demyelination induced by micro injection of L-Arginine.

Keywords : Multiple sclerosis, L-Arginine, Corpus callosum, Gold nanoparticle, Rat

Count: 521

Abstract ID: 321

subject: Neural Injuries and Neurodegenerative Disorders: Demyelinating Disorders

Presentation Type: Poster

Diet and Neuromyelitis Optica Spectrum Disorder; Association between food group intakes and disability in patients with NMOSD

Submission Author: Mohammad Bagher Maljaei

Mohammad Bagher Maljaei¹, Vahid Shaygannejad², Omid Mirmosayyeb³, Gholamreza Askari⁴, Mohammad Reza Maracy⁵

1. Isfahan Neuroscience Research Center and Department of Neurology, Alzahra Hospital, Isfahan University of Medical Sciences, Isfahan, Iran.
2. Isfahan Neuroscience Research Center and Department of Neurology, Alzahra Hospital, Isfahan University of Medical Sciences, Isfahan, Iran.
3. Isfahan Neuroscience Research Center and Department of Neurology, Alzahra Hospital, Isfahan University of Medical Sciences, Isfahan, Iran.
4. Food Security Research Center and Department of Community Nutrition, School of Nutrition and Food Sciences, Isfahan University of Medical Sciences, Isfahan, Iran.
5. Department of Epidemiology and Biostatistics, Isfahan University of Medical Sciences, Isfahan, Iran.

Background and Aim : Neuromyelitis optica Spectrum Disease (NMOSD) is an inflammatory disorder of the central nervous system (CNS) that presents typically with relapses of optic neuritis or transverse myelitis, in which IgG autoantibodies against aquaporin-4 water channel protein probably play a pathogenic role and IgG-NMO levels had correlation with disability in this patients. Assessment of dietary intakes of food groups is an approach that has been used to evaluate diet-disease and diet-disability association.

Methods : 68 patients with diagnosed NMOSD with MRI assessment of brain and spinal cord, clinical symptoms and IgG-NMO test were recruited from multiple sclerosis clinic in Kashani Hospital of Isfahan University of Medical Sciences, Isfahan, Iran include from present cross-sectional study. A 168-item semi-quantitative food frequency questionnaire (FFQ) was used for assessment of dietary intakes of food groups. Medical history questionnaire, Expanded Disability Status Scale (EDSS) and Fatigue questionnaire record from all participants.

Results : Mean \pm SD of EDSS and fatigue scale in IgG-NMO positive group was significant higher than IgG-NMO negative group. There was a negative significant correlation between intakes of whole grain ($r=-0.312$, $p=0.031$), fish ($r=-0.452$, $p=0.018$) and fresh fruits ($r=-0.365$, $p=0.026$) with EDSS in all participants and intakes of fresh vegetables ($r=-0.394$, $p=0.038$) and EDSS in IgG-NMO negative subgroup. In addition, There was a negative significant correlation between intakes fresh vegetables ($r=-0.302$, $p=0.034$) and fresh fruits ($r=-0.372$, $p=0.023$) with fatigue scale in all participants. Correlation between red and processed meats with EDSS ($r=0.512$, $p=0.002$) and fatigue scale ($r=0.439$, $p=0.020$) was significantly positive in all participants. Although correlation between dietary intakes of dairy and vegetable oil with EDSS and fatigue scale in all participants and subgroups were negative, but was not significant.

Conclusion : Our study demonstrated that there is a positive significant correlation between intakes of red and processed meat with EDSS and fatigue scale in all participants. In addition dietary intakes of whole grain, fish and fresh fruits can decrease EDSS in all patients with NMOSD. This is first report of dietary intakes of food groups in NMOSD patients. Further studies with larger sample sizes and other population needed to prove this correlation.

Keywords : Neuromyelitis optica spectrum disorder; Nutrition; Food

Count: 522

Abstract ID: 479

subject: Neural Injuries and Neurodegenerative Disorders: Demyelinating Disorders

Presentation Type: Poster

Comparison of dietary intakes of vitamin D, sun exposure and serum vitamin D levels in patients with MS, patients with NMOSD with healthy group

Submission Author: Mohammad Bagher Maljaei

Mohammad Bagher Maljaei¹, Vahid Shaygannejad², Omid Mirmosayyeb³, Gholamreza Askari⁴, Mohammad Reza Maracy⁵

1. Isfahan Neuroscience Research Center and Department of Neurology, Alzahra Hospital, Isfahan University of Medical Sciences, Isfahan, Iran.
2. Isfahan Neuroscience Research Center and Department of Neurology, Alzahra Hospital, Isfahan University of Medical Sciences, Isfahan, Iran.
3. Isfahan Neuroscience Research Center and Department of Neurology, Alzahra Hospital, Isfahan University of Medical Sciences, Isfahan, Iran.
4. Food Security Research Center and Department of Community Nutrition, School of Nutrition and Food Sciences, Isfahan University of Medical Sciences, Isfahan, Iran.
5. Department of Epidemiology and Biostatistics, Isfahan University of Medical Sciences, Isfahan, Iran.

Background and Aim : Multiple Sclerosis (MS) and Neuromyelitis Optica Spectrum Disorder (NMOSD) are two neurodegenerative, autoimmune and inflammatory diseases that involve central nervous system (CNS). Vitamin D₃ is a prohormone produced by the action of ultraviolet (UV) on 7-dehydrocholesterol in the skin. Although the major role of vitamin D in humans is to adjust bone homeostasis and calcium metabolism, but it is also crucial for activating immune defense systems, suppressing B cell proliferation, affects on T cell proliferation and maturation. The aim of this study was to examine the comparison of sun exposure, vitamin D intake and serum levels of 25(OH) vitamin D in MS and NMOSD with healthy control.

Methods : 86 patients with relapsing-remitting MS, 43 patients with stable status of NMOSD and 86 healthy people include presenting study. Food Frequency Questionnaires (FFQ) and Sun Exposure Scale Questionnaire were recorded for evaluation of vitamin D intakes from food and sun light exposure. Moreover, serum 25(OH) vitamin D was assessed in participants. All

participants had lived in Isfahan city and were not consume any form of synthetic vitamin D in previous 3 months.

Results : Mean \pm SD of vitamin D intakes in 3 groups no had significant difference ($p=0.186$), but healthy group have significantly higher sun exposure scale and serum vitamin D levels than two patients group. In addition, there was a significant positive correlation between scales of sun exposure and serum concentrations of 25(OH) vitamin D3 levels among subgroups RRMS ($r=0.896$, $p=0.01$), NMOSD ($r=0.578$, $p=0.045$), healthy control ($r=0.914$; $p<0.001$) and all participants($r=0.784$, $p=0.023$). Age, gender and latitude were not confounder variables.

Conclusion : Physiological variation in vitamin D may exert a major impact on autoimmune and inflammatory disease that may be because of sun exposure status and vitamin D may dose play role in pathogenesis of MS and NMOSD.

Keywords : Multiple Sclerosis; Neuromyelitis Optica Spectrum Disorder; vitamin D

Count: 523

Abstract ID: 617

subject: Neural Injuries and Neurodegenerative Disorders: Demyelinating Disorders

Presentation Type: Poster

SOCS gene family expression profile in the blood of multiple sclerosis patients

Submission Author: Tannaz Safaralizadeh

Tannaz Safaralizadeh¹

1. Department of Medical Genetics, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Multiple sclerosis (MS) is a chronic autoimmune disease, and the most common cause of non traumatic disability in young people. The etiology of this disease is not well defined yet. Cytokines play an important role in differentiation, maturation and survival of a wide range of cells, including cells of the immune system. Suppressor of cytokine signaling (SOCS) proteins are the most important regulators of this cytokine signaling pathway.

Methods : The aim of present study was to compare the expression levels of SOCS1, SOCS2, SOCS3 and SOCS5 genes in the blood of 50 relapsing-remitting MS (RR-MS) patients and 50 healthy controls by Taqman Quantitative Real-Time PCR in patients and healthy control group.

Results : We observed that SOCS1 and SOCS5 expression was significantly down-regulated ($P = 0.045$ and $P = 0.044$, respectively); whereas, no significant difference was observed between MS patients and controls for SOCS2 and SOCS3 gene expression ($P=0.747$ and $P=0.439$, respectively). In addition, there was no significant correlation between the expression of SOCS1, SOCS2, SOCS3 and SOCS5 genes and clinical findings, such as the level of physical disability in the MS patients according to the Kurtzke Expanded Disability Status Scale (EDSS) criterion and disease duration. However, a significant positive correlation was observed between expression levels of SOCS genes.

Conclusion : This study shows that loss of balance among various members of the SOCS family proteins may contribute to pathophysiology of multiple sclerosis.

Keywords : Multiple sclerosis -SOCS1- SOCS2- SOCS3- SOCS5- Expression

Count: 524

Abstract ID: 332

subject: Neural Injuries and Neurodegenerative Disorders: Demyelinating Disorders

Presentation Type: Poster

Increased ALOX15 expression and 15-HETE concentrations in multiple sclerosis patients

Submission Author: Banafshe Safizadeh

Banafshe Safizadeh¹, Reyhane Hoshyar², Masoumeh Tavakoli-Yaraki³, Masoud Mehrpour⁴, Bita Bijari⁵

1. Department of Biochemistry, Birjand University of Medical Sciences, Birjand, Iran
2. Cellular Molecular Research Center, Birjand University of Medical Sciences, Birjand, Iran
3. Department of Biochemistry, School of Medicine, Iran University of Medical Sciences, Tehran, Iran
4. Department of Neurology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran
5. Department of Community Medicine, School of Medicine, Birjand University of Medical Sciences, Birjand, Iran

Background and Aim : Multiple sclerosis is one of the most common autoimmune inflammatory diseases in young ages. The prevalence of this disease has been increased in recent years in Iran and all over the world. Human 15-lipoxygenase (15-LOX) type 1 and it's murine orthologue 12/15-lipoxygenase (12/15-LOX) are encoded by the ALOX15 gene. 15-LOX applied arachidonic acid as the substrate to generate 12S-HETE and 15S-HETE. 15-LOX is widely expressed in the CNS, and has been demonstrated to be involved in the pathogenesis of various neurological diseases. It became increasingly evident, that 15-LOX products can harbor anti-inflammatory properties as well. The aim of the present study was to investigate the expression and activity level of 15-lipoxygenase-1 (a producer of lipid peroxide and regulating inflammation and immune responses) in peripheral blood mononuclear cells in patients with multiple sclerosis and healthy individual.

Methods : 30 patients with multiple sclerosis and 23 healthy subjects as control group have participated in this case-control study. The peripheral blood mononuclear cells of the subjects were used for mRNA extraction and cDNA construction, and the level of 15-LOX-1 gene expression was determined using Real-Time PCR-based Cyber Green method. Also, the amount of 15-lipoxygenase-1 product (15-S-HETE) in serum was determined by high pressure liquid chromatography (HPLC). Finally, statistical analysis was performed using Graph Pad Prism software version 5 and independent t-test.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Measurement of 15-lipoxygenase-1 expression level in mononuclear blood cells extracted from the peripheral blood of patients with multiple sclerosis and healthy controls revealed that the level of this gene was significantly increased in patients comparing to controls. Also, the activity of 15-lipoxygenase-1 which was measured via its metabolite level in serum of patients and controls demonstrated that the enzyme activity was increased in serum of patients comparing to controls ($p < 0.05$)

Conclusion : The results of the current study have shown that the 15-lipoxygenase-1 enzymatic pathway might affect Multiple Sclerosis pathogenesis and due to the significant differences of the enzyme level in patients comparing to controls, it can be noticed as a possible pathway for controlling disease. 15-S-HETE as endogenous peroxisome proliferator activated receptor-c (PPARc) ligand, able to dampen inflammation by inhibiting the expression levels of several pro-inflammatory mediators.

Keywords : Inflammation, HPLC, gene expression, 15-lipoxygenase enzyme, multiple sclerosis

Count: 525

Abstract ID: 28

subject: Neural Injuries and Neurodegenerative Disorders: Other

Presentation Type: Poster

Stem Cells, Therapeutic Endpoints and New Clinical Solutions

Submission Author: Mohsen Marzban

Mohsen Marzban¹, Anahita Torkaman-Boutorabi², Kazem Mousavizadeh³, Masoomeh Bakhshayesh⁴, Nasim Vosoughi⁵, Gelareh Vakilzadeh⁶

1. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
3. Cellular and Molecular Research Center and Department of Molecular Medicine, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran.
4. Cellular and Molecular Research Center and Department of Molecular Medicine, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran.
5. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
6. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Over the past decade in the world and our country stem cells discussion had opened a new hope in the treatment of many acute and chronic diseases but despite all the advertising and heavy spending the therapy failed to their proper place as the good clinical trial .when the embryonic stem cells, researchers identified immunological problems for transplantation and moral constraints long to eliminate a fetus , leads them to use the adult stem cells , but the cells in spite of the various reports are still unable to effectively and efficiently to improve injuries in the body .

Methods : A hand-search of scientific data bases was performed, from the first issue defined as publications that describe and comment on studies relevant to a specific topic or clinical intervention. Only those dealing with aspects of treatment of human or animal models of disease were considered further.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : In this discussion and we are trying to break the deadlock and clinical reasons for new strategies to solve the problems facing the cell therapy and talk about the latest new findings to make use of the cells as safe clinical trial

Conclusion : We 're trying to suggest new strategy these problems in the following arguments and opened a new strategy to tackle it.

Keywords : Stemcell, Disease, New Clinical Strategy

Count: 526

Abstract ID: 185

subject: Neural Injuries and Neurodegenerative Disorders: Other

Presentation Type: Poster

Comparison of the effect of high power laser versus low power laser in improving musculoskeletal problems; Review article

Submission Author: Mobina Mirarab

Mobina Mirarab¹

1. Physiotherapist

Background and Aim : Low-level laser is used to improve the pain of patients. High-power laser is also used for a variety of musculoskeletal diseases. Our goal in this study was to review the new articles by reviewing which one is more effective in improving musculoskeletal problems.

Methods : The systematic search of various electronic databases (Google Scholar, PubMed, Science Direct) and articles published between 2009 and 2017 were selected by selecting the keywords High Power LASER Therapy, Low Power LASER Therapy, Physiotherapy, Musculoskeletal Disorder in Multiple domains (PICO method) and their combination. Materials that included the impact of low-power lasers for dental problems were removed.

Results : 40 papers were extracted, of which 4 papers had the criteria for entering this study, and in particular, compared the effect of high power and low power laser, and reviewed them.

Conclusion : In general, according to the review of the articles, the main difference between high power lasers and low intensity laser therapy is, so we may assume that a potent laser may have stronger effects than a low-power laser and its efficiency is earlier. Of course, considering that no article compares these two in terms of cost, more studies are needed in this regard.

Keywords : laser therapy, Physiotherapy, disorder

Count: 527

Abstract ID: 529

subject: Neural Injuries and Neurodegenerative Disorders: Other

Presentation Type: Poster

An overview about diabetic neuropathy, pathology, diagnosis, and treatment

Submission Author: Hajar Oghbaei

Hajar Oghbaei¹, Rana Keyhanmanesh²

1. Neuroscience Research Center of Tabriz University of Medical Sciences, Tabriz, Iran
2. Neuroscience Research Center of Tabriz University of Medical Sciences, Tabriz, Iran

Background and Aim : Diabetic neuropathy is a complicated complication of type I and type II diabetes that has involved almost 20–30 million worldwide and the main cause for morbidity and mortality in diabetic patients. There are two types of diabetic neuropathies, including sensorimotor and autonomic neuropathies. The pathophysiology of diabetic neuropathy is still just poorly understood but according to previous studies is assumed that it's probably multifactorial. In hyperglycemic conditions have been reported to enhanced oxidative stress, activation of the polyol pathway, increases in advanced glycation end products, perturbation in neurotrophism, redox imbalance secondary to increased aldose reductase activity, abnormalities in essential fatty acids metabolism, decreased Na⁺K⁺ -ATPase activity, impaired protein kinase C (PKC) activity, impaired nitric oxide synthesis, and endothelial dysfunction induced-reduced nerve blood flow play a crucial role in development and progression of diabetic neuropathy. There are several methods for detection of peripheral neuropathy, ranging from quantitative methods, such as nerve conduction study (NCS), quantitative autonomic test, quantitative sensory test, vibration and temperature threshold test, to validated questionnaires. For diagnosis of autonomic neuropathy questionnaires have been developed to investigate orthostatic symptoms and their severity in dysautonomic conditions, although they have not been specifically validated for CAN and validated translations in different languages are lacking. Present treatment of diabetic neuropathy is depending on the management of glycemic, oxidative stress, and vascular and neural risk factors. As evident from such complicated processes, inhibition of single metabolic factors might not be sufficient for the treatment of neuropathy, but a combination of several inhibitors might be a promising approach to overcome this serious disorder. The purpose of this review article is to give an overview of the pathological mechanisms, diagnosis and treatment that has ever been done in diabetic neuropathy.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Methods : Medline database (1980–2017) searches were performed to provide a comprehensive, review of the literature regarding diabetic neuropathy. Terms combined with diabetic neuropathy were neuropathology, pathogenesis, pathophysiology, epidemiology, diagnosis, and treatment options for peripheral and autonomic neuropathy.

Results : The search resulted in 175 articles. Several epidemiological studies assessed diabetic neuropathy among patients with diabetes and reported prevalence almost 20–30 million worldwide. Randomized clinical trials have been conducted of several medications and classes of medication in patients with diabetic peripheral neuropathy, and the U.S. Food and Drug Administration has approved a few drugs for diabetic peripheral neuropathy. Several published studies reported that diabetic neuropathy impairs quality of life. Some studies revealed that diabetic neuropathy can be managed symptomatically with an array of drugs, regimen, and exercise.

Conclusion : Diabetic neuropathy is a many-faceted complication of diabetes that can be managed symptomatically with an array of drugs, regimen, and exercise.

Keywords : Diabetes, Neuropathy, Pathology, Diagnosis, Treatment

Count: 528

Abstract ID: 703

subject: Development: Neurogenesis and Gliogenesis

Presentation Type: Poster

Effect of extract of spirulina algae on differentiation of BMSCs to neuron like cells invitro

Submission Author: Banafshe Esmaeilzade

Banafshe Esmaeilzade¹, Maria Zahiri², Gholamhossein Mohebbi³

1. Bushehr university of medical sciences.
2. Bushehr university of medical sciences
3. Bushehr university of medical sciences

Background and Aim : Bone marrow mesenchymal stem cells are one of a variety of adult stem cells that have ability to differentiate into different phenotype cells of their precursor cells. spirulina alga is native to the Persian Gulf, and today its oral supplements are used to protect the brain and reduce fatty liver. In this study, has been investigated the effect of spirulina algae extract on the differentiation of mesenchymal bone marrow stem cells into neuronal-like cells invitro.

Methods : Bone marrow stem cells were extracted and cultured with flushing method. Then, cells were classified in BMSC group without any intervention factor, the BMSC group with EGF and FGF, and the BMSC group with spirulina extract at various doses of 50,100, 125,150,200 ng. After four weeks , was evaluated nestin as cell differentiation marker by flowcytometry

Results : MTT test showed that Spirulina alga extract was not toxic for cell culture, but only 150 and 200 ng doses prolonged cell survival significantly. Cells were differentiated into neuronal-like cells in the BMSC group with 200 ng of Spirulina but not significant in other groups

Conclusion : Spirulina algae extract is not toxic to the cells in the culture medium, and effect of it on differentiation of BMSC cells into neuronal-like cells is dose dependent

Keywords : Bone marrow mesenchymal stem cells, Spirulina algae, Neuronal like cells.

Count: 529

Abstract ID: 434

subject: Development: Neurogenesis and Gliogenesis

Presentation Type: Poster

Altered Expression and Localization of GDNF in Developing Hippocampus of Neonatal Rats due to Maternal Diabetes Mellitus

Submission Author: Mahsa Mohasel Roodi

Mahsa Mohasel Roodi¹, Akram Sadeghi², Mohammad Mehdi Hassanzadeh Taheri³, Javad Hami⁴, Hadi Asghari⁵

1. 1. Department of Anatomical Sciences, School of Medicine, Birjand University of Medical Sciences, Ghaffari St, Birjand, Iran.
2. 2. Cellular and molecular Research Center, Birjand University of Medical Science, Birjand , Iran1. Department of Anatomical Sciences, School of Medicine, Birjand University of Medical Sciences, Ghaffari St, Birjand, Iran.
3. 1. Department of Anatomical Sciences, School of Medicine, Birjand University of Medical Sciences, Ghaffari St, Birjand, Iran.
4. 2. Cellular and molecular Research Center, Birjand University of Medical Science, Birjand , Iran
5. 3. Institute of Microstructure Technology (ITM), Karlsruhe Institute of Technology Karlsruhe, Germany.

Background and Aim : Diabetes Mellitus is one of the most prevalent metabolic disorders (1-3) characterized by hyperglycemia(3). Diabetes in pregnancy has various adverse outcomes on different organs development including the central nervous system (CNS)(1, 3, 4) and it can cause learning deficits, behavioral problems and motor dysfunctions in the offspring(1, 2, 4, 5). Hippocampus is an integral part of the limbic system (1, 5), which plays a pivotal role in memory formation, emotional, adaptive, and reproductive behaviors (1, 5). Survival and cell proliferation in hippocampus (4, 5)are affected negatively by metabolic disturbances (both hyper- and hypoglycemia) (1). Many studies stated that hippocampal differentiation and neuronal maturation occur between postnatal days 0 and 14 (P0 -P14) (6)

Methods : Even though neuronal death has also known the main leading cause of diabetic CNS and peripheral neuropathies (7), the exact mechanism of neuronal death in type 1 diabetes mellitus has not been completely understood yet(4, 5). Glial cell-line derived neurotrophic factor (GDNF) is members of the transforming growth factor- β (TGF β) family (8, 9)that along with its receptor components (GFR α 1 and Ret) (10, 11) play important role in multiple processes in neuronal

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

cells(12) including survival, migration, neurite outgrowth, formation of synapses and neuronal plasticity (7, 9, 13, 14)

Results : In one study by RT-PCR experiments, researchers indicate that GDNF reaches a maximum level during two first weeks after birth(6, 15), which may suggest that a crucial role for this factor in myelination, synapse formation and layer formation(6, 16).

Conclusion : Regarding above mentioned facts, since hippocampus is one of the important parts in the brain for memory/learning, processing information about spatial locations and is sensitive to change glucose concentration; on the other hand GDNF is essential for the development and maintenance of the nervous system, this study aimed to investigate effect of maternal diabetes on hippocampal mRNA expression and distribution pattern of GDNF in dentate gyrus (DG) of rat neonate at post-natal days 14(p14).

Keywords : Rat neonate- Diabetes Mellitus - GDNF- Hippocampus - Dentate gyrus

Count: 530

Abstract ID: 504

subject: Development: Neurogenesis and Gliogenesis

Presentation Type: Poster

The effect of working memory rehabilitation on the improvement of Neurogenesis in children with epilepsy

Submission Author: Saharsadat Nazm bojnourdi

Saharsadat Nazm bojnourdi¹

1. Department of cognitive science , Faculty of Psychology and Educational Sciences , Research committee of Ferdowsi university , Mashhad , Iran

Background and Aim : The working memory is a temporary system that retrieves information during the implementation of cognitive tasks such as perception, learning, and argumentation of long-term memory. This recovery mechanism works differently in people. In the study of people with epilepsy, the focus of which is the hippocampus, memory retrieval has undergone considerable changes. This can observe in the destruction of hippocampal neurons during epileptic seizures and their relationship with working memory. In addition, these dilemmas can reduce the chance of producing new neurons. The purpose of this paper is to investigate the effect of working memory rehabilitation on the improvement of neurogenicity of hippocampus in children with epilepsy based on research evidence.

Methods : This case-control study performed 30 children with epilepsy with average of 10 years in Mashhad. Subjects were selected using available sampling and diagnosed with neurologist. The working memory performance determined by error score using the work memory (n-back) test and executive functions that included the error components, the reaction time of the third stage of the Stroop test, and the number of Wisconsin test card categories. After a pre-test in a two-month period with an average of 8 hours of training as a n-back test, as well as cognitive rehabilitation and memory enhancement strategies as games and entertainment, the subjects re- back was taken. Results: The results showed that there was a significant difference between the patient's working memory tests .

Results : Neurogenesis can be a factor in the positive changes in working memory, which closely related to rehabilitation in the process of treating the brain as a unit, which affects your particular

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

position, the hippocampus. The brain's application areas are likely to allow the retrieval and development of neurons during the rehabilitation process.

Conclusion : Given the available evidence, rehabilitation in children with epilepsy can consider as a pathway to improve memory processes, which, structurally, increases the chance of plasticization and neurogenesis.

Keywords : Rehabilitation, Hippocampus, Working memory, Epilepsy, Neurogenesis

Count: 531

Abstract ID: 538

subject: Development: Neurogenesis and Gliogenesis

Presentation Type: Poster

Analysis of the SLIT2 protein in the rat cerebrospinal fluid during development

Submission Author: Afsaneh Zargarani

Afsaneh Zargarani¹, Mohammad Nabiouni², Mehrouz Dezfoulian³

1. Karaj Islamic Azad University
2. Kharazmi university
3. Karaj Islamic Azad University

Background and Aim : The early ventricular system with its architecture surrounding midline structures and expansion to the brain cortex, and fluid flow play dramatically a great role in the development of the central nervous system. The cerebrospinal fluid comprises distinct concentrations of variety of motogenes, mitogens, morphogenes, and many other essential growth factors and neurotrophines that are effectively programming the neural cell fates and thus brain architecture. SLIT2 a member of SLIT family of chemorepellents is famous for its role in midline crossing during axonal growth and arborization. Previous studies indicated the presence of SLIT2 mRNA in the neural cells and Choroid plexus during development. In the present study the presence of SLIT2 protein in the cerebrospinal fluid of the fourth ventricle of the brain is investigated, and to whether there is any perceivable fluctuations in the concentration of this protein.

Methods : Based on ethics, over 1500 rat fetuses during embryonic days(E) 16-20 were applied to cerebrospinal fluid extraction from the cisterna magna region of the brain with glassy micropipettes. The pure cerebrospinal fluid specimens subsequently were centrifuged (1500 rpm for 3-5 min) and stored in -80 degree Celsius for 2-3 months. The sandwich ELISA protein assay was applied respectively for both technical and experimental repeats. The repeats were 3-8 times according to the restrictions of specimen's volume which were due to fetal sizes.

Results : The ELISA assay indicated that there are noticeable concentrations of SLIT2 during E16, E17, and E20. Besides there are countable concentrations of SLIT2 during E18, and E19. There was a rise from E16 to E17, almost the concentration was doubled. From E17 to E18. there was a

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

dramatic fall, so close to unmeasurable amount . A gradual rise from E18 to E19 was observed. From E19 to E20 a sharp rise almost at the same concentration of E17 was perceived.

Conclusion : The ELISA assay clearly revealed the presence of SLIT2 protein in the cerebrospinal fluid of the fourth ventricle of the brain during embryonic days 16-20 of fetal development. Furthermore, there were obviously perceivable fluctuations in the concentrations measured during this assay both in experimental and technical assays that suggest there should be a pattern of protein expression in the fourth ventricle that could be due to the role of SLIT2 protein in the different developmental stages.

Keywords : SLIT2, chemorepellent, motogene, cerebrospinal fluid, central nervous system development

Count: 532

Abstract ID: 217

subject: Development: Synaptogenesis and Activity-Dependent Development

Presentation Type: Oral

Morphometric plasticity of nitric oxide containing neurons in the barrel cortex of de-whiskered rats

Submission Author: Mohammad Reza Afarinesh

Mohammad Reza Afarinesh¹, Gila Behzadi²

1. Kerman Cognitive Research Center and Kerman Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
2. 1- Functional Neuroanatomy Lab. , Neurophysiology research center , Department of Physiology. , Fac. Med. , Shahid Beheshti Med. Sci. Univ. , Tehran, Iran

Background and Aim : The rodent somatosensory barrel cortex is an ideal model to examine the effect of experience-dependent plasticity on developing brain circuitry. Sensory deprivation such as whisker deprivation may affect neuroanatomical aspects of the brain during developmental processes. The present study designed to investigate the possible effects of whisker deprivation on the morphometric characteristics of NADPH-d positive neurons in the barrel field cortex of adolescent rats.

Methods : Pups were divided into the intact (n=4) and whisker-deprived groups (n=4). In whisker-deprived group, the total whiskers of subjects were trimmed every other day from postnatal day (PND) 0 to PND 60. NADPH-d histochemistry reaction was processed to quantitatively analyze the feature of NADPH-d containing neurons of barrel cortex.

Results : Our results showed that the number of NADPH-d positive neurons remained unchanged in whisker-deprived group. However, the mean soma diameter, dendritic length and the number of 3rd order processes were significantly decreased in the whisker-deprived rats ($P<0.05$).

Conclusion : Our results indicate that postnatal whisker deprivation possibly alter NADPH-d/NOS neuronal features in the barrel cortex. The functional implications of these data may relate the plasticity of synaptic receptive field and developmental brain circuits.

Keywords : Barrel cortex, Nitric oxide, Plasticity, Whisker deprivation

Count: 533

Abstract ID: 87

subject: Development: Synaptogenesis and Activity-Dependent Development

Presentation Type: Oral

Postnatal development changes in excitatory synaptic activity in the rat locus coeruleus neurons

Submission Author: Masoumeh Kourosh Arami

Masoumeh Kourosh Arami¹, Saeed Semnanian², Sohrab Hajizadeh³

1. Department of Basic Sciences, Faculty of Allied Medicine, Iran University of Medical Sciences, Tehran, Iran.
2. Department of Physiology, School of Medical Sciences, Tarbiat Modares University, Tehran, Iran.
3. Department of Physiology, School of Medical Sciences, Tarbiat Modares University, Tehran, Iran.

Background and Aim : Glutamatergic synapses are shown to mature during activity and development. In order to further explore how glutamate can change the excitability of noradrenergic neurons of locus coeruleus (LC) and to better understand the involvement of Amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA) and N-methyl-d-aspartate (NMDA) receptors complements across the LC, we investigated developmental changes in their activity during first postnatal weeks.

Methods : Spontaneous and evoked excitatory postsynaptic currents (sEPSC and eEPSCs) were recorded in neurons of LC slices from 7, 14 and 21 days old rats using the whole cell patch clamp method. Also, the AMPA/NMDA current ratio (A/N) was measured.

Results : A pronounced AMPAR and NMDAR components mediated involvement in synaptic transmission were seen from the first postnatal week. Over this period of development, we have demonstrated that AMPA sEPSCs show an increase in frequency without major changes in their amplitude, while NMDA sEPSCs show an increase in frequency with a major change in amplitude. Neither the probability of release nor the AMPA/NMDA ratio was found to change significantly with age.

Conclusion : It is concluded that NMDAR activity, as well as AMPAR activity may be involved in coerulear excitability and modulatory effect during postnatal development.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Locus coeruleus, AMPA EPSCs, NMDA EPSCs, Postnatal development

Count: 534

Abstract ID: 281

subject: Development: Evolution of Developmental Mechanisms

Presentation Type: Poster

The effects of nano-silver and garlic administration during pregnancy on neuron apoptosis in rat offspring hippocampus

Submission Author: Maryam Lal ataei

Maryam Lal ataei¹, Ali Reza Ebrahimzadeh-bideskan²

1. Department of Anatomy and Cell biology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Department of Anatomy and Cell biology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Background and Aim : The aim of this study was to investigate the effects of nano-silver and garlic administration during pregnancy on neuron apoptosis in rat offspring hippocampus.

Methods : Fifty pregnant wistar rats were randomly divided into five groups: 1- nano- silver (N.S) group; 30 mg/kg of N.S treated via gavage. 2- Control (C) group, administrated with distilled water via gavage. 3- N.S and garlic (N.S+G) group; N.S (30 mg/kg) and garlic juice (1 ml/100 g) treated via gavage simultaneously. 4- Garlic group (G); garlic juice (1 ml/100 g) administrated via gavage, 5- normal (N) without any intervention. All the interventions were done during pregnancy (21 days). Finally, the brains of rat offspring were removed to use for nano-silver level measurement and TUNEL staining. The mean of TUNEL positive cell numbers per unit area (NA) in different regions of hippocampus were compared in all animal groups.

Results : The results revealed a significant increase of hippocampus nano-silver level in N.S and N.S+G groups comparing to N group ($P<0.05$) and a significant decrease in nano-silver level in N.S+G group comparing to N.S group ($P<0.01$). The number of TUNEL positive cells in the CA1, CA3, and DG fields of rat offspring hippocampus increased in N.S and N.S+G groups comparing to other ones, and also reduced significantly in N.S+G group comparing to N.S group ($\forall P<0.01$).

Conclusion : Our results showed that co-administration of nano-silver and garlic during pregnancy may lead to reduce nano-silver induced apoptotic cells in their offspring hippocampus.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Apoptosis Garlic Hippocampus Nano-silver

Count: 535

Abstract ID: 751

subject: Development: Evolution of Developmental Mechanisms

Presentation Type: Poster

An Investigation of the Learning Probability Distributions Mechanism in Infants Using an Eye-Tracking Technology

Submission Author: Atefeh Zabihi

Atefeh Zabihi¹, Javad Hatami², Mohamadali Besharat³, Farzad Ramezani⁴, Narjes Hoseinzadeh Bahreini⁵

1. shahid beheshti university
2. Tehran university
3. Tehran university
4. Tehran university
5. Tehran university

Background and Aim : Statistical learning is a learning style which mainly causes an individual to unconsciously extract probabilities in the environment, generalize them, and turn them into a subjective rule in order to finally interact with the environment based on them. This learning style emerges in the early hours of birth, and infants use it to make inferences about the frequencies of the environment. Accordingly, they can interact with the environment, parents and other important individuals.

Methods : In this study, an experimental task was designed to show the subjects two geometric shapes, one with high frequency and the other one with low frequency, on a monitor. The visit duration and coordinates of each subject were recorded by the eye-tracking technology.

Results : The findings of ANOVA with repeated measures indicated that there was a significant difference between the total visit duration and total fixation duration in shapes with different frequencies ($p < 0.05$).

Conclusion : According to the research findings, it can be concluded that the statistical learning mechanism is active in infants. Moreover, it becomes more complicated with age, and infants make cognitive interactions with the environment based on this mechanism.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : learning probability distributions; eye tracking technology; statistical learning; infant

Count: 536

Abstract ID: 743

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

Neuro-immune changes following ethyl mercury treatment on prefrontal cortex of neonatal male wistar rats

Submission Author: Kobra Afsordeh

Kobra Afsordeh¹, Abdollah Amini², Yosef Sadeghi³

1. Department Anatomy, Faculty of Medicine, Tonekabon branch, Islamic Azad University, Tonekabon, Iran
2. Shahid Beheshti University of Medical Science, Tehran, Iran
3. Shahid Beheshti University of Medical Science, Tehran, Iran

Background and Aim : There are many increasing evidences that show heavy metals such as mercury influences the function of neuro – Immune cells and these maybe led to several neuro – immune abnormalities . However , it is unknown whether ethyl mercury, a kind of mercury , alters neuro – immune cells activation and numerical density in prefrontal cortex and whether these alterations are lasting . so in this study we evaluated the neuro – immune cells including microglia and mast cells , and the cytokines that contribute to neuro –inflammation , including interleukin-1b (IL-1b) and tumors necrosis factor (TNF), at different time frame in the prefrontal cortex of infant rats .

Methods : 72 neonatal Wistar male rats were randomly distribute din to six groups , including : A ;experimental groups 1,2 and 3 which received on postnatal days 7,9,11,15 a single doses of 300 mg /kg ethyl mercury and studied at different time frame 12h (as acute phase) and 8 days (as sub chronic phase) after last injection subrespectively B; vehicle groups received only PBS (ph = 7.4) and C ; control groups that didn't received any things . After end of experiment , the samples from the prefrontal cortex were collected and prepared for soteriol gical and molecular studies .

Results : The average microglial cell density and mast cells number appeared mark e dly Increased in prefrontal cortex , 12 and 48 and 8 days after last ethyl mercury injection ($p < 0.001$). this increase was more dominant in 8 days ($p < 0.05$). Neuro – inflammatory cyto kines alterations include increase in interleukin – 1b (IL – 1b) and tumor necrosis factor (TNF) was also seen in all time frame ($p < 0.05$). and ($p < 0.05$). this increase was more dominant at 48h post injection ($p < 0.05$)

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Ethyl mercury like other kind of mercury causes neuroimmune abnormalities. These include abnormal increase of neuroimmune abnormalities . these include abnormal increase of neuroimmune cell density and upregulation of chemokines and cytokines such as interleukin – 1b , and tumor necrosis factor . this may be linked to the pathogenesis of many neuro developmental disorders.

Keywords : ethyl mercury,neuro-immune cells,prefrontal cortex

Count: 537

Abstract ID: 312

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

The effect of joint attention training (JAT) on the language index and social interaction in children high functioning autism in the Gorgan city

Submission Author: Atena Darvishi

Atena Darvishi¹, Parviz . Sharifi Daramadi ²

1. Main author
2. Colleague

Background and Aim : The purpose of this study was to investigate the effectiveness of teaching community attention on linguistic indices and social interactions in autistic children with high performance. The statistical population of this study included all children referred to autism treatment centers in Gorgan in spring 1396.

Methods : The sample of 16 patients (8 controls, 8 subjects) was selected from among the centers of autism in Gorgan, Iran and voluntarily. They were divided into control and test groups. The method of this research was semi-experimental (pretest-posttest with unequal control group). A questionnaire for Social Interaction Questionnaire (Garz-2) and Told's Speech Development Test (told-p:3) were used for data collection. After the pretest, interventional therapy (community attention education) was presented to the experimental group during 12 sessions of 90 minutes. After the end of the training program, both groups were tested. For data analysis, covariance analysis was used.

Results : The results showed that training of community attention on linguistic indices and social interactions in high-performance autistic children is effective. ($P>05/0$).

Conclusion : The teaching of community attention in autism treatment centers is one of the effective ways to improve the performance of language indicators and social interactions of autism children.

Keywords : high-performance autistic children; community-based learning; linguistic indices; social interactions

Count: 538

Abstract ID: 61

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

Picture Naming Skill in Persian Speaking Children with Specific Language Impairment: Study of Psycholinguistic Factors

Submission Author: Fatemeh Hassanati

Fatemeh Hassanati¹, reza nilipour², Zahra Sadat Ghoreish³, Mohammad Momenian⁴

1. Department of Speech Therapy, University of Social Welfare and Rehabilitation Sciences, Student Research Committee, Tehran – Iran
2. Department of Speech Therapy, University of Social Welfare and Rehabilitation Sciences, Tehran– Iran
3. Department of Speech Therapy, University of Social Welfare and Rehabilitation Sciences, Tehran– Iran
4. Department of Applied Linguistics, Tarbiat Modares University, Tehran- Iran

Background and Aim : Word retrieval problem is seen in many developmental disorders including specific language impairment. In Iran, most studies on children with specific language impairment focused on syntax and morphology, and there are a few studies on lexical access. It is, therefore, the aims of the present study were investigation of naming latency and the effect of psycholinguistic factors on it in children with specific language impairment. This study is the first report of the effect of psycholinguistic factors on picture naming skills on Persian speaking children with and without specific language impairment to our best knowledge, could be essential for future research on developmental disorders. Furthermore, this data could be useful for differential diagnose between children with and without language disorder with regard to word retrieval.

Methods : Twenty 7- to 9-year-old children with specific language impairment (8 girls and 12 boys, with mean age of 8.1) and twenty 7- to 9-year-old Persian-speaking normal children (8 girls and 12 boys, with mean age of 8.3), as control group, participated in this study. Picture naming set was used for this study includes 128 simple black and white pictures. Picture naming set was displayed by using DMDX Software.

Results : Investigation of the effect of psycholinguistic factors on naming latency indicated that children with specific language impairment named pictures more slowly. By using Linear Mixed Effect modeling that based on investigation of subject and item, the best obtained model for

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

prediction of naming latency is “reaction time ~ percentage name agreement + age of acquisition + (1 + percentage name agreement + age of acquisition | subjects) + (1 | items)” for normal children, and “reaction time ~ percentage name agreement + log frequency + (1 | subjects) + (1 | items)” for children with specific language impairment.

Conclusion : These results indicated that speed of correctly picture naming in children with specific language impairment is lower than in normal peers, which may be due to slow general data processing speed and/or language problems of such children. In addition, name agreement had a significant effect on naming latency performance in both groups. There was a difference between two groups of children in the effect of age of acquisition and word frequency, which needs further investigation in future.

Keywords : Children; Naming accuracy; Naming latency; Psycholinguistic factors; Picture Naming Set; Specific Language Impairment

Count: 539

Abstract ID: 19

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

Diabetes during Pregnancy Alters the Lectins Affinity in the Hippocampus of rat offspring

Submission Author: Ghasem Ivar

Ghasem Ivar¹, Javad Hami², Mehran Hosseini³

1. 1Department of Anatomical Sciences, School of Medicine, Birjand University of Medical Sciences, Birjand, Iran.
2. 1Department of Anatomical Sciences, School of Medicine, Birjand University of Medical Sciences, Birjand, Iran.
3. 2Department of Public Health, Deputy of Research and Technology, Research Centre of Experimental Medicine, Birjand, Iran.

Background and Aim : There is growing evidence indicating that diabetes during pregnancy causes extensive cellular and molecular changes in the developing hippocampus of offspring. Nevertheless, no study has evaluated its effects on lectin affinity in hippocampal nerve cells. Lectins are a group of natural carbohydrate-binding proteins that interact and bind with specific sugar residues of glycoproteins and glycolipids present on the cell surface and intracellular structures; which can serve as potential target molecules for developmental studies including nervous system. Hence, the aim of the present study was to elucidate the effects of maternal diabetes on the pattern of lectins affinity in the hippocampus of rat offspring during the first postnatal two weeks, equivalent to the third trimester in human gestation

Methods : Wistar female rats were maintained diabetic from a week before gestation through parturition and their male pup's brains were collected at postnatal days (P); P0, P7 and P14. The mean reaction intensity of Peanut agglutinin (PNA), Soybean agglutinins (SBA) and Ulex europaeus agglutinin (UEA) lectins in four distinct sub-regions of hippocampus (CA1, CA2, CA3 and DG) were separately measured using NIH image software, Image J (version 1.48) and these results were used for statistical analysis.

Results : Lectins affinity showed variety of reaction intensities in different hippocampal subfields. At the P0, PNA affinity only decreased in CA1 of diabetic group when compared with the offspring

Basic and Clinical 6th NEUROSCIENCE Congress 2017

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

of control dams ($P<0.05$). At the same postnatal day, SBA affinity significantly decreased in CA1, CA2 and CA3 ($P<0.05$, each); and UEA affinity declined only in DG. At the P7, all the hippocampal subfields were intensively reacted with UEA. Nevertheless, PNA and SBA reaction intensity significantly increased in CA1 and DG and markedly decreased in CA3 of diabetic pups ($P<0.05$, each). Two weeks after birth, PNA reaction markedly increased in CA1, CA2 and DG and decreased in CA3 ($P<0.05$, each). Similarly, SBA affinity increased in CA1 but decreased in both of CA2 and CA3. The UEA reaction intensity increased in CA1 and DG but did not reveal difference in CA2 and CA3.

Conclusion : The results of current study provide evidence indicating that different hippocampal subfields of rat offspring express various carbohydrate residues due to maternal diabetes during pregnancy. It might be useful for further studies on neuronal development of newborns born to diabetic mothers.

Keywords : Maternal Diabetes, Hippocampus, Lectins, Immunohistochemistry .

Count: 540

Abstract ID: 603

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

Modern Presentations of ADHD in terms of Frequency Bands in Quantitative Electroencephalography (QEEG): Modern Theoretical Approach

Submission Author: Naimeh Mashinchi Abbasi

Naimeh Mashinchi Abbasi¹, Touraj Hashemi², Mohammad Ali Nazari³

1. Ph.D., Cognitive Neuroscience, Faculty of Educational Sciences and Psychology, University of Tabriz
2. Ph.D., Professor, Psychology, Faculty of Educational Sciences and Psychology, University of Tabriz
3. Ph.D., Associate Professor, Cognitive Neuroscience, Faculty of Educational Sciences and Psychology, University of Tabriz

Background and Aim : The present study aimed to review the Attention-Deficit/Hyperactivity Disorder (ADHD) presentations based on brain frequency bands through Quantitative Electroencephalography (QEEG).

Methods : In order to determine the differences between modern theories in diagnosis and classification of ADHD review method was used.

Results : Theoretical review revealed that although The Diagnostics and Statistical Handbook for Mental Disorders (DSM-5) defines three ADHD clinical phenotypes: attention difficulties, hyperactivity/impulsivity and the combined subtype, recently, a QEEG spectrum classification of ADHD population has been developed defining four main subtypes: I subtype (abnormal increase of delta-theta frequency range centrally or centrally-frontally), II subtype (abnormal increase of frontal midline theta rhythm), III subtype (abnormal increase of beta activity frontally), and IV subtype (excess of alpha activities at posterior, central, or frontal leads).

Conclusion : Although this classification has been implied in various studies, comprehensive investigation is needed so that it could be established in diagnosis. The present review illuminates the theoretical and experimental basis of the QEEG spectrum classification of ADHD.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : ADHD, Quantitative Electroencephalography (QEEG), I subtype, II subtype, III subtype, IV subtype

Count: 541

Abstract ID: 365

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Oral

Bumetanide in Children and Adolescents with Autism Spectrum Disorder

Submission Author: Raheleh Mollajani

Mehdi Tehrani-doost¹, Raheleh Mollajani², Mohammad Taghi Joghataee³, Farnaz Ghassemi⁴, Ahmad Delrobaee⁵

1. Institute for Cognitive Science Studies, Tehran, Iran. Department of Psychiatry, Roozbeh Psychiatric Hospital, Tehran University of Medical Sciences, Tehran, Iran; Tehranid@tums.ac.ir
2. Institute for Cognitive Science Studies, Tehran, Iran
3. Institute for Cognitive Science Studies, Tehran, Iran. Department of Anatomy, Iran University of Medical Sciences, Tehran, Iran
4. Department of Biomedical Engineering, Amirkabir University of Technology, Tehran, Iran.
5. Institute for Cognitive Science Studies; Tehran, Iran.

Background and Aim : Autism spectrum disorder (ASD) is characterized by impairments in social communication and restricted interests or stereotyped behaviors. Interventions are based on multimodal approach including pharmacotherapy. There is no cure medication so far. Therefore, there have been studies investigated several drugs for treating individuals with ASD. One of the recent medications introduced for this purpose is bumetanide. The aim of this report is to review the efficacy of this drug on core symptoms of ASD and potential side effects.

Methods : All papers reported the pharmacokinetic, pharmacodynamics, efficacy, and adverse effects of bumetanide on animal models and humans with ASD were reviewed based on the main database including the PubMed, Web of Science, and Scopus.

Results : Cortical neurons have high (Cl⁻)_i and excitatory actions of GABA in the valproate animal model of ASD and Fragile X mice. Bumetanide which has firstly been introduced as a diuretic, is a high affinity-specific NKCC1 antagonist that reduces (Cl⁻)_i. It has been found that bumetanide attenuates behavioral features of autism in both animal and human models. Studies have also shown that this medication can activate fusiform face area in individuals with ASD while

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

viewing emotional faces. Also recent findings suggested that the dose of 1 mg twice daily appears to be the best compromise between safety and efficacy.

Conclusion : Recent studies provide evidences that bumetanide can be considered as a novel pharmacological agent in treating core symptoms of ASD. Future studies needs to be done to confirm the efficacy of this medication in individuals with ASD.

Keywords : Bumetanide, diuretic, Autistic Spectrum Disorder

Count: 542

Abstract ID: 457

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

Positive effects of transcranial direct current stimulation on reduction of ADHD-like symptoms in a child with autism spectrum disorder

Submission Author: Maryam Najafi

Maryam Najafi¹, mahdie radmard²

1. Azarbaijan Shahid Madani University
2. Azarbaijan Shahid Madani University

Background and Aim : Transcranial direct current stimulation (tDCS) is a non-invasive technique that can modulate the excitability of neurons in the brain. The objective of this study was to investigate the impact of anodal tDCS on behavioral problems in children with autism spectrum disorder (ASD).

Methods : An ABA case study design was used on an eight- year- old autistic boy with ADHD. The subject received 2 mA anodal tDCS stimulation for 20 min, 5 days per week, for two weeks. The child's behavior was assessed by parent version of the Conners' questionnaire, during baseline period, intervention period and follow up period respectively. Data were analyzed via visual inspection. Clinically significant change was also calculated using a reliable change index (RCI).

Results : A significant improvement on the Conners' Parent Questionnaire was observed at the end of tDCS intervention compared with baseline. Indeed conduct disorder (15.78%), social problems (33%), anxiety-shy problems (16%) and psychosomatic problems (50%) displayed reliable improvement.

Conclusion : The Results indicated that tDCS was associated with reduced ADHD-related behavioral symptoms. Therefore it may be considered as a non-pharmacological Intervention in individuals with co-occurring ADHD and ASD.

Keywords : Transcranial Direct Current Stimulation, behavioral problems, autism spectrum disorder, ADHD.

Count: 543

Abstract ID: 469

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

Transcranial Direct Current Stimulation could improve social interactions in Autism Spectrum Disorder

Submission Author: Maryam Najafi

Maryam Najafi¹, mahdie radmard²

1. Azarbaijan Shahid Madani University
2. Azarbaijan Shahid Madani University

Background and Aim : Transcranial direct current stimulation (tDCS) is a non-invasive technique that can modulate the excitability of neurons in the brain. The objective of this study was to investigate the impact of anodal tDCS on symptoms of autism spectrum disorder.

Methods : An ABA case study design was used on an eight- year- old boy with autism spectrum disorder. Anodal tDCS stimulation was applied at a current intensity of 1.5 mA for 20 min/day over 15 days (5 days per week) with anode over the FP1, and cathode over the F4, according to the standard 10–20 EEG System. Severity of autism symptoms was evaluated by a Gilliam Autism Rating Scale (GARS) consisted of four subscales: social Interactions, communication, stereotyped behaviors and Developmental Disturbances. Data were analyzed via visual inspection and Clinical Significance.

Results : Our finding showed clinically significant improvement about 53.84% for social Interactions, which indicates that social Interaction was enhanced following tDCS.

Conclusion : tDCS can be effective in some symptoms of the autism. Among the behavioral symptoms of the sample, social interactions were acceptable. This result may be helpful to develop future interventions aiming at clinical benefits.

Keywords : Transcranial Direct Current Stimulation (tDCS), Autism Spectrum Disorder, Social Interactions.

Count: 544

Abstract ID: 590

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

Adolescence behavior problems in families of children with autism ; ASD

Submission Author: Alireza Nazem bafghi

Alireza Nazem bafghi¹

1. writer , presentor, searcher

Background and Aim : Adolescence is a unique developmental period, usually between the ages of 12 and 18, characterized by physical and emotional growth and significant maturation cognitive and social skills. In this time, a young person is developing into an adult. Studies show that the level of an adolescence's behavior problems leads to psychological distress in parents of children with autism. Psychological acceptance was found to act as a mediator variable which tries to end quarrels between people by discussion, for maternal anxiety, depression and stress and also for paternal depression.

Methods : Social development in adolescence is crucial and extremely important because everything else depends on it. That's why this time can be a particularly vulnerable period of those with Autism Spectrum Disorder and is of crucial importance in growing or changing those children into someone stronger or more advanced. As we know children with ASD are defined as an intense focus on in certain objects or topics, they give special attention to one particular person or thing it can be our aim to shift their attention on issues which are more vital. These young children have emotion regulation difficulties, too. Studies show that they do not understand or think of something or someone in a particular way and do not perceive themselves as having impairments in regulating their emotions. These results support the idea that emotion dysregulation is an important problem within autistic children.

Results : Family functioning would predict the level of stress in parents and paternal quality of life. There are several points about these families who are suffering from having an autistic child, which we can refer to some of them: 1-Their child had a medical diagnosis of childhood autism and it took time and energy. In other words they have to be patient to deal with that kind of life. These parents have been experiencing the process of discovering exactly what is wrong with their child, they examine their child closely and after sometime they become tired of doing that.

Basic and Clinical 6th NEUROSCIENCE Congress 2017

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Sometimes they see no change at all and fed up. 2-Some of these children have intellectual disability. Having said that, now and then, these children are not interested in serious idea and subjects such as science, literature etc. moreover they do not have the ability to understand things and think intelligently. 3-Their children live at home with them. Many parents like their children to spend more and more time away from home to experience new world. For instance, the world is being transformed by information. There are love, anger and other things which everyone should feel. We should learn that in the real world, things are never quite so simple.

Conclusion : Parenting stress can be lowered through diagnostic and therapeutic facilities and we also can make them feel calm and relaxed. On the other hand, we can help them through psychological and educational counselling centers, schools and parent associations. These days, we see organizations that consist of groups who have the same aims and try to exchange their feelings with autistic children.

Keywords : Adolescence; ASD; autism; Parenting stress

Count: 545

Abstract ID: 455

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

A review of neurofeedback functionality in children whit dyspraxia

Submission Author: Saharsadat Nazm bojnourdi

Saharsadat Nazm bojnourdi¹

1. Department of cognitive science , Faculty of Psychology and Educational Sciences , Research committee of Ferdowsi university , Mashhad , Iran

Background and Aim : Introduction & Objective: Para praxis is a common disorder among 2 to 10 percent of children. This disability applying tasks already learned is normal, in spite of motor function and sensory function. Adjuvant disorders are commonly associated with sensory processing and integration, developmental coordination disorder, attention - deficit hyperactivity disorder and anxiety problems. Learning motor skills in these individuals is slow and in fact, the affected child has a weakness in the stage of conception or motion planning and turning ideas to motion or in the implementation. The purpose of this article is to evaluate the efficacy of neurofeedback in Para praxis patients based on research evidence.

Methods : Methods: This study is a review type. For accessing articles related to the study purpose, the library and digital resources, the Persian Journals Bank, the medical science center and Google Scholar with key words; Neurofeedback, Dyspraxia, Neurofeedback were searched. Only seven Persian and English related articles retrieved based on the keywords from 2010 to 1395.

Results : Results: A review of related articles revealed that neurofeedback, as a link between mind and body, can provide an opportunity for patients to view motion sequences in their minds and increase their attention to eye clues. In addition, neurofeedback can reduce the level of dependence on verbal recommendations by increasing self-confidence and reducing anxiety. It also plays an important role in improving motor function. Neurofeedback as an effective treatment increases brain capability and improves control of motor planning by positive effect on brain waves as Self-consciousness. Neurofeedback can significantly reduce the deficiency symptoms of motor skills and reduce the functional errors of children.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Conclusion: Based on the available evidence, a preliminary form of the use of neurofeedback to reduce the symptoms of the disorder, as well as the increase in motor learning for the treatment of Para praxis symptoms are suggested.

Keywords : Neurofeedback, Para praxis , Children

Count: 546

Abstract ID: 379

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Oral

The Role of Mirror Neurons in Autism

Submission Author: Parham Pooladgar

Parham Pooladgar¹, Bahar Naghavi²

1. Medical Student, School of medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
2. Molecular Geneticist, Assistant Professor of Department of Basic Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Autism spectrum disorder (ASD) has exponentially gained public attention due to its increasing prevalence in the population. The myriad of symptoms that characterize ASD, such as social deficits, impairments in verbal and non-verbal communication, repetitive or restrictive behaviors, abnormal social interaction, and restrictive specialized interests make it a complex disorder. In 2010, it was estimated that 1 in 150 children were affected and in 2015 that rate increased to approximately 1 in 50. Following mirror neurons (MNS) discovery in the 1990s, they have become a dominant theory for that MNS may play a critical role in the pathophysiology of various symptoms of autism.

Methods : This article was searched by key words; Mirror neurons, Autism, Social learning in Pubmed , google scholar and science direct.

Results : The Mirror neurons has been found associated with empathy, social reciprocity, verbal and non-verbal communication, language, and several others. These functions parallel symptoms observed in ASD. The neurons play a role “action execution” and “action observation”. It is also studied that representational granularity of the motor system is not different from the mechanism of mirroring during action execution. According to many mirror neuron research experts, these neurons in humans extend through the dorsal and ventral premotor cortex, somatosensory system, and thalamus. Mu suppression has been extensively studied in relation to MNS in the past few years. This suppression has been found to be associated with action observation. Various studies support the concept that mirror neurons communicate through a series of network pathways involving connections between the amygdala-hippocampal circuit, caudate nuclei, the cerebellum, and frontal-temporal regions, and surprisingly these networks are found to be damaged in autism

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

and ASD, which is important in the pathophysiology of MNS with autism. The MNS was activated in response to both self-generated and observed actions, gestures and emotional responses. This process has been described as a 'mirror mechanism'. Some scholars have suggested that this mirror mechanism is disrupted in ASD, leaving individuals with ASD without this automatic flow of shared felt experiences of self and other behaviours. Other studies however have challenged the notion of a global MNS impairment in ASD.

Conclusion : Individuals with autism have difficulties in social learning domains which typically involve MNS activation. However, the precise role of the MNS in the development of autism and its relevance to treatment remain unclear. Mirror neurons damage or alteration could be associated with autism, and this theory of mirror neuron involvement could describe the pathophysiology of many symptoms of autism in great detail in the near future after more research is brought to surface. Furthermore, available data on MNS abnormalities in ASD leave open the question of whether these findings indicate (i) an initial MNS disruption as a starting state in ASD, (ii) the effects of atypical social attention to social stimuli or (iii) downstream neuropsychological effects of an altered.

Keywords : Mirror neurons; Autism; Social learning

Count: 547

Abstract ID: 468

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

The Effectiveness of Transcranial direct current stimulation (tDCS) on executive functions deficits in autism spectrum disorder

Submission Author: Mahdiyeh Radmard

Mahdiyeh Radmard¹, maryam najafi²

1. Azarbaijan Shahid Madani University
2. Azarbaijan Shahid Madani University

Background and Aim : Autism Spectrum Disorder (ASD) is a complex neurodegenerative disease. Appropriate and timely therapeutic treatment can significantly improve autism symptoms. The purpose of this study was to investigate the effect of transcranial direct current stimulation (tDCS) on executive functions in children with autism spectrum disorder.

Methods : An A-B-A single case study design was used. The participant was a 10-year-old autistic boy. The participant received tDCS stimulation for 20 min at an intensity of 2 mA, 6 days per week, for two weeks. Executive functions were assessed by Coolidge Personality and Neuropsychological Inventory. prior to tDCS stimulation (pre-test), one day (post-test) and 14 days (follow up) after the end of tDCS treatment. The electrode montage used was position T7 (anode) / T8 (cathode) from the 10-10 system. Data were analyzed via visual inspection, Reliable Change Index (RCI), and Clinical Significance.

Results : The results showed tDCS efficacy on the executive functions. RCI and clinically significant improvement were found for 78.26% on decision-making- planning, 73.91% on organization and 62.5% on inhibition

Conclusion : It can be concluded that tDCS can be an effective treatment for some autism symptoms, such as executive function deficits

Keywords : Transcranial direct current stimulation (tDCS), Executive function, Autism

Count: 548

Abstract ID: 776

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Oral

**study of channelrhodopsin knock in to the anterior cingulate cortex
excitatory neurons and optogenetic stimulation on the clinical behaviors in
autism-like animal models.**

Submission Author: Elham sadat Sayed javad javaheri

Elham sadat Sayed javad javaheri¹, Mohammadreza Bigdeli², Mohmmad Esmaeil Zibaei³, Leila Dargahi⁴

1. Shahid beheshti university
2. Shahid beheshti university
3. Shahid beheshti university
4. Medical Shahid beheshti university

Background and Aim : Autism (ASD) is neurodevelopmental spectrum disorder caused by genetic and epigenetic agents. ASD leads to various parts of the brain changes, in particular deficit in the structure and function of the prefrontal cortex. Two main clinical features of that include deficits in social interactions and repetitive behaviors. As a main epigenetic factor result in autistic like disorder can be pointed to stress in sensitive moments of life, especially early maternal separation. The aim of this study was to investigate the effect of glutaminergic neurons activity enhancement in Cg1 region of anterior cingulate cortex as a part of medial prefrontal cortex on behavioral modification of autistic-like rats.

Methods : In this research, twenty four Wistar rats were studied in three separate groups. Each group has eight members. To create autistic-like model in two groups, the process of separating the child from the mother at PND1 to PND10 days, three hours daily, was carried out. The members of control group, in this period of time, stayed next to their mothers. Then, to investigate the behavioral changes induced by effective interventions, Optogenetic technic using vector (plenty-CamKII-chR2 (h134R) -mchrry), to increase the activity of glutaminergic neurons in the Cg1 region of the anterior cingulate cortex (ACC), as an independent variable in the autistic-like group was used. To evaluate the interventional variable, the negative control group and another autistic-like group, as a sham group, also received vector (plenty-CamKII-mchrry). After passed time required for the expression of virus and six days duration of bilateral ACC region stimulation,

with blue laser radiation in freely moving animals, behavioral tests include of open field test, for Measuring the amount of rearing and repetitive behaviors and stranger test, for evaluating the trend of rats to Communicate with a stranger's rat , were recorded

Results : The studies indicated a significant reduction in self grooming duration as a repetitive behavior and a dominant increase in rearing, as a search activation, also significant increase in trend of rat to stranger rat relative to familiar one, in the autistic-like group with chr2 compare with sham group. ($p \leq 0.05$). However, there was no meaningful discrepancy between the chr2 carrier group and the negative control group. Therefore, functional impairment of the ACC glutaminergic circuits plays an important role in the occurrence of autistic-like behaviors

Conclusion : So that by increasing the performance of this circuit with optogenetic intervention, the clinical behaviors of autism disorder in autistic-like rat was improved.

Keywords : autism, optogenetic, maternal separation, behavior, excitory Neuron, anterior cingulate cortex

Count: 549

Abstract ID: 438

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

Speech and language development in children with Williams syndrome

Submission Author: Elham Seihei

Elham Seihei¹, Fazlollah Shahraki², Alireza mollaei³

1. speech language Pathologist.Email: elhamseihei@gmail.com
2. M.Sc. Cognitive Scientist- Educational Neuroscience; Zahedan University Of Medical Sciences.
3. Doctor of physiotherapy student

Background and Aim : Williams syndrome (WS) is a rare genetic disorder characterized by heart disease, failure to thrive, hearing loss, intellectual or learning disability, speech and language delay, gregariousness, and non-social anxiety. The WS psycholinguistic profile is complex, including relative strengths in concrete vocabulary, phonological processing, and verbal short-term memory and relative weaknesses in relational/conceptual language, reading comprehension, and pragmatics. Many children evidence difficulties with finiteness marking and complex grammatical constructions. Speech-language intervention, support, and advocacy are crucial.

Methods : Science Direct, Pubmed, CINAHL, PsycINFO, ProQuest, Web of Science, and Google Scholar (2010 through 2017) were searched for English-language studies using a list of keywords. The books about Speech therapy, medicine and rehabilitation interventions were studied too.

Results : WS has been put forward as the archetypal evidence for dissociations between cognitive and linguistic skill, with some suggesting “exquisite mastery” of syntax and vocabulary in the context of pronounced nonverbal cognitive deficits. Recent investigations provide a more nuanced view of the relationship between language and cognition. For a start, the onset of first words and phrases is almost always delayed in WS. Once words have appeared, the pattern of linguistic strengths and weaknesses closely mimics those observed in nonverbal cognition. Let’s look at this in a little more detail.

Conclusion : Early communication therapy is vital for getting children started in the right direction. Ongoing intervention emphasizing relational language, pragmatics, grammar, phonics, and reading comprehension will maximize the ability of children with WS to participate in and

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

benefit from educational opportunities. Thus, the SLP's role in treating this population and in elucidating the strengths and weaknesses of children with WS for other members of academic and intervention teams is critical

Keywords : WS, SLP, speech-language development

Count: 550

Abstract ID: 454

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

Childhood Apraxia of Speech

Submission Author: Elham Seihei

Elham Seihei¹, Fazlollah Shahraki², Alireza mollaei³

1. speech language Pathologist.Email: elhamseihei@gmail.com
2. M.Sc. Cognitive Scientist- Educational Neuroscience; Zahedan University Of Medical Sciences.
3. Doctor of physiotherapy student

Background and Aim : Childhood apraxia of speech (CAS) is “a neurological childhood speech sound disorder in which the precision and consistency of movement underlying speech are impaired in the absence of neuromuscular deficits. There is a problem with motor planning in CAS; the child knows what he or she wants to say, but there is a deficit in the motor planning/ coordination of the articulators necessary to say it. Alternative terms for this problem include developmental verbal apraxia or dyspraxia.

Methods : Science Direct, Pubmed, CINAHL, PsycINFO, ProQuest, Web of Science, and Google Scholar (2010 through 2017) were searched for English-language studies using a list of keywords. The books about Speech therapy, medicine and rehabilitation interventions were studied too.

Results : The population prevalence of CAS is estimated at 0.1%, and that false positive diagnostic rates run at 80% to 90%. In other words, CAS is a rare disorder and children with other kinds of speech problems are very often misdiagnosed as having CAS. One important fact to note is that CAS affects not only speech sounds, but prosody, particularly stress and timing, as well. And since prosody occurs only in connected speech, it does not make sense to make a diagnosis of CAS unless there is enough continuous speech to judge whether prosody is affected. For this reason, our approach is to counsel caution in diagnosing this disorder.

Conclusion : Research suggests that speech disorders tend to improve in these children as they reach school age, while language and literacy problems may persist. The danger of CAS as a diagnostic category lies in the tendency to lead clinicians to ignore the language needs of these children to focus on speech production or AAC exclusively. Thus, the clinician needs to ensure

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

that adequate assessment of language content and use, as well as literacy is made, even if speech is the most obvious presenting complaint.

Keywords : Childhood Apraxia, Language, AAC

Count: 551

Abstract ID: 423

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

Broken Mirrors and Autism

Submission Author: Fazlollah Shahraki

Fazlollah Shahraki¹, Elham Seihei², Firoozeh Nasiri³

1. M.Sc. Cognitive Scientist- Educational Neuroscience; Zahedan University Of Medical Sciences. Email: shahraki.f@hotmail.com
2. Speech – language Pathologist
3. Educational Psychology

Background and Aim : Autism is a neurodevelopmental disorder characterized by impaired social interaction, impaired verbal and non-verbal communication, and restricted and repetitive behavior. Although there is no reliable neurophysiological marker associated with ASDs, dysfunction of the parieto frontal mirror neuron system has been suggested as a disturbance linked to the disorder. Mirror neurons (MNs) are visuomotor neurons which discharge both when performing and observing a goal directed action. Research suggests MNs may have a role in imitation, empathy, theory of mind and language.

Methods : Science Direct, Pubmed, CINAHL, PsycINFO, ProQuest, Web of Science, and Google Scholar (2010 through 2017) were searched for English-language studies using a list of keywords. The books about Psychology, Neuroscience and medicine were studied too.

Results : Studies of the mirror neuron system can help know the causes of autism, a mental developmental disorder and help the researchers to find out a way to treat it. Studies of people with autism show a lack of mirror neuron activity in several regions of the brain. Mirror neurons may enable humans to see themselves as others see them, which may be an essential ability for self-awareness and introspection. The dysfunctional mirror neurons can create absence of empathy, language deficits, poor imitation, and many other disorders.

Conclusion : It can conservatively be stated that the results of most studies indicate dysfunction in mirror neuron system of autistic people. More experimental data with more advanced neural imaging techniques are required to support mirror neuron system.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : mirror neurons, Autism, broken mirror

Count: 552

Abstract ID: 13

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

Designing an Artificial Neural Network (ANN) Model for Predicting the Risk of Autism Spectrum Disorder

Submission Author: Mohammad Taheri

Mohammad Taheri¹, Milad Fallahian², Mir Davood Omrani³, Rezvan Noroozi⁴, Mehrdokht Mazdeh⁵

1. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
2. Faculty of Civil Engineering, Amirkabir University of Technology, Tehran, Iran
3. Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
4. phytochemistry research center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
5. Department of Neurology, Hamadan University of Medical Sciences, Hamadan, Iran.

Background and Aim : Autism Spectrum Disorder (ASD) is known as one of the most common neurological disorders during childhood, which brings considerable pain and financial consequences as well as necessity of heavy health care load. The genetic contribution of this disease has been variously discussed. Having a precise detection system would significantly decline the severity of these problems and sharply improve the prognosis of affected child. Considering all these points and the fact that no currently early prediction system exists, here we take advantage of Artificial Intelligent in neurological disorders, as by recruiting couple sparse coding (CSC) algorithm, to have an early diagnosis and prediction model via a non-invasive approach.

Methods : The mouthwash samples were collected from Iranian ASD patients and healthy controls (500 cases and 500 control). DNA was extracted. Then, based on genetic characterizations of each selected gene (Name of the involved genes is RIT2, CACNA1C, VMAT1, GRM7, GABA, SNAP25, FOXP3 and RORA), an RFLP or Tetra-ARMS PCR method was utilized to study the different status between ASD patients and controls. Data was gathered and presented as an input in our improved CSC system to construct the final coding algorithm for each class of affected or control groups.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : After completing the training of the system, it was found that by giving a new input to it, this model was able to detect the health status of the people with 72% accuracy. Moreover, one can figure out that by maximization of the sample size, the accuracy will be subsequently increased.

Conclusion : We displayed an Artificial Neural Network (ANN), possessing high accuracy to predict the health detection between ASD and control individuals, based on genetic characteristics.

Keywords : Autism, ANN, CSC

Count: 553

Abstract ID: 128

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

Introduction of paper test of performance layer of Magnocellular and Parvocellular pathways and analysis of the performance relation of these pathways with reading.

Submission Author: Kiana Taseiri

Kiana Taseiri¹

1. Shahid Beheshti University

Background and Aim : A few of researchers are stating that visual deficiencies are related to reading difficulties. However, the results of researches conducted about visual difficulties of people suffering from Dyslexia are few and controversial. Because of the difficulties of using computer forms, paper test network performance passages of Magnocellular and Parvocellular layers were used for comparative analysis of these passages in children having reading difficulties.

Methods : the current research was of eventual or causative nature. The sampling method of the group having reading difficulties was of common type and was done as being accessible. The criterion of selecting 31 male subjects with a range of 8-11 years old in the control group and 21 male subjects in the same age group from among those who had reading difficulties(dyslexia). Their ability in reading correctly in Farsi was (APRA: a standard deviation lower than mean). The paper test of network performance layer – network passages for the analysis of Magnocellular and Parvocellular was done by measuring the rate of contrast between brightness and red-green colors, the Farsi reading measurement test (APRA) for the measurement of reading performance (speed and accuracy of reading), comprehension and reading errors and psychophysical performance of Magnocellular(RDK).

Results : the findings indicated that the contrast in brightness in the group suffering from dyslexia was significantly higher than the controlled group. However, in the red-green contrast, there was not any significant difference. Also, there was a significant relation between the selected brightness contrast and the speed and accuracy of reading, comprehension and also visual and audio errors.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

There was also a significant relation between the results of psycho-physical test of Magnocellular performance with speed reading and comprehension and audio-visual errors.

Conclusion : the results indicated that the paper test of visual process was acceptable. Also, the individual's Magnocellular system having dyslexia was significantly more insufficient than normal ones. However, there was not a significant difference in both groups' Parvocellular system. As a result, Magnocellular rehabilitation will probably improve the performance of reading for those individuals who suffer from dyslexia.

Keywords : Magnocellular, Parvocellular, the group suffering from dyslexia

Count: 554

Abstract ID: 748

subject: Development: Neurodevelopmental Disorder (ADHD, Autism, Learning Disorders)

Presentation Type: Poster

Prenatal exposure to ethosuximide treatment alters the arborization of rat CA3 hippocampal neurons

Submission Author: Farahnaz Yazdanpanah

Farahnaz Yazdanpanah¹, Farahnaz Yazdanpanah faraghe², Sahar Rezaei³, Parisa Yarmohammadi-Samani⁴, Mojgan Joybar⁵, Jafar Vatanparast⁶

1. -
2. Department of Biology, College of Sciences, Shiraz University, Shiraz, Iran
3. Department of Biology, College of Sciences, Shiraz University, Shiraz, Iran
4. Department of Biology, College of Sciences, Shiraz University, Shiraz, Iran
5. Department of Biology, College of Sciences, Shiraz University, Shiraz, Iran
6. Department of Biology, College of Sciences, Shiraz University, Shiraz, Iran

Background and Aim : We have earlier showed that ethosuximide treatment during prenatal period impairs spatial learning and memory and learning in adult rats. Hippocampus critically contributes to spatial learning and memory, so in this study, neuronal density and morphology of pyramidal neurons were assessed in the hippocampus of offspring the mothers receiving ethosuximide.

Methods : Timely pregnant Wistar rats were randomly allocated to the treatment, sham and control groups. Rats in the treatment group were given a daily dose of 20 mg/kg of ethosuximide dissolved in saccharine solution from the 15th day of pregnancy until the post-natal day (PND) 7. Animals in sham group were given 0.5 g/kg of saccharine solution with the same scheme, and in control group received tap water through the same time period. On PND 60 male and female rats were sacrificed for histological procedures of Golgi-Cox and Cresyl Violet staining, respectively for investigating morphological characteristics and density of neurons.

Results : No significant neuronal loss was detected in any hippocampal subfields of treatment and sham animals, but a significant decrease in neuronal arborization within CA3-terminal region was observed in male ETX rats compared to control rats.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The effect of ETX on the pyramidal neurons in the rat hippocampus may contribute to the spatial memory impairment observed after prenatal ETX exposure.

Keywords : Ethosuximide, hippocampus, rat, neuronal density, neuronal morphology, Golgi-cox staining

Count: 555

Abstract ID: 460

subject: Development: Aging

Presentation Type: Poster

The effects of melatonin on brain aging mitochondria

Submission Author: Leila Hosseini

Leila Hosseini¹, Reza Badalzadeh²

1. Department of Physiology, Faculty of Medicine, Tabriz University of Medical Sciences,
2. Department of Physiology, Faculty of Medicine, Tabriz University of Medical Sciences

Background and Aim : Aging is associated with the loss of functions at the level of the whole organism and it is a complex process characterized by the progressive failure of maintenance and repair pathways important for cellular homeostasis, which results in a gradual accumulation of dysfunctional macromolecules and organelles. These aging processes contain oxidative stress and oxidative damage, chronic and acute inflammation, mitochondrial dysfunction and loss of neural regeneration. Brain aging is one of the important characteristics of the aging development which is associated with behavioral deficits, memory loss, mitochondrial dysfunction and cognitive impairment. Mitochondria are key elements in cells providing energy to preserve normal cell function. Mitochondrial dysfunction is one of the chief causative factors in aged process. Decrease in respiratory complex activity, increase in free radical production, reduce in mitochondrial synthase activity, increase in nitric oxide production, and impair in electron transport system and/or mitochondrial permeability are considered as the main factors responsible for mitochondrial dysfunction. Melatonin (N-acetyl-5-methoxytryptamine), the key product of the pineal gland, has been shown neuroprotection properties. melatonin production declines with advancing age. Melatonin is recognized for its antioxidant capacity and anti-inflammatory effects against oxidative insults by scavenging free radicals and activating the antioxidant enzymes as well as by suppressing the expression of cytokines and inflammatory mediators. Melatonin is selectively take up by the mitochondria and preserves mitochondrial homeostasis, decreases free radical generation and protects mitochondrial ATP synthesis via stimulating Complexes I and IV activities.

Methods : NON METHOD

Results : Melatonin, with antioxidant and anti-inflammatory well documented positive effects in contrast to brain mitochondrial dysfunction with age

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : These studies confirm that reduction melatonin levels contribute to the aging process and melatonin administration can ameliorate mitochondrial dysfunction during elderly.

Keywords : Aging Brain; mitochondrial; melatonin

Count: 556

Abstract ID: 569

subject: Development: Aging

Presentation Type: Poster

Nutrition status and its relationship with depression in elderly people

Submission Author: Monir Nobahar

Monir Nobahar¹, Narges Arsalani ², Raheb Ghorbani ³, Naim Sadat Kia ⁴, Maryam Etemadi ⁵

1. Nursing Care Research Center, Faculty of Nursing and Midwifery, Semnan University of Medical Sciences, Semnan, Iran.
2. Iranian Research Center on Aging, Department of Nursing, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
3. Social Determinants of Health Research Center, Department of Community Medicine , Faculty of Medicine, Semnan University of Medical Sciences, Semnan, Iran
4. Social Determinants of Health Research Center, Department of Community Medicine , Faculty of Medicine, Semnan University of Medical Sciences, Semnan, Iran
5. Semnan University of Medical Sciences, Semnan, Iran

Background and Aim : There is some evidence indicating that nutritional status of elderly has a significant impact on their physical health, but its relationship with their mood, especially depression, requires careful and systemic consideration. The aim of this study was to determine the relationship between nutritional status and depression in elderly people.

Methods : In this descriptive cross-sectional study, 260 elderly individuals from the city of Semnan (Iran) were enrolled in 2015, with considering the inclusion and exclusion criteria. The data collection tool was questionnaire scales that briefly assess the demographic and nutritional status with mini nutritional assessment (MNA) and depression with geriatric depression scale (GDS).

Results : Results indicated that 5.8% (n=15) had malnutrition, 53.1% (n=138) were at the risk of malnutrition and the other 41.2% (n=107) were normal. Also 21.9% (n=57) were at severe depression (20-30), 34.2% (n=89) had mild depression (10-19) and the other seniors 43.8% (n=114) were not depressed. Remarkably, there was a significant negative correlation (R= -0.594, P <0.001) between the healthy nutritional status and the depression.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The finding showed that more than half of the elderly people in Semnan were at risk of malnutrition. The association of nutritional status with depression was significant in the elderly. The identification and basic planning are needed to revise and improve the nutritional status of this important group with vulnerable mental status.

Keywords : Aged; Nutritional Status; Depression

Count: 557

Abstract ID: 575

subject: Development: Aging

Presentation Type: Poster

Effects of Treadmill exercise and antioxidant extracts on IL6 and TNF- α in cerebellar of old rats

Submission Author: Hasan VAHDAT

Hasan VAHDAT¹, rahman SOORI², shima ABABZADEH³

1. correspond
2. coworker
3. coworker

Background and Aim : The use of plant extracts and exercise for the treatment of diseases and metabolic disorders among the population has increased. The aim of this study was to evaluate the combined effects of exercise and intake of rosemary extract on cerebellar tissue levels of TNF- α and IL6 in male old rats.

Methods : 40 male of 18 months Wistar rats were selected with an average weighing 350-450 g and randomly divided into five groups, control, sham (treadmill off and distilled water gavage), training (12 weeks, 5 days a week) extract (12 weeks of daily 100 mg/ kg gavage rosemary extract), extract and practice at the same time, were divided. To evaluate the level of cytokines, 24 hours after the last training session, rats were sacrificed; the cerebellum quickly out of their skulls, after homogenization, to measure the amount of TNF- α and IL6 ELISA techniques were used.

Results : Data showed that decreased by %15 to %23 in the TNF- α protein in the treated groups compared to the sham and control, however, this decrease was not significant. Also results showed a significant increase in the amount of IL6 in the exercise and extracts group compared to the sham and control groups ($P < 0.05$). Also was observed a significant increase in extract and practice at the same time compared to control and sham ($P < 0.001$).

Conclusion : According to the study, it seems that aerobic exercise and consumption of rosemary extract to reduce inflammation and increase of anti-inflammatory factors in the elderly can be effective, however combining these two better results.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Aging, Treadmill exercises, antioxidant extract, TNF- α , IL6

Count: 558

Abstract ID: 691

subject: Development: Other

Presentation Type: Poster

Pre-gestational parental stress influences vasopressin plasma levels of offspring

Submission Author: Negar Azizi

Negar Azizi¹, Maryam Mahmoodkhani², Dr.Shiva Roshan-Milani³, Dr.Ehsan Saboory⁴, Zafar Gholinejad⁵, Naseh Abdollahzadeh⁶

1. Student Research Committee,Urmia University of Medical Sciences,Urmia,IRAN
2. Department of Physiology,School of Medicine ,Urmia University of Medical Science
3. Neurophysiology Research Center,Urmia University of Medical Science,Urmia,Iran
4. Neurophysiology Research Center,Urmia University of Medical Science,Urmia,Iran
5. Department of Biochemistry,School of Medicine ,Urmia University of Medical Science
6. Department of Physiology,School of Medicine ,Urmia University of Medical Science

Background and Aim : Anxiety disorders are among the most common mental disorders, with up to 15% of all people suffer from an anxiety disorder during their lifetime. Prenatal stress is associated with later-life symptoms of anxiety, helplessness, attentional deficits and social withdrawal in both humans and animal models. It has been shown that both male and female prenatally stressed offspring display significantly enhanced HPA axis responses to acute stressors in later life, reflected by greater stress-induced ACTH and corticosterone secretion and increased levels of vasopressin. Vasopressin is involved in several biological functions in mammals including the regulation, by action in the brain, of stress and anxiety. Vasopressin in the blood comes from the posterior pituitary gland, and therefore reflects activity of magnocellular vasopressin neurons in the supraoptic and paraventricular nuclei. In humans, plasma vasopressin concentration (PVC) increases in response to both stress and pain; and in rodents, central administration of vasopressin produces anxiety-like behaviors. In the present study, effect of predatory stress as a chronic stressor in pre-gestational period of parent rats in PVC of their offspring was investigated.

Methods : Adult rats were divided randomly into two groups [control group (8 male and 8 female) and predatory stressed group (8 male and 8 female)].The predatory stress involved 1- h sessions twice daily (8-9 AM and 3-4PM) in a cage placed within the visual range of a caged cat (50 day

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

for males and 15 day for females, according to their spermatogenesis and oogenesis period), then rats were paired. Then female stressed rats were paired with male stressed rats (parent stressed group) and the male non-stressed rats were paired with non-stressed female (control group). After parturition their pups were investigated in two groups: control pups and parent stressed group. On postnatal 30-31 day blood samples were collected from the control and parent stressed pups to determine PVC levels, using ELISA method.

Results : Our data demonstrated that pre-gestational stress altered HPA axis activity in offspring, which influenced PVC levels. PVC levels of offspring were significantly increased from 68.39 pg/ml in control pups to 111.49 pg/ml in parent stressed pups ($p < 0.05$).

Conclusion : Pre-gestational stress can increase serum PVC levels of offspring similar to which occurred in prenatally exposed stress pups. This indicates that stress experienced by parents may alter gene expression in their gametes and embryo potential to stress. However, further investigation is required to clarify the underlying mechanism.

Keywords : predator stress; vasopressin; rat; pre-gestational period; HPA axis

Count: 559

Abstract ID: 4

subject: Development: Other

Presentation Type: Oral

Upregulation of the hippocampal CaM kinase II mRNA in the offspring rats following maternal injection of frankincense

Submission Author: Siamak Beheshti

Siamak Beheshti¹, Azadeh Ghorbanpour Shakakomi²

1. Department of Biology, Faculty of Sciences, University of Isfahan, Isfahan, Iran
2. Department of Biology, Faculty of Sciences, University of Isfahan, Isfahan, Iran

Background and Aim : Frankincense has a putative role on improvement of memory in different experimental models of learning. However, the underlying molecular mechanisms have been less investigated. It has been claimed that protein kinases might be involved in the effects of frankincense. It is known that maternal injection of frankincense during pregnancy or gestation periods leads to the improvement of memory in the offspring rats. Here, we have investigated the effect of maternal injection of frankincense during pregnancy and gestation periods on the gene expression of calcium calmodulin protein kinase II (CAMKII) in the hippocampus of offspring rats.

Methods : Female rats were received two doses (50 and 100mg/kg; Gavage) of aqueous extract of frankincense during pregnancy and gestation periods. 30 days after labor the hippocampi of juvenile rats were removed and frozen in liquid nitrogen, immediately. One sample hippocampus was weighted. Then, tissues were pulverized and homogenized in 200µl phosphate buffer saline and aliquoted into four distinct tubes. Total RNA was extracted using a RNX plus solution and according to the protocol of the kit. A real-time quantitative PCR was used to measure mRNA expression levels.

Results : One-way ANOVA followed by Tukey-Kramer multiple comparisons test indicated significant changes in the expression of hippocampal CAMKII mRNA levels compared to the control group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The results indicate that the beneficial effects of frankincense on memory performance in the offspring rats might somehow be mediated via changes in the expression of hippocampal CAMKII, which is a crucial enzyme in the formation of memory.

Keywords : Calcium calmodulin protein kinase II; Frankincense; Hippocampus

Count: 560

Abstract ID: 565

subject: Development: Other

Presentation Type: Poster

Creatine and Retinoic acid effects on the induction of autophagy and differentiation of Adipose Tissue-Derived Stem Cells into GABAergic-like neurons

Submission Author: Shahram Darabi

Shahram Darabi¹

1. Cellular and Molecular Research Center, Qazvin University of Medical Science, Qazvin, Iran

Background and Aim : While deficit of inhibitory GABAergic neurons as a part of Central Nervous System (CNS) was reported in neurodegenerative disorders, Adipose derived stem Cells (ADSCs) was shown to be a feasible option for transdifferentiation as a transplant in cell therapy in neuronal disorders. In this article, ADSCs transdifferentiated into GABAergic-like Neurons (GLNs)

Methods : Under sterile conditions ADSCs were obtained from pararenal fat of 2 male adult rats. Following third passages of cell culture, ADSCs were preinduced into Neural-Like Cells (NLCs) using 1mM β -mercaptoethanol (β ME) and 10 μ M retinoic acid (RA), and then NLCs were induced by creatine(Cr) in 1, 5, 10, 20 millimolar for 5 days. In induction stage, the effects of creatine on differentiation were studied by anti Nestin and GABA antibody immunostainig. The role of GABARAP, LC3 and P62 autophagy genes in transdifferentiation were assessed by RT-PCR.

Results : Immunocytochemical studies on ADSCs using CD49d indicated that cultured cells were ADSCs. Preinduction stage results showed that RA10 μ M after 2 days, has the best effect on differentiating the ADSCs to NLCs. Immunostaining after induction stage showed high percentage of neural and GABAergic markers (GABA) using 10 mMol creatine after 5 days. ADSCs were expressed P62 but preinduced cells expressed P62, LC3 and GABARAP autophagy genes.

Conclusion : In the present study, we have demonstrated that ADSCs can be efficiently preinduced into NLCs under 1mM β ME and 10 μ M RA conditions. Moreover, these NLCs induced by 10mM creatine for 5 days and differentiated into GLNs that could expressed nestin and GABA neural

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

markers. GABARAP, LC3 and P62 Autophagy genes expressed by preinduced cells, indicated autophagy might have a role in the transdifferentiation of ADSCs into NLCs.

Keywords : GABAergic-like cell, Adipose derived stem cells, Creatine, Autophagy.

Count: 561

Abstract ID: 498

subject: Development: Other

Presentation Type: Poster

Relationship between Theory of Mind and Language Skills in Children with Dyslexia

Submission Author: Chiman Saeedi

Chiman Saeedi¹, Seyyed Mohsen Hojatkah², Asieh Moradi³

1. MA in Psychology
2. Razi University
3. Razi University

Background and Aim : Theory of mind (ToM) is the cognitive capacity to recognize the internal states of self and others such as desires, beliefs, emotions and intentions. Language and theory of mind are deeply inter-connected aspects of human cognition. Language is fundamentally a social tool that allows us to share thoughts with one another. Data from previous studies on theory of mind development in children suggest that language plays a key role in acquiring an understanding of mental states. Many neurodevelopment disorders include deficits in language and communication skills in their diagnostic criteria, such as dyslexia. The objective of this study was to investigate relation between theory of mind and language skills in children with dyslexia. Dyslexia is a difficulty in learning to read that cannot be accounted for by low IQ, poor educational opportunities or obvious sensory or neurological damage. This findings along with the other researches that indicate a linkage between language and theory of mind lead us to the fact that this relationship among this group of children must be investigated. Therefore this study aimed to shed some light on this issue.

Methods : The research was descriptive-correlational study. The sample consisted of 60 dyslexic children in the range of 7 to 9 years old were selected from sanandaj learning disorder centers via available sampling. 38-item ToM test was used for measuring theory of mind and the test of language development (TOLD-P:3) was used to examine the language skills. In order to analyze data, Pearson correlation coefficient was carried out.

Results : Data suggest that second level, third level and total score of theory of mind was positively correlated with language skills in children with dyslexia.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The finding supports a deep connection between language and theory of mind. In other words, competent language skills and higher level of theory of mind are associated together in dyslexic children. Communication requires the ability to generate and interpret linguistic signals, as well as the ability to infer the beliefs, desires, and goals of others.

Keywords : Theory of mind, Language skills, Dyslexia

Count: 562

Abstract ID: 267

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Evaluation of anti-inflammatory effects of 1,2-Diaryl-2-hydroxyiminoethanone derivatives using carrageenan test in rat

Submission Author: Niusha Abedi

Niusha Abedi¹, Mahsa Rajabi², Hamid Irannejad³, Nima Naderi⁴

1. Student Research Committee, School of Pharmacy, Shahid Beheshti University of Medical Sciences
2. Student Research Committee, School of Pharmacy, Shahid Beheshti University of Medical Sciences
3. Department of Medicinal Chemistry, Faculty of Pharmacy, Mazandaran University of Medical Sciences
4. Department of Pharmacology and Toxicology, School of Pharmacy, Shahid Beheshti University of Medical Sciences

Background and Aim : The non-steroid anti-inflammatory drugs (NSAIDs) are important class of pharmacological agents used for reducing pain and inflammation. Despite of introducing many compounds of this class to market, there is still need for new drugs with more potency and fewer side effects. Previous studies revealed substantial anti-inflammatory effects from 1,2-Diaryl-2-hydroxyiminoethanone derivatives in animal models. The 1,2-diaryl-2-hydroxyiminoethanones have the stilbenoid-like structure and were considered as one of the main class of anti-inflammatory agents and potent cyclooxygenase inhibitors. In this study, the effects of seven newly synthesized 1,2-Diaryl-2-hydroxyiminoethanone compounds (namely JC1B-JC5B, HK1B, and HK3B) were investigated in carrageenan-induced edema in rats.

Methods : Rats were randomly selected in 5-8 groups and received either vehicle (control group) or one of the seven 1,2-Diaryl-2-hydroxyiminoethanone derivatives (40 mg/kg) by intraperitoneal (i.p.) administration. One group also received celecoxib (i.p; 40 mg/kg) as standard anti-inflammatory treatment. Paw volume was measured immediately before and 3 and 4 hours after carrageenan injection into rat hind paw.

Results : The results showed that rats treated with JC4B or with celecoxib showed significant decreased in carrageenan-induced edema 3h later compared with the control group. Also, rats treated with either JC5B, HK1B, or celecoxib showed significant decrease in carrageenan-induced paw edema 4h later compared with the control group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our results suggest that 1,2-diaryl-2-hydroxyiminoethanones containing methoxy or methyl-thio substitution could be considered as potential therapeutic agents with anti-inflammatory activities.

Keywords : Key words: 1,2-diaryl-2-hydroxyiminoethanones derivatives; anti-inflammatory; carrageenan; rat

Count: 563

Abstract ID: 705

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Long-Term Treatment by Vitamin B1 and Reduction of Hyperalgesia, and Paw Edema in Adjuvant-Induced Arthritis

Submission Author: Akhtar Akbari

Akhtar Akbari¹

1. Functional Neurosurgery Research Center of Shohada' Tajrish Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Background and Aim : Introduction Inflammation can result in tissue damage and loss of function in the long term (Rodriguez-Vita, & Lawrence, 2010). Inflammatory factors lower the membrane thresholds and sensitize the specialized sensory neurons that comprise the nociception pathway leading to pain and disability, the principal clinical features of inflammation (Inglis et al., 2005). Rheumatoid arthritis, characterized by chronic synovitis, progressive joint damage, and significant pain disability, is the most common form of inflammatory arthritis. Complete Freund's adjuvant (CFA) is used for induction of an arthritic immune-pathological condition that mimics many pathological features of human RA (Billiau & Matthys, 2011). This model has been used extensively, not only for analyses of the cellular and molecular aspects of RA, but also for evaluation of the anti-inflammatory and antinociceptive effects of newly developed drugs on chronic arthritis (Lee et al., 2009; Martin & Eisenach, 2001). In CFA-induced inflammation, there is a distinctive biphasic inflammatory response termed. proinflammatory molecules and their receptors has emerged as a powerful tool for the control of many systemic inflammatory disorders in the past few years (Garfield et al., 2005). The high cost of acquiring synthetic drugs, their inadequate supplies, side effects associated with drug administration (Carpenter, early (acute) and late (chronic) phases (Philippe et al., 1997; Taniguchi et al., 2004). Unbalanced production of acute phase proteins and proinflammatory cell-mediated cytokines such as IL-1, IL-6, and TNF- α are considered as the main reasons for hyperalgesia and edema induction in acute and chronic inflammatory situations (Fonseca, Santos, Canhao, & Choy, 2009). Using biological therapies targeting key 1997), and believing in therapeutic effect of vitamins in many disease conditions (such as pain and inflammatory conditions) have led researchers and health care providers to use vitamins and vitamin products in recent years (Basu & Dickerson, 1996; Edmonds et al., 1997). Vitamins are rich sources of substances, which induce nonspecific immunomodulatory responses

(Rossato, Hoffmeister, Tonello, de Oliveira Ferreira, & Ferreira, 2015). Vitamin B1, more commonly known as thiamin, is a member of the B vitamin family. Several studies have demonstrated the antinociceptive and anti-inflammatory effects of B vitamins in different animal pain models (Bartoszyk & Wild, 1990; Jurna, 1998; Moallem, Hosseinzadeh, & Farahi, 2008; Reyes-García, Medina- Santillán, Terán Rosales, Mateos-Garcia, & Castillo- Henkel, 1999; Tadano et al., 1995). In this regard, suggested anti-inflammatory effect for vitamin B family, we aimed to assess the effect of vitamin B1 administration on the proinflammatory cytokines, edema, and hyperalgesia during the acute and chronic phases of adjuvant-induced arthritis in male Wistar rats.

Methods : Methods: On the first day of study, inflammation was induced by intraplantar injection of complete Freund's adjuvant (CFA) in the hindpaws of rats. Vitamin B1 at doses of 100, 150, and 200 mg/kg was administrated intraperitoneally during 21 days of the study. Antinociceptive and anti-inflammatory effects of vitamin B1 were also compared to indomethacin (5 mg/kg). Inflammatory symptoms such as thermal hyperalgesia and paw edema were measured by radiant heat and plethysmometer, respectively

Results : Results: The results indicated that vitamin B1(150 and 200 mg/kg) attenuated the paw edema, thermal hyperalgesia, and serum levels of TNF- α and IL-1 β during both phases of CFA-induced inflammation in a dose-dependent manner. Effective dose of vitamin B1(150 mg/kg) reduced inflammatory symptoms compare to indomethacin during the chronic phase of inflammation.

Conclusion : Conclusion: Anti-inflammatory and antihyperalgesic effects of vitamin B1 during CFA-induced arthritis, more specifically after chronic vitamin B1 administration, suggest its therapeutic property for inflammation

Keywords : Inflammation, Hyperalgesia, Vitamin B1, Complete Freund's Adjuvant (CFA)

Count: 564

Abstract ID: 220

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Tanacetum parthenium relieves chronic constriction injury-induced neuropathic pain in male rats

Submission Author: Ali Ghanbari

Ali Ghanbari¹

1. Research Center of Physiology-Semnan University of Medical Sciences-Semnan-Iran

Background and Aim : Background: Neuropathic pain is a chronic developing pain due to injury or disease involving somatosensory system such as vascular disorders, autoimmune diseases, inflammation and traumatic injuries. Herbal medicines were utilized for treatment of various diseases from too late. The aim of this study was to evaluate the effect of Tanacetum parthenium extract on the chronic constriction injury (CCI) induced neuropathic pain in male rats.

Methods : Materials and Methods: in the present study 48 adult male wistar rats weighing 200-250 gram were randomly assigned to six groups. After anesthetizing the animals, Chronic Constriction injury was performed on the left sciatic nerve for inducing neuropathic pain. Tanacetum Parthenium extract intragastrically administered daily for 2 weeks by a gavage tube. Mechanical allodynia and thermal hyperalgesia were assessed using Von Frey hairs and plantar test device respectively.

Results : Results: Chronic Constriction Injury led to mechanical allodynia and thermal hyperalgesia. Tanacetum parthenium extract improved neuropathic pain so that with higher doses used in this study (40 mg/kg) significantly increased ($p<0.001$) paw withdrawal threshold in response to mechanical stimulation. This medication also increased ($p<0.01$) paw withdrawal latency in response to thermal stimulation.

Conclusion : Conclusion: Chronic orally used Tanacetum parthenium extract alleviates CCI-induced neuropathic pain in male rats.

Keywords : Tanacetum, Neuropathic pain, Chronic constriction injury, Rat

Count: 565

Abstract ID: 411

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Effect of ethanol extracts Dill and Lettuce on pain and morphine-induced analgesia in male mice

Submission Author: Kazem Hatami

Kazem Hatami¹, namdar yousofvand², elham bakhtiyari³

1. Department of Biology, Faculty of Science, Razi University, Kermanshah, Iran; email: hatami.kazem313@gmail.com
2. Department of Biology, Faculty of Science, Razi University, Kermanshah, Iran; email: Yousofnam@yahoo.com
3. Department of Biology, Faculty of Science, Razi University, Kermanshah, Iran; email: bakhtiyari.elham2009@gmail.com

Background and Aim : Due to the side effects of chemical drugs and their prices, nowadays medicinal plants are of great interest, Lettuce and Dill are of these plants. In this study compared the antinociceptive effect of ethanolic extract of Dill and Lettuce in male mice by using formalin test.

Methods : In this study, 42 mice was used, in 6 groups: control, morphine, Dill , Dill+ morphine ,Lettuce and Lettuce + morphine . Ethanol extract Dill and Lettuce were used by 100mg/kg dose. In positive control group, morphine 10mg/kg was injected subcutaneously. To obtain pain scores using formalin test with injection of formalin 2/5 % to the fourth finger of the animals right hand.

Results : The results of this study showed that ethanol extract Dill by oral method decreased pain scores in the acute and chronic phases of formalin-induced pain. Concurrent using of ethanol extract of Dill and morphine had dramatic analgesic effect. Oral administration of Lettuce ethanol extract showed significant decrease in pain scores in the acute and chronic phases of formalin-induced pain. This reduction in pain scores was evident in the chronic phase. Group receiving morphine + Lettuce, Lettuce extract increased morphine analgesia effect and lowered pain scores dramatically.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The results of this study confirm the anti-inflammatory and analgesic effects for compounds limonene, carvon and flavonoids present in dill plant. Also this study demonstrated a significant analgesic effect of Iranian lettuce, and supports its using in traditional medicine. May not competitive between analgesic agent of Lettuce extract and opioid pathways.

Keywords : pain , formalin test , ethanol extract, dill, lettuce

Count: 566

Abstract ID: 801

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Biological basis of Pain and Pleasure in the Kitāb Kāmil aṣ-Ṣinā‘a aṭ-Ṭibbiyya (کتاب کامل الصناعة الطبية) "Complete Book of the Medical Art" By the great Persian Physician: Haly Abbas (Ahwazi)

Submission Author: Zeinab JaberZadeh

Zeinab JaberZadeh¹, Majid Anushiravani²

1. Department of Psychology, Torbat-e jam branch, Islamic Azad University, Torbat-e jam, Iran
2. Department of Persian Medicine, School of Persian and complementary medicine, Mashhad University of Medical Sciences, Mshhad, Iran

Background and Aim : Haly Abbas or Ahwazi (? 930-994 CE) the famous Persian physician has described “Pain” as “perception of the inconsistent stimulus”, and “Pleasure” as the “perception of compatible stimulus”. Ahwazi believed that any sensory organ involves in mutual relationships with the sensible things it perceives. Any sensory organ firstly detects and perceives the environmental things; but this is the beginning of a circular causative event.

Methods : In this review, the Arabic manuscript of Kitāb Kāmil aṣ-Ṣinā‘a aṭ-Ṭibbiyya was assessed in order to explore the teachings and opinions of Ahwazi about the biologic basis of pain and pleasure. The internal theme of textual findings was extracted, categorized and interpreted.

Results : After being perceived, the smells, tastes, tangible or visible or audible things -which necessarily contain qualitative operant natures (Namely Mizaj in Persian Medicine literature)- can affect the temperament of the related sensory organ more or less; Which subsequently can lead to strengthening or weakening the potency and sensitivity of the sensory organ. If this influence be highly compatible with the innate healthy temperament of the sensory organ, and promotes its physiologic state, the perception will be felt as a “agreeable” and “joyful” event (Pleasure); and if the effect be highly incompatible with the innate healthy temperament of the organ and disturbs its physiologic state, the perception will be felt as an “disagreeable” and “annoying” event (Pain). For example the rose smell is felt pleasant because it is compatible with the nature of olfaction organ and can strengthen it. On the other hand a harsh non-musical noise felt earsplitting or painful because it’s not fit to the temperament of the auditory organ.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : So the different types and syndromes of pleasure and pain in any sensory organ can be caused by various simple or complex qualitative stimuli; and each one has a special effect on a continuum from the peripheral sensory organ to the brain. Any type of biologic pleasure and pain can indicate the potential benefits and harms of sensible things for perceptive organs. But it is so important that pain and pleasure do not always follow a linear pattern. In fact if a pathologic temperament displace the original temperament, neither pleasure nor pain can be felt as same as healthy state. This theory can help us to suggest some biologic and behavioral ways to improve the healthy state of brain and its sensorial functions through voice and music, visual arts, aromatherapy, tastes, and tactile trainings. It can also explain some phenomenon like tolerance and adaptation via the perspective of Ahwazi, one of the pioneers of Persian Medicine.

Keywords : Ahwazi; Haly Abbas; pain; pleasure; sensory organs; persian medicine

Count: 567

Abstract ID: 137

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Chronic oral Ferulic acid alleviates Streptozotocin induced diabetic neuropathic pain

Submission Author: Somaye Mohammadi

Somaye Mohammadi¹, Masoud Afshari², Mohsen Parviz³

1. Department of Physiology, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Physiology, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran
3. Department of Physiology, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Hyperalgesia is one the universal clinical sign of painful diabetic neuropathy. Ferulic acid, a phenolic compound, displayed antioxidant, anti inflammatory and anti diabetic effects. So it has the potential for being used in individuals with high susceptibility to diabetic neuropathy.

Methods : Thirty two male wistar rats were placed into four groups: 1) control, 2) Ferulic acid treated control, 3) diabetic, 4) Ferulic acid treated diabetic. Diabetes was induced by a single i.p. injection of Streptozotocin (STZ, 50 mg/kg). Three days later, fasting blood glucose levels were determined. Animals were considered diabetic if plasma glucose levels exceeded 250 mg/ dl. The treatment groups received oral administration of Ferulic acid at a dose of 60 mg/kg for 4 weeks. Finally, thermal and chemical hyperalgesia were assessed. The serum oxidative stress markers (MDA, CAT, Nitrite) were also measured

Results : treatment with Ferulic acid for 4 weeks, could significantly reduced pain score in both phases of formalin test and increased tail flick latency in diabetic animals. Administration of ferulic acid also significantly decreased serum level of MDA, CAT and Nitrite. Ferulic acid has no significant effect on body weight of animals

Conclusion : chronic administration of Ferulic acid has an ameliorative effect on some aspects of diabetic neuropathy

Keywords : painful diabetic neuropathy; Ferulic acid; hyperalgesia; oxidative stress.

Count: 568

Abstract ID: 46

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

The effects of ethyl acetate extract of oleo-gum-resin of ferula assa-foetida l. On diabetic neuropathic pain in rats

Submission Author: Samad Nazemi

Samad Nazemi¹

1. Department of Physiology, School of Medicine, Sabzevar University of medical Sciences, Sabzevar, Iran

Background and Aim : Diabetic neuropathic pain is a common complication of both type of diabetes, which does not respond well to the common pain medications. Using medicinal herbs can help in finding new pain medications with more efficacy and less side effects. In this study, we evaluated the effect of ethyl acetate extract of oleo-gum-resin of *Ferula assa-foetida* on the neuropathic pain in streptozotocin (STZ) induced diabetes in male rats.

Methods : In this experiment, 40 male Wistar rats (230-280g) were used. Diabetes was induced by intraperitoneal injection of STZ (60 mg/kg). after 72 hours, blood glucose was measured (blood glucose above 250 mg was confirmed as diabetes). intraperitoneal injection of extracts (25, 50 and 100 mg/kg) was performed once a day to day 28. von-Frey and tail-flick tests were performed in days 7, 14, 21, and 28 after diabetes. 21 days after diabetes neuropathic pain was induced in animals.

Results : Injection of the extract with the dose of 50 mg/kg ($P<0.05$) and 100 mg/kg ($P<0.01$) doses prevented the induction of thermal hyperalgesia, whereas this response was only for extract of 100 mg/kg in the case of mechanical allodynia ($P<0.05$). Blood glucose concentration in the extract treated groups was also decreased in dose-dependent manner ($P<0.05$).

Conclusion : Ethyl acetate extract *assa-foetida* can prevent the development of neuropathic pain. Further larger studies are needed to identify the effective compounds present in this extract and its mechanism of action in reducing this type of neuropathic pain.

Keywords : Neuropathic pain; Diabetes; STZ; Hyperalgesia; Allodynia

Count: 569

Abstract ID: 45

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Effect of Umbelliprenin on behavioral symptoms of neuropathic pain and antinociceptive effect of morphine in chronic constriction injury model (CCI) of neuropathy in male rats

Submission Author: Samad Nazemi

Samad Nazemi¹, Faranak Jaefari²

1. Department of Physiology and Pharmacology, School of Medical Sciences, Sabzevar University of medical Sciences, Sabzevar, Iran
2. Department of Physiology and Pharmacology, School of Medical Sciences, Sabzevar University of medical Sciences, Sabzevar, Iran

Background and Aim : Opioids are the preferred drugs for the treatment of neuropathic pain, however, their effectiveness in the treatment of chronic pain is greatly reduced. The aim of this study was to investigate the effect of Umbelliprenin on the improvement of symptoms of neuropathic pain and increase the antinociceptive effect of morphine in the chronic constriction injury model (CCI) of neuropathy in male rats.

Methods : 24 Wistar rats (250±50 gr) were randomly divided into 3 groups: sham, CCI + DMSO group and CCI + Umbelliprenin (100µg / rat) group; of drug and vehicle were injected (intrathecally) from one day before surgery, until the day 3th after surgery once per day. Von Frey and Hot-Plate tests were performed one day before surgery and on days 2, 4, 7, 10 and 14 after surgery. A morphine dose (5 mg / kg, sc) was injected in all groups on day 14. After half an hour, behavioral tests were performed again, the results were reported as mean and SEM (P <0.05).

Results : The results of this study showed that pre-emptive injection of Umbelliprenin with a dose of 100 (µg/rat) could prevent the induction of allodynia and hyperalgesia after nerve injury (P <0.01), Umbelliprenin could effectively potentiate the antinociceptive effect of morphine (5 mg / kg s.c.) when compared to the CCI group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The morphine antinociceptive effect decreases in neuropathy due to sciatic nerve ligation. Umbelliprenin increases the morphine antinociceptive effect in these conditions. This effect is probably due to the anti-oxidant and anti-inflammatory effects of Umbelliprenin.

Keywords : Neuropathic pain; Umbelliprenin; Morphine; Hyperalgesia; Allodynia

Count: 570

Abstract ID: 354

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Trismus-Syndrome and Acupuncture treatment, A Case Report

Submission Author: Bijan Pirnia

Bijan Pirnia¹, Dr Kambiz Pirnia², Hamid Reza Taheri Nakhost³

1. PhD Student of Clinical Psychology, Department of Psychology, Faculty of Humanities, University of Science and Culture, Tehran, Iran. Email: b.pirnia@usc.ac.ir
2. Internal disease specialist, Technical Assistant in Bijan Center for Substance Abuse Treatment, Tehran, Iran.
3. Iranian National Center for Addiction Studies and Tehran University of Medical Sciences, Tehran, Iran.

Background and Aim : Trismus is a disease that is associated by muscle spasms in the jaw muscles, pain, inability to open the mouth. Trismus is a Sympathomimetic effect of chronic use of methamphetamine. This study was carried out aimed to evaluate the efficacy of ear acupuncture on the pain and mouth opening in chronic methamphetamine-dependent patient.

Methods : We report a case of 31-year-old young man with Trismus syndrome consequence of chronic use of methamphetamine with severe mouth pain. We applied ear acupuncture for three weeks to ameliorate pain and hopefully improve his functional ability to Mouth opening. Results were analyzed by generalized estimating equations (GEE) models.

Results : The primary outcome showed that Ear Acupuncture has not a significant effect on reducing the frequency of urine test during treatment. Also secondary outcome showed that there was not a significant reduction in pain index and mouth opening.

Conclusion : According to the failure in the production of tyrosine Hydroxylase as a precursor to produce dopamine in chronic methamphetamine users and the role of dopaminergic system in the modulation of orals facial pain, the effectiveness of acupuncture could be in jeopardy.

Keywords : Ear Acupuncture, Trismus, Methamphetamine, Case Reports, Tyrosine hydroxylase

Count: 571

Abstract ID: 206

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Effect of NK1 antagonist on PKC ϵ expression in chronic morphine exposed male rats

Submission Author: Mohammad Rahban

Mohammad Rahban¹, Homa Manaheji², Jalal Zarrin Ghalam³

1. Neurophysiology Research Center, Department of Physiology, Shahid Behehsti university of Medical Sciences, Tehran, Iran
2. Neurophysiology Research Center, Department of Physiology, Shahid Behehsti university of Medical Sciences, Tehran, Iran
3. Neurophysiology Research Center, Department of Physiology, Shahid Behehsti university of Medical Sciences, Tehran, Iran

Background and Aim : It has been shown that different subtypes of PKC enzyme are involved in side effects of chronic morphine exposure. PKC ϵ is a PKC subtype which is expressed in Dorsal Root Ganglion (DRG) neurons and is involved in pain perception and modulation. Here, we aimed to investigate alterations which occur in PKC ϵ expression in DRG neurons of rats exposed to chronic morphine administration. We also investigate the effect of NK1 receptor antagonist on development of Morphine side effects.

Methods : 4 groups were included in the study (n=6). 10 micrograms of Morphine Sulfate were administered intrathecally to rats for 8 consecutive days. Development of antinociceptive tolerance and thermal hyperalgesia was examined by tail flick and paw withdrawal tests, respectively. In one group rats were injected with 20 micrograms of NK1 antagonist prior to Morphine injection. 48 hours after last injection of Morphine, rats DRGs were removed and PKC ϵ expression was investigated using western blot analysis.

Results : Behavioral experiments indicated development of morphine antinociceptive tolerance and thermal hyperalgesia following 8 consecutive days of morphine administration. NK1 antagonist was able to inhibit development of tolerance and hyperalgesia. Western blot analysis showed an increase in PKC ϵ expression in DRGs of rats rendered tolerant to morphine and

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

developed thermal hyperalgesia. Rats which received NK1 antagonist had same expression level as control group.

Conclusion : Our findings suggest that chronic morphine administration produces antinociceptive tolerance and thermal hyperalgesia and NK1 antagonist could inhibit the side effects of chronic Morphine administration. Also, increased expression of PKC ϵ could be a contributing factor to antinociceptive tolerance and hyperalgesia observed during chronic morphine exposure

Keywords : morphine tolerance, thermal hyperalgesia, PKC ϵ , NK1 antagonist

Count: 572

Abstract ID: 406

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

The role of GSK3 β in mechanical allodynia induced by Spinal Nerve Ligation (SNL) in adult Wistar rats

Submission Author: Mina Rashvand

Mina Rashvand¹

1. Department of Physiology, Neurophysiology Research Center, Shahid Beheshti University of Medical Sciences

Background and Aim : Treatment of neuropathic pain remains a big challenge. Glycogen Synthase Kinase 3 β (GSK3 β) has an important role in spinal nociceptive processing. So the present study investigated the role of GSK3 β on mechanical allodynia as a main characteristic of neuropathic pain

Methods : Young adult male rats (220- 250 gr) were assigned into three groups: (sham+ vehicle, neuropathy+ vehicle and neuropathy+ AR-014418). Neuropathic pain was induced by spinal nerve ligation (SNL) model according to the method described by Kim and Chung. Immunocytochemistry (IHC) was used to determine the ratio of phosphorylated GSK3 β over total GSK3 β (p-GSK3 β /t-GSK3 β ratio) in dorsal horn neurons of spinal cord. GSK3 β selective inhibitor, AR-014418 (0.3 mg/kg, ip) or vehicle administration was made 1 hr prior to sham or SNL surgery on day 0 (baseline), and then daily up to day 8th, mechanical allodynia were assessed with paw withdrawal threshold (PWT) to von Frey filaments before the surgery up to day 8th.

Results : Repeated measure one way ANOVA followed by post hoc Dunnett's test showed that Paw Withdrawal Threshold (PWT) in response to von Frey filaments in SNL+Vehicle group was significantly decreased after the surgery. Also Bonferroni post test analysis showed that, Inhibition of GSK3 β activity increased PWT in SNL group on day 4 to day 8 after the surgery. Moreover immunocytochemical study showed that p-GSK3 β /t-GSK3 β ratio in SNL rats significantly decrease compared to sham operated group and administration of AR-014418 increased this ratio in SNL rats.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our study suggests that GSK3 β may be a potential target for treatment of neuropathic pain.

Keywords : GSK3 β , mechanical allodynia, SNL

Count: 573

Abstract ID: 331

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

The study of antinociceptive effect of alcoholic extract of *Portulaca Oleracea* in a model of neuropathic pain

Submission Author: Mehdi Sadeghi

Mehdi Sadeghi¹, Afsaneh Vahedi Moghadam², Ali Movahed³

1. Department of Physiology , Faculty of Medicine , Bushehr University of Medical Sciences , Bushehr , Iran
2. Faculty of Medicine , Bushehr University of Medical Sciences , Bushehr , Iran
3. Department of Biochemistry , Faculty of Medicine , Bushehr University of Medical Sciences , Bushehr , Iran

Background and Aim : *Portulaca Oleracea* is a medicinal plant that many effects including: analgesic and anti inflammatory properties are attributed to it. The main aim of this study is to investigate the effect of alcoholic extract of *Portulaca Oleracea* on CCI model of neuropathic pain

Methods : Adult male Wistar rats weighing 200-250 g were used. Animals in all groups were subjected to chronic constriction injury (CCI) model of neuropathy as described by Bennet and Xie (1988) . Sensivity to mechanical stimuli (mechanical allodynia) were evaluated by Von Frey filaments. In neuropathic rats, animals were randomly assigned to five groups including: sham, CCI, two groups subjected to CCI and injected with extract (200 and 400 mg/kg,i.p) and a group subjected to CCI and injected with normal saline. In these groups, mechanical allodynia was assessed on day 7 after surgery. Data were analyzed by SPSS and appropriate statistical tests.

Results : All of the rats that had experienced CCI, exhibited mechanical allodynia after neuropathy in comparison to sham – operated animals. 200 and 400 mg/kg doses of *Portulaca oleracea* extract could reduce the development of mechanical allodynia after CCI.

Conclusion : Our findings indicate that *Portulaca Oleracea* extract can reduce behavioral symptoms of neuropathic pain.

Keywords : *Portulaca oleracea* , CCI , Mechanical allodynia

Count: 574

Abstract ID: 496

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Functional interaction between N-methyl-D-aspartate receptor and ascorbic acid during neuropathic pain induced by chronic constriction injury of the sciatic nerve

Submission Author: Sepideh Saffarpour

Sepideh Saffarpour¹, Farinaz Nasirinezhad²

1. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
2. Department of Physiology, Physiology Research Center, Medical School, Iran University of Medical Sciences, Tehran, Iran,

Background and Aim : Neuropathic pain is a chronic pain condition, which is resistant to therapy. Ascorbate was released because of the activation of glutaminergic neurons. Due to the important role of N-methyl-D-aspartate (NMDA) receptors in the pathophysiology of neuropathic pain, this study investigated the analgesic efficacy of ascorbic acid (AA) in neuropathic pain condition and the role of NMDA receptors in this effect.

Methods : For this purpose, adult male rats were randomly allocated to experimental groups (n = 8 in each group). Neuropathic pain was induced by chronic constriction injury (CCI) of the sciatic nerve. During the second week after CCI, animals received a single injection of 1, 3, 5, or 10 mg/kg of AA intraperitoneally and pain threshold was determined 15 and 60 min later. The antinociceptive effect of chronic administration was also evaluated by intraperitoneal injection (IP) of 3 mg/kg AA for 3 weeks. To determine the role of NMDA receptors, separate groups of animals 30 min after single injection of AA (1 mg/kg) animals received i.p. injection of ketamine (5 mg/kg), MK-801 (0.01 mg/kg), or glutamate (1000 nmol) and were tested 20 min afterward. Data analyzed by ANOVA and Newman-Keuls tests and $p < 0.05$ were considered as significant.

Results : IP of 3, 5 and 10 mg/kg increased the pain threshold during the second week after CCI ($p < 0.05$, $F = 3$ in tactile allodynia and $p < 0.01$, $F = 3.2$ in thermal and mechanical hyperalgesia). Chronic administration of AA also produced the antinociceptive effect. Ascorbic acid (1 mg/kg,

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

i.p.) inhibited MK-801 and ketamine-induced antinociception response significantly ($p < 0.001$, $F = 2$). It also prevented the analgesic effect of glutamate administration ($p < 0.001$, $F = 2$).

Conclusion : The results indicated that AA produced a the dose-dependent antinociceptive effect that seems to mediate through its interaction with NMDA receptors.

Keywords : ascorbic acid (AA); chronic constriction injury (CCI); neuropathic pain; N-methyl-D-aspartate (NMDA).

Count: 575

Abstract ID: 252

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Effect of intrathecal injection of Orexin-1 receptor antagonist on modulation of neuropathic pain in rats

Submission Author: Sakine Salehi_maranni

Sakine Salehi_maranni¹, Abbas Haghparast², Homa Manaheji³

1. Department of Physiology, neurophysiology research center, Shahid Beheshti University of Medical Sciences
2. Neuroscience research center, Shahid Beheshti University of Medical Sciences
3. Department of Physiology, neurophysiology research center, Shahid Beheshti University of Medical Sciences

Background and Aim : Orexins are synthesized by neurons in the hypothalamus and contribute to multiple physiological functions. Orexin fibers innervate many regions of the CNS, which include areas involved in descending control of pain. We examined the role that orexins may play in the endogenous modulation of pain transmission using the intrathecal injection of orexin-1 receptor antagonist.

Methods : The role of endogenous orexin in spinal cord on modulation of chronic constriction nerve injury (CCI) rats as a neuropathic pain model evaluated. All animals received either CCI or sham surgery with deep sodium pentobarbital anesthesia (50 mg/kg; intraperitoneal injection). Male adult Wistar rats (250-350 g) were assigned into three groups: (i) Sham + Vehicle, (ii) Neuropathy+ Vehicle and (iii) Neuropathy+ Antagonist orexin-1 (SB-3314867). Neuropathic pain was induced by ligating the common sciatic nerve according to method described by Bennett and Xie. To evaluate the role of orexin-1 receptor in inhibition of pain we used SB-334867 microinjection in the spinal cord after implanting cannula in the L4 segment of spinal cord. To determine the effect of spinal cord orexin -1 receptor on mechanical nociception, Von ferry test was used in 1, 7 and 14 days after CCI operation.

Results : Intrathecal injection of SB-334867 in L4 segment of spinal cord increased allodynic nociception and showed that there is significant difference in paw withdrawal threshold (PWT) in CCI rats compared to sham groups.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Findings of the present study showed that endogenous Orexin in spinal cord may have a potential role in the modulation of neuropathic pain.

Keywords : carbachol, pain, orexin

Count: 576

Abstract ID: 75

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Anti-nociceptive Effects of chronic administration of *Withania somnifera* in Fructose Fed Male Rats

Submission Author: Zahra Samadi noshahr

Zahra Samadi noshahr¹, mohammad reza shahraki²

1. Physiology Ph.D Student, Department of Physiology, Faculty of Medicine, Mashhad University of Medical Sciences
2. Associate Professor, Department of Physiology, Faculty of Medicine, Zahedan University of Medical Sciences

Background and Aim : Insulin resistance is a metabolic disorder that affects the pathophysiology of type 2 diabetes and metabolic syndrome. Painful diabetic neuropathy is one of the most common complications of insulin-dependent diabetes in man. Given the known anti-diabetic effects of Ws, the aim of this study was to investigate the effect of chronic oral administration of W.s root on formalin induced pain in fructose-fed rats are.

Methods : An experiment was carried out on 48 Wistar- Albino male rats, weighting 200 ± 30 g, which were divided into six groups ($n = 8$): control group (C), control morphine (CM), W. somnifera group (WS) which received WSR (62.5 mg/g diet), W. somnifera naloxone group (WSN) which received WSR and naloxone, fructose (F) group which received fructose drinking water and FWS group which received fructose-enriched drinking water and WSR during the trial period. A biphasic pain response was induced after intra plantar injection of formalin ($50 \mu\text{L}$, 2.5%). Pain behavior was measured using Dubuisson methods. The obtained data were analyzed by SPSS software V. 18, using ANOVA and Tukey test. Results were expressed as mean \pm SD. Statistical differences were considered significant at $p < 0.05$.

Results : The results showed that the acute and chronic pain score in the F group were significantly increased in comparison with the control group, but these parameters in the FWS group were significantly decreased compared with the F group ($p < 0.001$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Based on the findings of the present study, we can conclude that Ws have analgesic effect in fructose fed rat, which the mechanism of action may be by reducing glucose, and inflammatory markers.

Keywords : Withania somnifera, insulin resistance, acute pain, chronic pain

Count: 577

Abstract ID: 432

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Effect of mild and long-term neonatal hypothyroidism on the sensory processing of barrel cortex in male rats: A behavioral and electrophysiological study

Submission Author: Faezeh Shafiei

Faezeh Shafiei¹, mohammad reza Afarinesh khaki², vahid sheibani³, shahrnaz parsania⁴, iman zangi abadi⁵

1. Kerman Neuroscience Research Center, Kerman, Iran
2. Kerman Neuroscience Research Center, Kerman, Iran
3. Kerman Neuroscience Research Center, Kerman, Iran
4. Kerman Neuroscience Research Center, Kerman, Iran
5. Dep. of Anatomy, Afzalipour faculty of medical sciences, Kerman, Iran

Background and Aim : Lack of thyroid hormone levels causes a wide range of cognitive impairment and mental retardation. These disorders can be affected by the onset, type of disease, duration of the hypothyroidism, and the serum levels of thyroid hormones. The purpose of this study is to investigate the effect of mild, prolonged, and irreversible neonatal hypothyroidism on sensory processing in the barrel cortex of male rats.

Methods : Wistar male rats were used in this experimental study.. Long-term, mild neonatal hypothyroidism was induced in the hypothyroid group by the addition of 6 ppm propyl tiura-acetic acid (ptu) in water drinking of the newborn infant and continued for up to 150 days. In some hypothyroid rats, behavioral tests were performed to differentiate the softness-roughness texture and to detect novel texture. Using extracellular single-unit recording technique, the excitatory and inhibitory response of barrel cortical neurons was also investigated by controlled-mechanical whisker's deflections. There was no intervention in the control group.

Results : The results of behavioral tests showed that the performance of hypothyroid rats was impaired in the detection of softness and roughness. Moreover, during the different days of the test, the differentiation learning in the hypothyroid group decreased significantly compared to the control group. In the hypothyroidism group, the novel texture discrimination preference index

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

decreased too. Analysis of electrophysiological data showed that the response magnitude of Barrel cortical neurons, especially in layer V of Barrel cortex, was significantly changed in response to the controlled whisker deflections.

Conclusion : Mild and prolonged neonatal hypothyroidism disrupts male rats' ability to detect texture surfaces. In this regard, it was determined that the response characteristics of the neurons of the barrel cortex were affected.

Keywords : Hypothyroidism; Sensory processing; Texture discrimination; tactile

Count: 578

Abstract ID: 91

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Inhibition of the central amygdala nitric oxide synthase potentiated the neuropathic analgesic effect of morphine

Submission Author: Bahardokht Tolou-Dabbaghian

Ameneh Rezayof¹, Bahardokht Tolou-Dabbaghian²

1. Department of Animal Biology, School of Biology, College of Science, University of Tehran, Tehran, Iran
2. Department of Animal Biology, School of Biology, College of Science, University of Tehran, Tehran, Iran

Background and Aim : Morphine is one of the most common analgesics in the treatment of pain. However, its repeated administration produces dependence and also tolerance which may be one of the main obstacles in the treatment of chronic states of pain including neuropathic pain. Considering that the central nucleus of amygdala (CeA) is a nociceptive center in the brain and nitric oxide has a critical role in the pain mechanism, the purpose of this investigation was to evaluate the effect of the CeA nitric oxide synthase (NOS) inhibition on morphine response in an animal model of neuropathic pain.

Methods : Data for the present study was collected using adult male Wistar rats weighing 220-250 g. All animals were bilaterally cannulated in the CeA and also subjected to chronic constriction injury of the sciatic nerve (CCI neuropathic surgery) to induce neuropathic pain.

Results : Our results showed that systemic (intraperitoneally, i.p.) administration of different doses of morphine (3-5 mg/kg) alleviated mechanical hyperalgesia, showing a neuropathic analgesic effect of the opiate. The microinjection of different doses of a NOS inhibitor, L-NAME (0.1-0.5 µg/rat), into the CeA (intra-CeA) potentiated an ineffective dose of morphine (3 mg/kg, i.p.) and induced the neuropathic analgesia. It should be considered that intra-CeA microinjection of the same doses of L-NAME alone had no effect on the animals which suffered from neuropathic pain.

Conclusion : Taken together, a contributing role of the CeA can be suggested in CCI neuropathic pain. Interestingly, the CeA nitric oxide system may be involved in the neuropathic analgesic response of morphine. Thus, it seems that the potentiative effect of co-administration of morphine

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

with a NOS inhibitor may be an effective treatment in reducing morphine tolerance and dependence.

Keywords : Morphine; L-NAME; Central amygdala; Neuropathic pain; Rat(s)

Count: 579

Abstract ID: 269

subject: Pain and Sensory Systems: Tactile, Somatosensation and Pain Syndromes

Presentation Type: Poster

Pain relief effects of B-complex: Behavioral and histochemical study in rats

Submission Author: Shahab Aldin Zarei

Shahab Aldin Zarei¹, Gila Behzadi²

1. SBMU
2. SBMU

Background and Aim : B-Complexes have been evaluated as useful drugs to treat various painful conditions. despite the clinical and experimental evidence indicating the analgesic effect of B-Complex, fewer studies showing their exact mechanisms on different aspects of the inflammatory pain response. In the present study, the analgesic effect of long-term application of vitamin B-complex with an inflammatory experimental pain model in rats was evaluated.

Methods : The experiments were performed on male wistar rats. The pain responses were evaluated after plantar injection of formalin solution in control and 10 days B-complex (Neurobion- IP) pretreatment groups. Induction of spinal neuronal activity was evaluated by comparing C-Fos immunohistochemical action and NADPH-d histochemistry between formalin B-complex pretreated and control groups.

Results : Significant reduction in pretreatment groups with B-complex at second phase of formalin test score was observed compared to control groups. Both licking and flinching time and number were significantly reduced. The number of c-Fos positive neurons was reduced in pretreated group. In addition, the number NADPH-d positive neurons was also reduced.

Conclusion : Our study showed that consecutive long-term pretreatment of supplementary B-complex, pain ratings were reduced. Down regulation of c-Fos and NADPH-d in dorsal spinal neurons suggested that the pain relief effects that induced by B-Complex may be dependent on their action in the dorsal horn of spinal cord. Therefore at least part of the analgesic effect of B-Complex may be due to a suppression of pain transition at the spinal level. Additional studies is needed to clarify the mechanisms involved.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : B-complex , Neurobion, pain relief, inflammatory pain , formalin test , c-Fos , NADPH-d

Count: 580

Abstract ID: 239

subject: Pain and Sensory Systems: Vision

Presentation Type: Oral

Interactive Processing of Object Information between Peri-occipital and Peri-frontal Brain Areas

Submission Author: Hamid KarimiRouzbahani

Hamid KarimiRouzbahani¹, Hamid Karimi-Rouzbahani²

1. -
2. Iran Neural Technology Research Center, Iran University of Science and Technology, Tehran, Iran

Background and Aim : Invariant object recognition, which refers to the ability of precisely and rapidly recognizing objects in the presence of variations, has been a central question in studying human visual processing. However, many aspects of this ability have remained unclear. The general consensus is that the ventral visual stream is the major processing pathway which underlies category and variation processing by its entangled hierarchical layers. This has overlooked the peri-frontal areas whose role in the encoding of task-specific category information has been supported by recent studies. It is unknown how peri-frontal areas contribute to visual processing: whether they play a major or minor role, whether they interact with the ventral visual areas, etc. Here I aimed at systematically investigating the role of peri-frontal areas in invariant object recognition.

Methods : For that purpose, a whole-brain EEG recording paradigm was designed in which subjects passively viewed a set of variation-controlled object images which were generated specifically for this study. Using multivariate pattern analysis, category and variation information were decoded from occipital, parietal, temporal and prefrontal areas. Using task specificity indices, across-time phase analysis and Granger causality, the flow of information and their phase-dependent patterns were investigated across those areas. I also ran a recently developed brain-plausible hierarchical neural network model, known as AlexNet, to provide computational support for an interactive visual processing procedure which might be implemented across posterior and anterior brain areas.

Results : Results showed a significant amount of category and variation information in peri-frontal and parietal areas supporting their roles in object recognition. Moreover, three distinct stages of

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

visual processing were identified which showed transactions of information between peri-frontal and peri-occipital areas supporting interactive processing of visual information across those areas. Finally, the computational model supported the possibility of parallel processing mechanisms being implemented in peri-occipital and peri-frontal areas.

Conclusion : These findings, while supporting previous results on the role of prefrontal areas in object recognition, extend their role from active object recognition, in which prefrontal to temporal cortex feedback signals are activated, to the general case of object and variation processing, which is an integral part of any visual processing tasks and is active even during passive viewing.

Keywords : Visual object recognition, Feed-forward/Feedback processing, EEG, Computational modeling

Count: 581

Abstract ID: 644

subject: Pain and Sensory Systems: Vision

Presentation Type: Poster

Genetic analysis of albinism patients using homozygosity mapping and cycle sequencing

Submission Author: Faravareh Khordadpoor

Faravareh Khordadpoor¹, Mohammad Taghi Akbari²

1. Tehran Medical Genetics Laboratory, No. 251, Taleghani Street, Tehran, Iran
2. Department of Medical Genetics, Faculty of Medical Sciences, Tarbiat Modares University, Jalal Al-Ahmad Express Way, Nasr bridge, Tehran, Iran

Background and Aim : Albinism is a heterogeneous genetic disorder of melanin synthesis that results in hypopigmented hair, skin, and eyes. It is associated with decreased visual acuity, nystagmus, strabismus and photophobia. Nonsyndromic Oculocutaneous albinism is a heterogeneous and autosomal recessive disorder caused by mutations in TYR, OCA2, TYRP1, SLC45A2, SLC24A5 and C10ORF11 genes. The OCA1A is the most severe type with a complete lack of melanin production throughout life, while the milder forms OCA1B, OCA2, OCA3, and OCA4 show some pigment accumulation over time. It is difficult to distinguish the classical OCA based on their clinical signs, so the molecular analysis helps for accurate diagnosis. Finding mutations in albinism patients makes it possible to prevent from new cases in the families and also to treat them with the newly developed drugs.

Methods : Twenty three unrelated patients from consanguineous families including 21 nonsyndromic OCA and 2 autosomal recessive ocular albinism (AROA) patients were studied. TYR gene was sequenced in all patients. In addition homozygosity mapping was performed using a novel panel of 13 fluorescently labeled primers to amplify the STR markers inside the OCA genes. Then the screened loci in each family were cycle sequenced.

Results : 14 out of 23 patients had mutations in TYR gene, from which 11 were homozygous, 2 were compound heterozygous and 1 had only one mutation (p.P406L). Homozygosity mapping confirmed our findings on TYR gene. It also found 7ve novel mutations in homozygous form, including three mutations in OCA2 (p.G657R, Del exons 3–18 and IVS9+1G4T), one mutation in

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

SLC45A2 gene (c.1273delC) and one mutation in C10ORF11 (p.N89K). The detected mutations co-segregated in the families and did not exist in the 50 healthy controls.

Conclusion : In cases where the disease causing mutations are identical by descent due to a common ancestor, these STR markers can enable us to screen for the responsible genes. Also, they can be used for linkage analysis in the families with compound heterozygous patients or without consanguinity marriage.

Keywords : OCA; AROA; homozygosity mapping; consanguineous families

Count: 582

Abstract ID: 654

subject: Pain and Sensory Systems: Auditory and Vestibular

Presentation Type: Poster

Balance Dysfunction Following Vestibular Schwannoma Surgery

Submission Author: Mojtaba Khosravi

Mojtaba Khosravi¹, Farshid Rahimi², Mitra Ghorbani³, Mohammad Hossein Nilforoush⁴, Mahsa Sepehr Nejad⁵

1. faculty of rehabilitation sciences, Isfahan university of medical sciences, Isfahan, Iran
2. faculty of rehabilitation sciences, Isfahan university of medical sciences, Isfahan, Iran
3. faculty of rehabilitation sciences, Isfahan university of medical sciences, Isfahan, Iran
4. Communication Disorders Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
5. Communication Disorders Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

Background and Aim : Vestibular schwannomas(VS) are slow-growing, benign tumors that arise from the Schwann cells of the inferior or superior vestibular nerves, leading to a gradual vestibular dysfunction. Tumor growth may result in hearing loss, tinnitus, imbalance, and continued expansion within the cranium, and can lead to brainstem compression and hydrocephalus. In some patients it is never completed and resulting balance problems represent significant difficulties in daily activities affecting seriously their quality of life. As the vestibular system has an important role in ocular and postural control and surgical removal of VS usually involves section of at least one branch of the vestibular nerve, certain complications like disequilibrium, dizziness and unsteadiness are often inevitable, irrespective of the surgical approach. The aim of the present study was to evaluate postoperative vestibular dysfunction and vestibular compensation prospectively using both subjective and objective assessment.

Methods : This is a reviewed type of article. In this paper, postoperative Balance Dysfunction was considered. PubMed, Medline, science direct and google scholar search was performed for articles from 2000 to 2017.

Results : Some Studies show Up to 65% of the patients report persistent disequilibrium between 3 months and 7 years after surgery. the incidence of disequilibrium after acoustic neuroma surgery varies more from 23% to 49% to 66% or 78%. 45% of patients reporting long-term balance deficits, 54% of patients report a negative impact on the quality of life. Of the 400 patients undergoing

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

surgery by different approaches, 78.2% of patients reported unsteadiness, whereas 45.5% reported acute vertigo. The specific questionnaire emphasized that 39 patients (10.10%) perceived disequilibrium as disabling, and the oscillopsia handicap score result was moderate in 73.32% of the sample, mild in 21.50%, and severe in 5.18% of patients.

Conclusion : Some Studies show Up to 65% of the patients report persistent disequilibrium between 3 months and 7 years after surgery. 45% of patients reporting long-term balance deficits, 54% of patients report a negative impact on the quality of life. Of the 400 patients undergoing surgery by different approaches, 78.2% of patients reported unsteadiness, whereas 45.5% reported acute vertigo. The specific questionnaire emphasized that 39 patients (10.10%) perceived disequilibrium as disabling, and the oscillopsia handicap score result was moderate in 73.32% of the sample, mild in 21.50%, and severe in 5.18% of patients.

Keywords : Vestibular schwannoma; acoustic neuroma; disequilibrium; imbalance

Count: 583

Abstract ID: 155

subject: Pain and Sensory Systems: Multisensory Integration

Presentation Type: Poster

Study about the Effect of Anti TNF- α on Pain Perception in the REM Sleep deprivation in a Rat Model

Submission Author: Mohammadjavad Hoseinpoufard

Mohammadjavad Hoseinpoufard¹

1. Institute for Cognitive Science Studies, Tehran, Iran.

Background and Aim : Background: Sleep disorders have become a global issue. Several day's sleep deprivation leads to cognitive disorders. REM Sleep Deprivation (RSD) increased the Tumor Necrosis Factor (TNF- α), too. This study tried to show the effects of RSD on pain response with Infliximab (IFX) administration.

Methods : 72 rats in 9 groups, approved by the research and ethics committee. Infliximab, administered according to study protocol after 24 hours RSD. Hot-plate used to measure the pain response latency by seconds.

Results : Sleep deprivation for 24 did not alter pain perception more over IFX at doses 0.2 but not 0.1 mg/kg increased pain perception only in the RSD groups.

Conclusion : we must care from patients' intake IFX and control their pain.

Keywords : Remicade, Infliximab, Anti TNF- α , Sleep Deprivation, REM, Pain, REM Sleep Deprivation, Pain Response.

Count: 584

Abstract ID: 594

subject: Pain and Sensory Systems: Sensory and Sensory Integration Disorders

Presentation Type: Poster

Evaluation of Nitric Oxide effect on oxytocin induced analgesia in acute and chronic phases in mice

Submission Author: Abbasali Abbasnezhad

Abbasali Abbasnezhad¹, Majid Kianmehr², Mohammad Reza Khazdair³

1. Department of Physiology, Faculty of Medicine, Gonabad University of Medical Sciences, Gonabad, Iran
2. Department of Physiology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3. Pharmaceutical Research Center and Department of Physiology, School of Medicine, Mashhad, Iran

Background and Aim : Analgesic effects of oxytocin and its other physiological effects were well-known. The aim of present study was Evaluation of Nitric Oxide effect on oxytocin induced analgesia in acute and chronic phases in mice.

Methods : 216 male Albino mice were divided randomly into two experimental groups, tail flick and formalin test. Each experimental group consists of three main groups including: saline, L-arginine (50 mg/kg) and L-NAME (10 mg/kg) intraperitoneal (IP) injection. 15 min after injection in each of the following groups, the animals in each groups divided to the three subgroups including: saline (n=12), oxytocin (1 mg/kg) (n=12) and oxytocin (1 mg/kg) + atosiban (1 mg/kg) (n=12) was injected IP and then after 30 min of use the formalin test and tail flick were to evaluate the response to pain.

Results : Area under the curve (AUC) in the late phase of the formalin test, in sub-groups oxytocin + saline and L-NAME were significantly decreased compared with saline + saline group ($P < 0.05$ to $P < 0.001$), and AUC in L-arginine + saline and atosiban + saline + oxytocin were significantly increased compared with oxytocin + saline group ($P < 0.05$). Tail flick tests as well as a significant reduction in the AUC in oxytocin + L-arginine and atosiban + saline + oxytocin groups were compared with Oxytocin + Saline group ($P < 0.001$).

Conclusion : Oxytocin has analgesic effects in the acute and late phase of pain in the formalin test. Moreover, exogenous increasing of nitric oxide reduced the analgesic effect of oxytocin.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Nitric Oxide, Oxytocin, Analgesia, Mice

Count: 585

Abstract ID: 12

subject: Pain and Sensory Systems: Sensory and Sensory Integration Disorders

Presentation Type: Oral

Insomnia in tension-type headache: a population-based study.

Submission Author: Seyed ehsan Asadi

Seyed ehsan Asadi¹, Ahmad Rahimi², Matin Aghalar³, Akram Jamli⁴

1. MSc in Nursing, Esfahan Medical University, Esfahan, Iran.
2. Nursing Student OF Dehaghan University ,Isfahan .Iran
3. Nursing Student OF Dehaghan University ,Isfahan .Iran
4. Nursing Student OF Dehaghan University ,Isfahan .Iran

Background and Aim : Tension-type headache (TTH) represents the most common type of headache among the general population. Although such headaches are usually mild in severity, some individuals with TTH experience severe symptoms and psychiatric comorbidities. Such patients may also experience sleep disturbances, which have been associated with headache exacerbation. Nevertheless, information regarding the prevalence and impact of insomnia among individuals with TTH in a population-based setting is limited. Therefore, the aim of the present study was to evaluate the prevalence and impact of insomnia among individuals with TTH using data from the Korean Headache-Sleep Study (KHSS).

Methods : We analysed data from the KHSS-a nation-wide, cross-sectional, population-based survey on headache and sleep involving Korean adults aged 18 to 70 years. Insomnia was defined as an Insomnia Severity Index score ≥ 10 .

Results : Among 2800 participants, 24.6% and 12.3% were classified as having TTH and insomnia, respectively. Among individuals with TTH, 23.5% met the criteria for probable migraine (PM). The prevalence of insomnia among individuals with TTH was significantly higher than that among individuals without headache (13.6% vs. 6.9%, $p < 0.001$). However, among the TTH group, the prevalence of insomnia did not significantly differ between participants fulfilling PM criteria and those not fulfilling PM criteria (15.5% vs. 12.2%, $p = 0.715$). Among individuals with TTH, headache frequency [median and interquartile range (IQR): 1.0 (0.3-3.6) vs. 0.4 (0.2-1.0), $p = 0.002$], visual analogue scale scores for headache intensity [median and IQR: 5.0 (4.0-8.0) vs. 4.0 (3.0-6.0), $p < 0.001$], Headache Impact Test-6 scores [median and IQR: 46.0 (40.0-

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

58.0) vs. 42.0 (38.4-45.5), $p < 0.001$], anxiety prevalence (28.1% vs. 6.6%, $p < 0.001$), and depression prevalence (22.5% vs. 1.8%, $p < 0.001$) were significantly higher in those with insomnia than in those without insomnia.

Conclusion : Our findings indicate that insomnia is prevalent among individuals with TTH. Moreover, insomnia was associated with exacerbation of headache symptoms and psychiatric comorbidities. Therefore, identification of insomnia among individuals with TTH is required to improve the management of headache symptoms in such patients.

Keywords : Anxiety; Depression; Headache; Insomnia; Tension-type headache

Count: 586

Abstract ID: 528

subject: Pain and Sensory Systems: Sensory and Sensory Integration Disorders

Presentation Type: Poster

The Comparison of Elbow strap with Elbow Sleeve on the Elbow Proprioception and Hand Function in People with Lateral Epicondylitis (Tennis Elbow).

Submission Author: Hassan Barati

Hassan Barati¹, Ebrahim sadeghi²

1. MSc of orthotics and prosthetics
2. PHd of orthotics and prosthetics

Background and Aim : Lateral epicondylitis (tennis elbow) is one of the most common disorders of the upper extremity. This lesion is accompanied by pain in the outer area of the elbow. In this lesion, the edentulous muscle tendon of extensor carpi radialis brevis can cause tenderness and local pain, which affects the elasticity of the damaged elbow joint.

Methods : 50 patients with tennis-related elbow disorder ($45.26 \pm 6.3 / 3$) participated voluntarily in this study. Individuals were randomly assigned to three conditions without orthosis, tennis elbow strap and neoprene elbow sleeve. proprioception, manual hand function and free pain grip of the body were measured by electrogonometer , nine hole peg test, and digital dynamometer. Pain evaluation was recorded by visual analog scale before and after orthotic interventions

Results : The results showed that the use of Tennis elbow strap ($p < 0.03$) and neoprene elbow sleeve ($p < 0.02$) significantly improved the proprioceptive sensation of the elbow thigh. Also, the manual hand function of individuals was improved when using the tennis elbow strap ($p < 0.001$) and the elbow sleeve ($p < 0.04$) compared to the control group, which significantly affected the use of the tennis elbow strap significantly were.

Conclusion : According to the study, the tennis elbow strap and elbow sleeve have an immediate effect on improving the elbow's sense of proprioception and the manual hand functioning of the elbows, with the effect of the tennis elbow strap being more noticeable than the neoprene elbow

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

sleeve. In this way, the use of a tennis elbow strap with reduced pain can be expected to improve the sensory and functional performance of people with this condition.

Keywords : Tennis elbow, proprioception, orthosis treatment, hand function

Count: 587

Abstract ID: 516

subject: Pain and Sensory Systems: Sensory and Sensory Integration Disorders

Presentation Type: Poster

Attenuating effect of Co-treatment with Atorvastatin and Vitamin C in chronic constriction injury (CCI) induced neuropathic pain in rats: an evidence of anti-inflammatory, antioxidative and neuroprote

Submission Author: Amin Hasanvand

Amin Hasanvand¹

1. Department of Pharmacology and toxicology, Faculty of Pharmacy, Lorestan University of Medical Sciences, Khorramabad, Iran.

Background and Aim : Neuropathic pain is caused by injury affecting the somatosensory system. Peripheral nerve injury often leads to chronic pain states, including hyperalgesia and allodynia. In this study, we evaluated an

Methods : In this study, the rat chronic constriction injury (CCI) model was used to induce neuropathic pain in order to test the analgesic effects of the Vit. C (500 mg/kg) and atorvastatin (5 and 10 mg/kg) were administered either alone or in combination. Behavioral tests, MNCV, pro-inflammatory cytokines and oxidative markers were measured. Also, histopathological and western blotting were performed.

Results : As a result, it is concluded that the findings of the present study significantly demonstrated the CCI model caused hyperalgesia and allodynia on the twenty-one days after the operation. Our results showed that co-administration of Vit. C. and atorvastatin attenuated hyperalgesia and allodynia in rats. The treatment with this drugs greatly mitigated the inflammatory response, and oxidative markers. Also, Co-Administration of Atorvastatin with Vit. C in CCI, decreased perineural inflammation around sciatic nerve.

Conclusion : The results of this study showed that Vit. C potentiates the analgesic effects of atorvastatin in the CCI model of neuropathic pain and combination of these medications may be considered as an effective therapy for neuropathic pain.

Keywords : Atorvastatin, Vit. C, Neuroprotective effects, Chronic Constriction Injury, Rat

Count: 588

Abstract ID: 515

subject: Pain and Sensory Systems: Sensory and Sensory Integration Disorders

Presentation Type: Poster

Neuroprotective and anti-inflammatory role of atorvastatin and its interaction with nitric oxide (NO) in chronic constriction injury-induced neuropathic pain

Submission Author: Amin Hasanvand

Amin Hasanvand¹

1. Department of Pharmacology and toxicology, Faculty of Pharmacy, Lorestan University of Medical Sciences, Khorramabad, Iran.

Background and Aim : Prevention and treatment of neuropathic pain (NP) is one of the most difficult medical problems because the mechanism of NP is unclear. Many studies Previous studies have demonstrated that nitric oxide (NO) has been closely linked to the induced of neuropathic pain. In addition, Moreover, Inflammation is considered one of the main causes of NP after nerve injury. Atorvastatin belongs to a class of 3-hydroxy-3-methyl-glutaryl coenzyme A (HMG-CoA) reductase inhibitors, used to treat hyperlipidemia.

Methods : In this study, we assessed the effects of nitric oxide (NO) mechanism of atorvastatin (10 mg/kg), on inflammation, thermal hyperalgesia, thermal allodynia, and mechanical allodynia and as well as sciatic nerve histological score in rat with chronic constriction injury (CCI) model. Finally, we specified the cytokines (such as TNF- α and IL-6) in the spinal cord.

Results : The treatment with atorvastatin and L-NAME (NO inhibitor) attenuated the thermal hyperalgesia, thermal allodynia and mechanical allodynia induced by CCI. The antinociceptive consequence was better elevated with a combination of atorvastatin and along with L-NAME than with other groups in comparison with other groups. In addition, the treatment with these drugs also attenuated reduced the CCI-induced TNF- α and IL-6 level in the spinal cord. Furthermore, the histological analysis established showed a low level of inflammation circa the sciatic nerve in CCI rats co-treated with atorvastatin and L-NAME.

Conclusion : In conclusion, findings of our study the obtained findings demonstrated propose that the inhibition of NO displays antinociceptive and anti-neuroinflammatory attributes in the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

peripheral and central nervous system in NP-induced CCI in the rat model. In addition, it has been, we found that inhibiting the NO pathways by atorvastatin could be one of the most important anti-inflammatory and anti-inflammatory pathways of atorvastatin.

Keywords : Neuropathic Pain, Nitric Oxide, Chronic Constriction Injury, Atorvastatin, Anti-inflammatory

Count: 589

Abstract ID: 517

subject: Pain and Sensory Systems: Sensory and Sensory Integration Disorders

Presentation Type: Poster

Evaluation of anti-inflammatory and antioxidative effects of Fluoxetine on Neuropathic Pain Responses in a Rat Model of Chronic Constriction Injury

Submission Author: Shirin Koushki

Shirin Koushki¹, amin hasanvand², marzie skandarzade³, sahar koushki⁴

1. Pharmacy Student, Student research committee, Faculty of pharmacy, Lorestan University of Medical Sciences, Khorramabad, Iran
2. Assistant Professor, Department of Pharmacology and toxicology, Faculty of pharmacy, Lorestan University of Medical Sciences, Khorramabad, Iran
3. Pharmacy Student, Student research committee, Faculty of pharmacy, Lorestan University of Medical Sciences, Khorramabad, Iran
4. Medical student, student research committee, lorestan university of medical sciences, khorramabad, Iran

Background and Aim : Neuropathic pain (NP) is one of the most important problems that can disrupt a person's life to be . The main symptoms of neuropathic pain is a pain and nerve damage. Fluoxetine is a main drugs used to treat of depression and also, studies have shown that fluoxetine has anti-inflammatory properties and decrease oxidative stress. In this research aimed to study the effects of different doses of fluoxetine on the neuropathic pain in rats

Methods : 40 male Wistar rats were used in this study. Animals randomly individual in 4 groups such as: Sham, CCI, CCI + Fluoxetine (2 mg/kg) and CCI + Fluoxetine (5 mg/kg). Rats were tested behavioural tests on the days of 1, 7 and 14 after induced CCI. After 14 days, spinal cord was collected to measure tissue concentration of anti-inflammatory and antioxidative enzymes.

Results : The findings of this study showed that fluoxetine can cause dose-dependent reduction in the level TNF α , IL-6 and MDA and increase SOD and also, it appears that fluoxetine could effectively decrease pain behaviour.

Conclusion : The results of this study showed that fluoxetine, in a dose-dependent manner, has anti-inflammatory, antioxidative and antinociceptive efficacy.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Neuropathic pain, Fluoxetine, Anti-inflammation, Antioxidative

Count: 590

Abstract ID: 809

subject: Pain and Sensory Systems: Sensory and Sensory Integration Disorders

Presentation Type: Poster

Ellagic acid ameliorates Streptozotocin Induced Diabetic Neuropathic Hyperalgesia in Rats: Involvement of Oxidative Stress

Submission Author: Safoura Raoufi

Safoura Raoufi¹, Siamak Shahidi², Alireza Komaki³, Iraj Salehi⁴, Mohammad Zarei⁵,
Mohammadreza Mahdian⁶

1. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
2. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
3. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
4. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
5. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
6. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran

Background and Aim : Diabetic neuropathic (DN) pain is one of the diabetes complications that Oxidative stress plays important role for its progression. Ellagic acid (EA) is a polyphenol compound with antioxidant properties .We investigated the possible beneficial effect of EA on streptozotocin (STZ)induced neuropathy in rats.

Methods : animals were divided into 4 groups: control, diabetic, 20 mg/kg EA treated diabetic and 40 mg/kg EA treated diabetic. induction of diabetes was done by STZ injection(i.p. at a single dose of 60mg/kg). EA was orally administered daily for 4 weeks. after diabetes induction hyperalgesia was evaluated using tail flick (TF) and hot plate (HP)methods. In addition, some oxidative stress markers were measured in serum.

Results : Diabetic rats showed a marked hyperalgesia and EA treatment (40 mg/kg) significantly revised the hyperalgesia in diabetic rats in comparison to untreated diabetics. There was a significant increase in plasma MDA and TOS in the diabetic group compared to the control. Treatment with EA inhibited these effects.

Conclusion : The obtained results import that EA prevents diabetic neuropathic hyperalgesia through attenuation of oxidative stress.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : diabetes- neuropathy- Ellagic acid- oxidative stress

Count: 591

Abstract ID: 823

subject: Pain and Sensory Systems: Other

Presentation Type: Oral

Acupuncture in reducing postdural puncture headache

Submission Author: Sara Esmaeili

Sara Esmaeili¹

1. Iran University of Medical Sciences

Background and Aim : Post- Dural Anesthesia with the incidence of 0.16%- 1.3% in experimental hands remains an important iatrogenic cause of patients' morbidity and even mortality in modern anesthesia. The prime goal of treating PDPHs is restoring the CSF volume and pressure. Bed rest, fluids, intravenous caffeine, intravenous theophylline, oral pregabalin, and sumatriptan are of current noninvasive treatments. Very few studies have observed that acupuncture was effective for the treatment of post-dural puncture headaches. However, acupuncture trials are small in number, and trial design is inadequately reported, so it is difficult to interpret their results. Therefore, in the first Randomized Clinical Trial we intended to evaluate the effect of acupuncture on post- Dural puncture headache

Methods : In a single blinded Randomized Clinical Trial, 60 patients were involved in this study which consisted of 20 patients in each groups. We compared the effects acupuncture with that of sham acupuncture treatments and conservative treatment on post-Dural puncture headache in 60 patients. The participants were randomized to one of three groups. The acupuncture group received treatment, while the other acupuncture group received sham treatment and conservative treatment received fluid and analgesics. Outcome measures were pain intensity (visual analogue scale) and recovery time (time that the pain falls to 0-3 due to visual analogue scale). Survival analysis and longitudinal analysis using mixed model was used

Results : After treatment, pain intensity was less in acupuncture group than in the sham treatment group and conservative group ($p < 0.05$). Pain intensity decreased significantly ($p < 0.001$) in Acupuncture group comparing to other groups ($p < 0.0001$). Furthermore Acupuncture reduced pain faster than other treatments ($p < 0.0001$). Patients' General Condition improved significantly in conservative group but not in Acupuncture group ($p = 0.2$)

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Compared with sham acupuncture therapy Acupuncture is a simple and effective way for treating post-Dural puncture Headache.

Keywords : post-Dural puncture headache, Acupuncture, Conservative Treatment, Sham

Count: 592

Abstract ID: 717

subject: Pain and Sensory Systems: Other

Presentation Type: Poster

Assessment of the dietary intake of thiamine in migraine patients compared with healthy people: A case-control study

Submission Author: Hossein Faraji

Hossein Faraji¹, Zamzam Paknahad², Ahmad Chitsaz³

1. Department of clinical Nutrition, School of Nutrition and Food Sciences, Isfahan University of Medical Sciences, Isfahan, Iran.
2. Department of clinical Nutrition, School of Nutrition and Food Sciences, Isfahan University of Medical Sciences, Isfahan, Iran.
3. Department of Neurology, Isfahan University of Medical Sciences, Isfahan, Iran.

Background and Aim : The migraine headache is a condition related to neurovascular system, which affects 10-20% of population, worldwide. Recent evidences demonstrated that there is a relation between thiamine status and migraine headaches. Current study was undertaken to assess the dietary intake of thiamine in migraine patients and to evaluate its association with the frequency of migraine attacks.

Methods : This study was performed on 50 migraine patients and 50 healthy individuals, based on the case-control study design. After migraine was approved by a Neurologist in the case group, dietary intake of the subjects were assessed by the valid 168-items food frequency questionnaire (FFQ), and content of food taken were analyzed, using N4 software. SPSS software (version 18), ANCOVA and independent t-test were used for data analysis.

Results : Findings showed that thiamine intake in migraine patients were lower than the healthy subjects ($p=0.002$). The same significant difference was observed, among migraine patients with high frequency attacks, compared with moderate frequency attacks group ($p=0.008$). However, the results were non-significant, after adjusting for energy intake.

Conclusion : Migraine patients had no low thiamine intake. Also, there was no significant correlation between thiamine intake and the frequency of migraine attacks in migraine patients. Thus, it seems that randomized controlled trials are needed, to confirm these findings.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Thiamine, vitamin B1, migraine, frequency

Count: 593

Abstract ID: 533

subject: Pain and Sensory Systems: Other

Presentation Type: Poster

The analgesic effect of cuscuta epithimum methanolic extract in male mice

Submission Author: Behnaz Ghaderi

Behnaz Ghaderi¹, Behrouz khakpour taleghani², Malek moein ansaar³, Mohammad rostam pour⁴

1. MSC of Medical Physiology, Torbat Jam Faculty of Medical Sciences, Torbat Jam, Iran
2. Neuroscience research center, school of medicine, Guilan university of medical sciences, Rasht, Iran 2. Department of physiology, Faculty of medicine, Guilan university of medical sciences, Rasht, Iran
3. Neuroscience research center, school of medicine, Guilan university of medical sciences, Rasht, Iran 2. Department of biochemistry, Faculty of medicine, Guilan university of medical sciences, Rasht, Iran
4. Neuroscience research center, school of medicine, Guilan university of medical sciences, Rasht, Iran 2. Department of physiology, Faculty of medicine, Guilan university of medical sciences, Rasht, Iran

Background and Aim : Attentions have long been scattered on inhibition of pain to introduce effective painkilling medications with minimal side effects. The aim of this study was to evaluate the analgesic effect of Cuscuta epithimum

Methods : In the present study, male NMRI mice were divided into 27 groups of 7 animals in each: 3 negative control group (receiving normal saline), 6 positive control groups treated by morphine (2.5 and 5mg/kg), 18 groups treated by various doses of methanol extract of Cuscuta epithimum (2.5, 5, 10, 25, 50 and 100mg/kg). All injections were carried out intraperitoneally, i.p. Subsequent to determining the LD50, we carried out tail-flick, formalin and writhing tests to assess pain. Statistical significance was calculated using the one-way ANOVA and Tukey's post hoc tests

Results : In the tail flick test, compared with the negative control group, the group treated by Cuscuta epithimum's effective dose (25mg/kg) significantly increased Maximum Possible Effect (MPE) 30, 60 and 120 minutes after injection ($P < 0.05$). In comparison with the negative control group, there was a significant increase in MPE 30 minutes after injection in the groups treated by Cuscuta epithimum extracts with doses of 50mg/kg ($P < 0.01$) and 100 mg/kg ($P < 0.001$), as was at 60 and 120 minutes after injection ($P < 0.001$). In the formalin test, administration of the extract (25 mg/kg), significantly decreased pain in the first ($P < 0.01$) and second ($P < 0.001$) phases.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Additionally, the extract at doses of 50 and 100 mg/kg significantly reduced pain in both phases of the test ($P < 0.001$). In the writhing test, administration of Cuscuta epithymum extract (5mg/kg) significantly reduced the number of abdominal contractions, compared to that in the control group ($P < 0.01$). Moreover, the number of abdominal contractions significantly reduced in experimental groups receiving the extract at doses of 10, 25, 50, and 100 mg/kg compared to the control group ($P < 0.001$)

Conclusion : Injection of Cuscuta epithymum extract showed antinociceptive effect on all the pain tests

Keywords : Tail-flick Test, Formalin test, Writhing test, Pain, Cuscuta epithymum, Plant Extract, Mice

Count: 594

Abstract ID: 200

subject: Pain and Sensory Systems: Other

Presentation Type: Poster

A computer-controlled apparatus for evaluation of muscle pain threshold

Submission Author: Milad Imeni

Milad Imeni¹, Afsaneh Dadarkhah²

1. Biomechanical Research branch, AJA university of medical sciences , Tehran, Iran
2. Biomechanical Research branch, AJA university of medical sciences , Tehran, Iran

Background and Aim : Due to the clinical importance of pain, pain precipitation threshold (PPT) and pain tolerance threshold (PTT) have been widely used as a diagnostic tool for neuromuscular diseases. Specifically, in the diseases related to physical medicine, PPT and PTT can be largely affected. Previously, manual measurements of PPT and PTT by manual algometer for clinical and research purposes were done. Because of the nature of manual measurement, precise controlling the rate and direction of the indenter and marking during indentation tests are difficult. In other hand, applying computer in such test due to its controllable nature can improve experimental procedure reliability to analyze the tissue's mechanical response. A computer-controlled device that includes applying desired command to the indenter and monitoring output data, can be used for understanding pathology and assessing therapeutic interventions in different parts of the human body. The objectives of this work were to: i): design and manufacture a computer-controlled device to measure PPT and PTT by stimulating the muscle mechano-nociceptors; and (ii) compare the reliability of the computerized PPT and PTT with the manual algometer.

Methods : Healthy subjects from the student and staff population of the author's institute participated in the study. We determined the force-deformation characteristics for anterior section of the forearm. The flat ended cylindrical indenter (area= 1cm²) was polished to minimize edge effects. The loading rate fixed at 1.0 mm/s. The mechanical unit consisted of a stepper motor, a linear guide to convert the motor rotation to the linear movement, and a tension-compression load cell to measure force. The unit was surrounded by a lightweight Plexiglas chamber. In addition, Plexiglas fixtures were used for installing and operating the device. The test procedure was under control by a custom LabVIEW program running on a personal computer. The indenter position

commands and load cell information were transferred via a data acquisition board which connected the hardware and software parts of the device.

Results : Comparisons between manual and computerized measurements revealed that with taking advantage of computerized device, PPT measurements considered to be more reliable than manual algometry specially in terms of indenter alignment, indentation rate, and operator's effects. The two-tailed paired t-test was used to compare the measurement values corresponding to PPT and PTT. Our results indicated that there was no significant difference between repeatability values of computerized PPT and PTT ($p < 0.05$) and both of them had good repeatability during both loading and unloading phases.

Conclusion : A computer-controlled indentation apparatus can (1) measure the mechanical properties of forearm tissue *in vivo*, in addition to PPT and PTT; and (2) control indentation test conditions. Apart from forearm, this device can be used for other parts of the human body related to clinical assessments of pain thresholds.

Keywords : Muscle pain; Pain threshold; Neuromuscular diseases; Algometer; Computer-controlled; Therapeutic interventions

Count: 595

Abstract ID: 752

subject: Pain and Sensory Systems: Other

Presentation Type: Poster

Evaluation of pain relief with thoracic epidural analgesia on weaning from mechanical ventilation in chest trauma

Submission Author: Mohammad azad Majedi

Mohammad azad Majedi¹, Saba kaveh majd², Bayan maleki³

1. assistant professor of anesthesiology
2. anesthesiology resident
3. midwifery department

Background and Aim : Pain relief is one of the main cornerstone of healing of chest trauma. Pain induces difficult weaning from mechanical ventilation because of pulmonary problems.

Methods : The patients were divided into 2 thirty groups .In one group we insert epidural catheter in thoracic space at T8-T9 level and intermittent injection of local anesthetic were prescribed.

Results : Pain relief and epidural catheter insertion will improve Pulmonary function and waning from mechanical ventilation.

Conclusion : We recommend epidural catheter insertion in majority of chest traumatic patients.

Keywords : Pain;Chest Trauma;Epidural Catheter; Ventilator Weaning

Count: 596

Abstract ID: 296

subject: Pain and Sensory Systems: Other

Presentation Type: Oral

Effect of Probiotics oral administration on MOR and IL-1 β expressions in spinal neuroinflammation

Submission Author: Vida Nazemian

Vida Nazemian¹, Jalal Zaringhalam², Mahdi Shadnoush³, Homa Manaheji⁴

1. Neurophysiology Research Center, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Physiology Department, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Faculty of Nutrition Science and Food Technology, Shahid Beheshti University of Medical Sciences, Tehran, Iran
4. Physiology Department, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Interest in neuroinflammation and neuroimmune activation has grown rapidly in recent years with the recognition of the role of central nervous system (CNS) inflammation and immune responses in the etiology of neurodegenerative disorders such as Rheumatoid Arthritis (RA). Pro-inflammatory cytokines and chemokines have been strongly implicated in the generation of pathological pain states at both peripheral and CNS sites. Constitutive overproduction of inflammatory cytokines, such as interleukin-1beta (IL-1 β) in inflamed cells, has been indicated to play a pivotal role in the RA pathogenesis which is accompanied with inflammatory symptoms such as edema, hyperalgesia and pain. It is known that opioid receptors are involved in the pain modulatory system during inflammatory and hyperalgesic pain and they could inactivate the neural pain fibers prototypically. TNF- α , IL-1 β and interferon gamma (IFN- γ) were able to induce MOR expression and subsequently, MOR agonists can reduce TNF- α and IL-1 β production. MOR through regulation of cytokine production and modulation of T cell proliferation can exert its anti-inflammatory effects prototypically. One area that has emerged as a promising therapeutic targets for the treatment of RA and alleviation of spinal neuroinflammatory symptoms is the modulation of CNS immunological responses. Probiotics can regulate immune responses by elevating the anti-inflammatory cytokines and MOR expressions, and reducing the production of pro-inflammatory cytokines. Thus, because of the importance of offering effective treatments with fewer side effects considering the anti-inflammatory and immuno-modulatory properties of probiotics, this study attempted to examine the role of oral

administration of probiotics on spinal MOR and IL-1 β expressions during different phases of neuroinflammatory pain.

Methods : Complete Freund's adjuvant (CFA)-induced arthritis was caused by single subcutaneous injection of CFA into the rat's hind paw on day 0. Different doses of probiotics (1/250, 1/500 and 1/1000 (10⁹ CFU/g)) were administered daily (gavage) after CFA injection. MOR and IL-1 β expressions were assessed on days 0, 7, 14 and 21 of the study by western blotting and ELISA, respectively.

Results : The results of this study indicated the efficacy of probiotics in reducing spinal IL-1 β expression and increasing MOR expression during different phases of spinal neuroinflammatory pain.

Conclusion : Inasmuch as neuroinflammation has been demonstrated to play a pivotal role in the pathogenesis of chronic pain, it seems that oral probiotics administration due to its effects on MOR expression can effectively inhibit IL-1 β expression as a pro-inflammatory cytokine during neuroinflammatory pain.

Keywords : Probiotics, neuroinflammatory pain, MOR, IL-1 β

Count: 597

Abstract ID: 443

subject: Pain and Sensory Systems: Other

Presentation Type: Poster

A review of therapeutic and rehabilitation approaches in people with congenital insensitivity to pain with anhidrosis

Submission Author: Saharsadat Nazm bojnourdi

Saharsadat Nazm bojnourdi¹, Farnoosh Ghanaiee²

1. Department of cognitive science , Faculty of Psychology and Educational Sciences , Research committee of Ferdowsi university , Mashhad , Iran
2. Department of cognitive science , Faculty of Psychology and Educational Sciences , Research committee of Ferdowsi university , Mashhad , Iran

Background and Aim : Objective and Introduction: The most basic alerting mechanism in problem occurrences in the body is the pain. Pain will make us more aware of the damaging levels and, as long as the improvement of problems is achieved, there is a danger to care and attention. As a result, it helps us to learn from the experiences of prevention, but how people respond to pain stimuli is different. Lacking sensitivity to the pain and reducing the response to painful stimuli and excessive sweats in children can lead us to the point of congenital insensitivity to pain with anhidrosis (CIPA). This condition is known as a type 6 hereditary sensory and autonomic neuropathy. The aim of this study was to evaluate treatment and rehabilitation strategies for people with CIPA, based on research evidence.

Methods : Current study is in form of overview and review of library and digital resource, Persian journals and medical science data base of pubmed and Scopus with CIPA , Rehabilitation and anhidrosis key words from 2010 to 2017 . Among 10 found article and with emphasis on Gene mutation only 4 related Persian and English articles according to keywords found and reviewed.

Results : A review of the related studies showed that medical and rehabilitation cares at birth or during infancy can lead to longer life expectancy in patients. The role of physical rehabilitation along with drug therapy can be remarkable for improving the clinical manifestations of this disorder, such as low muscle tone, joint hypermobility, tactile hyperesthesia, proprioception and spatial relationships. Administration of oral and articular splints is recommended to prevent self-inhibition and self-stimulation. In overall, controlled and supervised rehabilitation treatments,

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

along with other medical teams, can provide more satisfaction with treatment outcomes, in addition, the diagnosis of this disease during pregnancy can be helpful for parents by genetic testing.

Conclusion : Conclusion: According to available evidence, the use of rehabilitation as a low-cost complementary therapy significantly improves the quality of life, controlling emotions, destructive behaviors, and improvement of musculoskeletal problems of children with CIPA. This study showed that rehabilitation can provide a path for these persons with this problems, to involve the community

Keywords : CIPA , Rehabilitation : anhidrosis

Count: 598

Abstract ID: 737

subject: Pain and Sensory Systems: Other

Presentation Type: Poster

Effect of Metformin on thermal pain threshold in tail flick test in rat

Submission Author: Effat Norozpoor

Effat Norozpoor¹, Masoud Fereidoni²

1. Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
2. Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran

Background and Aim : Metformin is used as one of the main medications against type 2 diabetes. Inhibitory effects of Metformin on TRPV1 receptors are reported within the scientific literature. TRPV1 receptors are among the receptors which are involved in the perception of thermal pain. So the purpose of this investigation is to address the Metformin effect on the thermal pain in rat.

Methods : In this experimental study, 35 male Wistar rats, weighing 200 to 250 grams were used. Animals were categorized In 5 groups including control, sham (intraperitoneal injection of Metformin vehicle) and 3 groups of intraperitoneal administration of 200, 250 and 300 mg/kg Metformin. Tail flick test was used to measure the threshold of thermal pain.

Results : Metformin elevated pain threshold to a certain extent, thus it alleviated thermal pain sensation in tail flick test, as the dose of 250 mg/kg Metformin showed the most reductive effect on the thermal pain in contrast to the other doses.

Conclusion : According to the reports, inflammatory factors such as nerve growth factor, adenosine triphosphate, bradykinin and cytokines lead to increase of TRPV1 sensitivity. The sensitivity of these channels reduces the threshold for detecting painful thermal stimuli. Since Metformin decreases the production of inflammatory factor, it could be possible to say that this drug was able to decrease the sensation of thermal pain through the reduction of TRPV1 receptor sensitivity.

Keywords : Metformin, Thermal pain, Tail flick test, TRPV1

Count: 599

Abstract ID: 94

subject: Pain and Sensory Systems: Other

Presentation Type: Poster

Evaluation of anti-inflammatory and anti-nociceptive activities of the ethanolic extract of propolis in male laboratory rodents

Submission Author: Rahmatollah Parandin

Rahmatollah Parandin¹, Shahzad Daroogari²

1. Department of Biology, Faculty of Sciences, Payame Noor Universtiy, PO BOX 19395-3697, Tehran, Iran.
2. Department of Biology, Faculty of Sciences, Payame Noor Universtiy, PO BOX 19395-3697, Tehran, Iran.

Background and Aim : As natural compounds usually exhibit a wide range of anti-inflammatory and anti-nociceptive activities, they have been used in traditional medicine as alternative treatments for patients. Pain and Inflammation are natural body reactions to damaging stimuli such as irritants, damaged cells, pathogens, and thermal or mechanical injury and they have important impacts on the biological, sociological, psychological and economical comfort of patients. Non-steroidal anti-inflammatory drugs (NSAIDs) are usually used to treat the Inflammation and pain. The widespread use of NSAIDs has meant that the risk and side effects of these drugs have become increasingly common. This study was designed to investigate the anti-inflammatory and anti-nociceptive activities of ethanolic extract of propolis (EEP) in mice and rats.

Methods : Wistar rats and mice were used for studying anti-inflammatory and anti-nociceptive activity of propolis. EEP prepared and administered in the doses of 100, 200 and 400 mg/kg body weight. The anti-inflammatory activity was evaluated by inflammatory models of xylene-induced ear edema and cotton pellet granuloma tests whereas the anti-nociceptive activity was evaluated using formalin and acetic acid-induced writhing tests.

Results : The extract at 100 ($P < 0.05$), 200 ($P < 0.001$) and 400 ($P < 0.001$) mg/kg body weight reduced significantly, the formation of edema induced by xylene. A significant decrease in granuloma weight was observed in the 200 ($P < 0.001$) and 400 ($P < 0.001$) EEP. The extract caused a significant decrease in licking time at first phase in the 100 ($P < 0.01$), 200 ($P < 0.001$) and 400 ($P < 0.001$) EEP groups. A significant decrease ($P < 0.001$) in licking time at second phase was observed in 100, 200 and 400 EEP groups. In the acetic acid-induced writhing model, a significant

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

decrease in number of writhes was observed in the 100 ($P<0.05$), 200 ($P<0.001$) and 400 ($P<0.001$) EEP groups.

Conclusion : The results of present study demonstrate that ethanolic extract of propolis have potent anti-inflammatory and anti-nociceptive activity.

Keywords : propolis, pain, inflammation, mice.

Count: 600

Abstract ID: 502

subject: Pain and Sensory Systems: Other

Presentation Type: Oral

Antinociceptive activity of diosgenin in rats with painful diabetic neuropathy: involvement of oxidative stress and inflammation

Submission Author: Tayyebbeh Rahmani

Tayyebbeh Rahmani¹, Narges Mahmoudi², Zahra Kiasalari³, Mehrdad Roghani⁴

1. Department of Physiology, School of Medicine, Shahed University, Tehran, Iran
2. Department of Physiology, School of Medicine, Shahed University, Tehran, Iran
3. Neurophysiology Research Center, Shahed University, Tehran, Iran
4. Neurophysiology Research Center, Shahed University, Tehran, Iran

Background and Aim : Hyperalgesia is one of the marked signs of diabetic neuropathy and one of the clinical complaints of the affected patients. Therefore, pain relief is clinically important in these patients. This study was conducted to assess the anti-nociceptive effect of diosgenin in streptozotocin (STZ)-diabetic rats and to evaluate the role of peripheral inflammation and lipid peroxidation.

Methods : This study was conducted on 32 male rats that were divided into control, diosgenin-treated control, diabetic, and diosgenin-treated diabetic groups. For induction of diabetes, a single i.p. dose of streptozotocin (STZ, 60 mg/kg) was used. The treatment groups received i.p. administration of diosgenin at a dose of 40 mg/kg/day for 5 weeks. Finally, chemical, thermal, and mechanical hyperalgesia were assessed using formalin, tail immersion, and paw pincher tests, respectively. Meanwhile, serum MDA and TNF α level was also measured to assess peripheral inflammation and lipid peroxidation.

Results : Diosgenin treatment of diabetic rats at a dose of 40 mg/kg/day for 5 weeks significantly reduced serum glucose ($p<0.05$), lowered pain score in chronic phase of formalin test ($p<0.05$), increased thermal and mechanical pain thresholds ($p<0.05$), and reduced serum malondialdehyde and TNF ($p<0.05$) in STZ-diabetic rats.

Conclusion : Chronic administration of diosgenin at a dose of 40 mg/kg/day for 5 weeks has hypoglycemic effect, anti-nociceptive property and lowered pain in chronic phase of formalin test

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

and reduced thermal and mechanical pain in addition to peripheral inflammation and lipid peroxidation in STZ-diabetic rats.

Keywords : Diabetes mellitus, Pain, Hyperalgesia, Diosgenin, TNF, Lipid peroxidation

Count: 601

Abstract ID: 253

subject: Pain and Sensory Systems: Other

Presentation Type: Oral

Introducing a new method for rat sleep deprivation: a valuable model for neuroscience studies

Submission Author: Faezeh Rezaei

Faezeh Rezaei¹, Mehran Hosseini², Mohsen Foadoddini³

1. Department of Anatomy, Faculty of Medicine, Birjand University of Medical Sciences, Birjand, Iran
2. Cellular and Molecular Research Center, Birjand University of Medical Sciences, Birjand, Iran
3. Department of Physiology, Faculty of Medicine, Birjand University of Medical Sciences, Birjand, Iran

Background and Aim : A great body of evidence shows that insomnia, loss of sleep or sleep deprivation (SD) is related to vast majority of neurological disorders like memory deficits, Alzheimer disease, Parkinson diseases, pain perception and etc. Hence, experimental procedures of SD, both in humans and in animal models, have been widely employed to unveil various aspects of sleep function per se as well as to study the effects of sleep loss on subsequent brain function at the molecular, cellular, physiological, and cognitive levels. In the last decades, the dog as animal model for SD was progressively replaced by the cat and later on by rodents, with the rat being the animal of choice up to this day. Presently the most recommended and used method for SD induction in rodents is multiple platform method in which a number of platforms (5-6 cm in diameter) are surrounded by water to about 1 cm below the platform surface and rats place on them. While residing on the platform, a rat can obtain some level of non-REM sleep but upon entering REM sleep muscle tone become lost and this causes the rat to either make partial contact with the water or completely fall into the water, which makes it awakens to climb back up to the platform. However, concerns exist regarding confounds like stress, death, animal suffering, increased locomotor activity levels, and decreased motivation to perform operant tasks induced by the methods employed. We here propose a novel procedure for SD in rats to minimize the spurious effects of stress and of forced locomotor activity imposed by other methods.

Methods : A chamber (130*45 cm) equipped with an automatic animated conveyor coupled with a movement sensitive sensor was designed. The sensitivity of sensor was set up on 10 seconds immobility. Accordingly, when rats are immobile more than selected time (10 seconds) the sensor trigger the motor for 5 seconds and consequently the conveyor start to move. In one side of the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

cage a water chamber with 25 cm deep was placed. If animals don't walk contrary to conveyor direction they will fall into the water chamber. We tested this device by 6 Wistar rats and continuous movie recording up to 72h. Furthermore, after 72h SD pain perception was evaluated by hot plate test (54 ± 0.4 °C).

Results : During the SD procedure animals did not have sleep more than 10 seconds, no death was observed and pain perception test clearly showed that compared to the non SD group, latency time significantly decreased in the SD animals (8.00 ± 1.57 vs. 3.74 ± 0.44 , $p < 0.0001$).

Conclusion : This novel model can be applied to sleep deprive rats in a highly effective way. The obvious advantage of such procedures is that the quality and amount of stimulation can be standardized and made equal for all experimental animals.

Keywords : Sleep deprivation; Rat; Stress; suffering

Count: 602

Abstract ID: 795

subject: Pain and Sensory Systems: Other

Presentation Type: Poster

The effects of resveratrol on pain threshold in valproic acid-induced autism in rats in hot plate test

Submission Author: Nima Saeedi

Nima Saeedi¹, Hamideh Bashiri², Azadeh Aminzadeh³, Masoumeh Nozari⁴, Amirhossein Moslemizadeh⁵, Seyyed Sajjad Vakili shahrbabaki⁶

1. School of Pharmacy, Kerman University of Medical Sciences, Kerman, Iran.
2. Department of Physiology and Pharmacology, Afzalipour School of Medicine, Kerman University of medical sciences, Kerman, Iran
3. Department of Pharmacology and Toxicology, School of Pharmacy, Kerman University of Medical Sciences, Kerman, Iran.
4. Department of Physiology and Pharmacology, Afzalipour School of Medicine, Kerman University of medical sciences, Kerman, Iran
5. Faculty of Veterinary Medicine, Shahid Bahonar University of Kerman, Kerman, Iran
6. Faculty of Veterinary Medicine, Shahid Bahonar University of Kerman, Kerman, Iran

Background and Aim : Autism spectrum disorders (ASDs) is a complex, behaviorally defined disorder of the immature brain as a result of genetic and environmental risk factors, such as prenatal exposure to valproic acid (VPA). This syndrome has attracted public attention by its high prevalence. A large body of evidence suggests that VPA may have a significant effect on pain threshold. Resveratrol is a natural compound with various biological activities. According to neuro-protective effects, anti-inflammatory and antioxidant resveratrol (RSV), we investigated the effect of RSV on pain in autistic pregnant rats in VPA-induced model in the hot plate test.

Methods : Pregnant wistar rats were randomly separated in four groups. Groups received vehicle, valproic acid, resveratrol and resveratrol + valproic acid. valproic acid was administered (VPA, 600mg/kg, i. p.) on embryonic day 12.5 and pretreatment by resveratol (RSV, 3.6 mg/kg, s. c.) was applied on E6.5 until E18.5. A hot plate test was used for the assessment of the pain threshold and antinociceptive effect in male Wistar rats on day 60. Latency time were calculated as the standard index of pain threshold.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results indicated that systemic intraperitoneal (i.p.) administration of valproic acid (600 mg/kg) significantly increased latency time in the hot plate test, suggesting an analgesic effect of valproic acid in autistic rats. Intraperitoneal administration of resveratrol (3.6 mg/kg) increased valproic acid-induced analgesic effect, indicating a potentiative effect of resveratrol on valproic acid response in the hot plate test. It is important to note that resveratrol administration by itself had no significant effect.

Conclusion : Considering that resveratrol administration potentiated valproic acid-induced analgesia in the hot plate test, further studies, which take this variable into account and better elucidate the molecular mechanisms involved in valproic acid-induced analgesic effect, will need to be undertaken in the future studies.

Keywords : Valproic acid; Resveratrol; Autism; Pain; Hot plate; Rat

Count: 603

Abstract ID: 262

subject: Pain and Sensory Systems: Other

Presentation Type: Oral

Use of melatonin versus valproic acid in prophylaxis of migraine patients: A double-blind randomized clinical trial

Submission Author: Mojtaba Sharafkhah

Mojtaba Sharafkhah¹, Mohsen Ebrahimi-Monfared², Ali Abdolrazaghnejad³

1. General Practitioner, School of Medicine, Arak University of Medical Sciences, Arak/Iran
2. Department of Neurology, School of Medicine, Arak University of Medical Sciences, Arak/Iran
3. Department of Emergency Medicine, Sina Hospital, Tehran University of Medical Sciences, Tehran/Iran

Background and Aim : Melatonin is known to be effective in curing migraine. This study aimed to investigate the therapeutic effect of melatonin versus sodium valproate in the prophylaxis of chronic migraine.

Methods : This randomized, double-blind, placebo-controlled clinical trial included patients with chronic migraine who were divided into three equal sized groups, and baseline therapy with nortriptyline (10–25 mg) and propranolol (20–40 mg) was used. Patients in groups A, B, and C were adjunctively treated daily with 3mg melatonin, 200 mg sodium valproate, and a placebo, respectively. The patients underwent treatment for 2 months and follow-up was done at baseline (baseline), first (I) and second month (II). Attack frequency (AF), attack duration, attack severity, Migraine Disability Assessment (MIDAS) score (within 3 months in two steps), analgesic intake, and drug side effects between the groups and during follow-up were compared.

Results : The mean of monthly AF (melatonin: baseline: 4.2, I: 3.1, II: 2.5, $p = 0.018$; valproate: baseline: 4.3, I: 3.1, II: 2.3, $p = 0.001$; placebo: baseline: 4.1, I: 3.8, II: 3.8 $p = 0.211$), attack duration (hr) (melatonin: baseline: 19.8, I: 10.1, II: 8.7, $p < 0.001$; valproate: baseline: 19.5, I: 10.2, II: 8.8, $p < 0.001$; placebo: baseline: 19.6, I: 15.4, II: 14.1, $p = 0.271$), attack severity (melatonin: baseline: 7.3, I: 5.4, II: 3.5, $p < 0.001$; valproate: baseline: 7.4, I: 5.3, II: 3.4, $p = 0.000$; placebo: baseline: 7.3, I: 6.4, II: 6, $p = 0.321$), and MIDAS score (melatonin: baseline: 15.2, II: 8.9, $p = 0.005$; valproate: baseline: 16.1, II: 8.3, $p = 0.001$; placebo: baseline: 16, II: 12.1, $p = 0.44$), were significantly reduced in the melatonin and sodium valproate groups, but not in the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

placebo groups. Adverse events were reported in 11 patients (10.47%): 2 (5.71%) during melatonin treatment, 8 (22.85%) during valproate, and 1 (2.85%) during placebo.

Conclusion : The adjuvant treatment with melatonin was found to be superior to the placebo and had the same clinical efficacy as sodium valproate, but with higher tolerability. Melatonin may prove to be an efficient substitute for sodium valproate, as a chronic migraine prophylaxis.

Keywords : Migraine disorders; melatonin; valproic acid

Count: 604

Abstract ID: 506

subject: Motor Systems
and Movement Disorders: Posture and Gait

Presentation Type: Poster

Gait disorder in a patient with cerebellar aneurysm: A systematic review

Submission Author: Mohsen Fallahi

Mohsen Fallahi¹, Soroush Alaeddini²

1. occupational therapy student, Student Research Committee, Mazandaran University of Medical Sciences, Sari, Iran.
2. medical student, Student Research Committee ,Iran University Of Medical Sciences

Background and Aim : Only 2–3% of ischemic strokes are isolated infarctions of the cerebellum. The infarction in each region of the cerebellum leaves a distinct sign. The superior cerebellar artery infarction causes the ataxia of the limb. The infarction in the posterior artery causes imbalance in gait. Due to damage in each area, it will have certain neurological symptoms, which can include headaches and dizziness. As a common symptom in cerebellum infarction, forty percent of ataxia occurs in the limb. Since Ataxia is a common symptom in cerebellum infarction, this study attempts to address gait disorders in patients with cerebellar infarction.

Methods : This research is a systematic review study based on the PRISMA checklist, which is based on previous studies. These articles are chosen by search in Science Direct, PubMed and Scopus databases and Google scholar search engine with 2012 to 2017 publication dates filter and keywords “gait disorder in cerebellar aneurysm” and “ cerebellar ataxia and gait pattern”. 58 articles are chosen and base on inclusion criteria, 7 articles have the eligibility.

Results : Patients with cerebellar aneurysm have various types of walking disorders specially ataxia. Patients with ataxia, show irregular walking pattern that can limit their daily activities. Patient with cerebellar ataxia have hyper tone muscle and they have disorder in joints internal coordination. Another relevant disorder could be Sudden Stopping. This disorder could be challenging because it can decrease the limb balance and increase the falling possibility.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Cerebellar aneurysm lesion has various types of walking and gait disorders that identification of neurological and biomechanical features of these disorders can be helpful to create an appropriate therapeutic and rehabilitation strategy for these patients

Keywords : cerebellar aneurysm; cerebellar ataxia; neurological rehabilitation

Count: 605

Abstract ID: 662

subject: Motor Systems
and Movement Disorders: Posture and Gait

Presentation Type: Poster

Investigation of hip and pelvis kinematic during gait in cerebral palsy with crouch gait pattern and normal children

Submission Author: Zahra Rojhani Shirazi

Zahra Rojhani Shirazi¹, Leila Abbasi², Mohsen Razeghi³, Saeed Sayadi⁴

1. School of Rehabilitation Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. School of Rehabilitation Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
3. School of Rehabilitation Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
4. Shiraz Occupational therapy clinic, Shiraz, Iran

Background and Aim : Crouch gait pattern is a prevalent abnormal gait pattern in spastic diplegic cerebral palsy (CP) children. In crouch gait pattern, children walk with excessive knee flexion during stance phase. In the gait studies, knee and ankle joint kinematic in sagittal plane mostly have considered and less attention has paid to proximal joints and the other motion planes. The aim of this investigation was to study hip and pelvis kinematic of CP children with crouch gait pattern in comparison with normal gait pattern.

Methods : Gait kinematics of 32 diplegic spastic CP children with crouch gait pattern and 32 neurologically intact children with 6 to 12 years old were analysed with Qualysis Track Manager Motion analysis system. The skeletal model was created via opensim software. Parameters including pelvic tilt, pelvic rotation and list in addition to hip flexion and hip rotation in initial contact(IC), toe off (TO), maximum in stance and swing phase were extracted. Shapiro-Wilk test was used for checking normality distribution of data and according to non-normal distribution of data Mann Whitney test was used in order to comparison

Results : Results: Data analysis showed that normal children had pelvic up list in IC and TO and CP children had downward pelvic list in IC and TO. In both CP and normal children pelvis had retraction in IC and both groups had pelvic protraction in TO. Hip was internally rotated in IC in CP group and externally rotated in normal group. Hip was internally rotated in TO in CP group

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

but externally rotated in normal group. Hip flexion in CP children was more than normal throughout gait cycle

Conclusion : Pelvis in CP children have downward list that maybe because of weakness or spasticity of gluteus medius and adductors muscles. Continues hip flexion of CP children could be due to adductor spasticity. Pelvic and hip kinematic during gait in CP and normal children is different. Proximal joints other than knee joint in CP children with crouch gait pattern had significant differences and should be considered in the treatment.

Keywords : cerebral palsy ,crouch gait ,kinematic

Count: 606

Abstract ID: 357

subject: Motor Systems
and Movement Disorders: Posture and Gait

Presentation Type: Oral

Placebo cognitive effects on human walking performance

Submission Author: Ghazaleh Soleimani

Ghazaleh Soleimani¹, Mehran emadi andani²

1. Cybernetic and Modeling of Biological System Laboratory, Department of Biomedical Engineering, Amirkabir University of Technology, Tehran, Iran.
2. Department of Neurosciences, Biomedicine and Movement Sciences, University of Verona, Verona, Italy

Background and Aim : Placebo is a kind of remarkable physiological event that can have significant impacts on human behavior. The cognitive role of verbal placebo on motor performance has not yet been clearly evaluated. The influence of expectations on human motor performance showed that placebo may change chemistry and circuitry of different parts of the brain including motor areas. The aim of this study was to investigate whether placebo, especially positive suggestion, could improve motor performance behavior during human walking as a complex motor task. To achieve this goal, sham transcutaneous electrical nerve stimulation (TENS) was applied with and without verbal placebo suggestion before walking. In sham TENS, the intensity of the electrical stimulation is very lower than the required level to stimulate the cells.

Methods : Twenty-six healthy subjects (mean SD, age: 24 2.1 years; stature: 1.76 0.06 m; body mass: 70 10.7 kg) walked on a motorized treadmill at self-selected maximum walking speed. Time series of vertical ground reaction forces were recorded for each subject. The subjects were divided into three groups. (1) Experimental group: a sham TENS was applied on gastrocnemius muscles with the verbal suggestion about the strong TENS effects on motor performance. (2) Control group I: sham TENS without any verbal suggestion. (3) Control group II: no intervention. Detrended fluctuation analysis (DFA) was applied to characterize long-range correlation. The position of the center of pressure in two axes (anterior-posterior and lateral) was used to extract fractal scaling index (DFA α exponent). Self-similarity of recorded time series has been associated with walking stability such that greater α exponent is a sign of more stability.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The experimental group, with sham TENS with verbal suggestion) showed significantly greater DFA α exponent than two other control groups ($p < 0.05$). However, there was no significant difference between the group with sham TENS and no verbal suggestion and the group with no intervention.

Conclusion : Previous researches demonstrated that a real TENS could improve motor cortex output. It can affect muscle activation patterns and stability of the movements. Furthermore, in another research, it has been mentioned that verbal placebo with a sham TENS can affect the corticospinal system and improve motor performance in a simple finger hand movement. In our protocol, better motor performance was obtained during walking as a more complicated human movement after using a sham TENS with the verbal positive suggestion. Our results revealed that verbal suggestion about the effectiveness of a sham TENS improved motor behavior by changing subject's believes. In fact, the experimental group reached greater motor stability since they expected to have better motor performance after receiving sham TENS. This positive expectation could be considered as a cognitive process which could be modulated the performance of the motor control system. Owing to the fact that instability is a major risk factor of fall, this positive effect of verbal placebo can be used in cognitive rehabilitation. It can be concluded, this procedure can be useful specially for people with cognitive impairment to improve the effects of usual treatment on their motor performance.

Keywords : placebo effects; motor behavior; cognitive enhancement; gait stability;

Count: 607

Abstract ID: 20

subject: Motor Systems

and Movement Disorders: Motor Neurons and Muscle

Presentation Type: Oral

The use of fluoro – gold for retrograde tracing of nerve after spinal cord injury treatment by transplantation of motoneuron like cells and adipose mesenchymal stem cell transfected with GDNF

Submission Author: Marzieh Darvishi

Marzieh Darvishi¹

1. Faculty of Medicine, Department of Anatomy, Ilam University of Medical Sciences, Iran

Background and Aim : Introduction: In this study showed the improve of locomotor functional and structural connection of the spinal cord pathway innervating the sciatic nerve after contusion of the spinal cord followed by the transplantation of adipose derived stem cell transfected with GDNF (ADSCs-TR) +MNLC in the injured rat spinal cord

Methods : The isolated adipose stromal cells were cultured and then MSC markers were evaluated by RT-PCR and immunocytochemistry; 5 passage cells were used for ex vivo gene delivery and differentiation to MNLC. Rats were divided into five groups: (1) laminectomy (without spinal cord injury) only; (2) laminectomy + spinal cord injury+ VPA(300g/kg and 12h post injury); (3) spinal cord injury + ADSCs-TR infused 7 days post injury+ VPA(300g/kg and 12h post injury) ;(4) spinal cord injury + MNLC infused 7 days post injury+ VPA(300g/kg and 12h post injury) ; spinal cord injury + MNLC+ ADSCs-TR infused 7 days post injury+ VPA(300g/kg and 12h post injury)

Results : Locomotors function was assessed by the H-reflex and Basso-Beattie-Bresnahan (BBB) test for 12 weeks. The retrograde fluorogold tracing method was used for fate of injected ADSCs-TR and MNLC. Immunocytochemical staining and RT-PCR approved that the treated cells expressed the motoneuron markers islet-1; oligo-2 and HLXB9. Result of real time RT-PCR and western blotting technique showed that transfected cells secrete human GDNF at high level. BBB test scores of spinal cord injured rats treated with adipose mesenchymal stem cell transfected with GDNF + MNLCs at 7 days+ VPA (300g/kg and 12h post injury) were significantly improved as compared to scores of rats similarly injured ($p<0.05$). The H/M ratio decreased following the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

treated with adipose mesenchymal stem cell transfected with GDNF+ MNLCs ($p < 0.05$). Fluorogold tracing method revealed that transplanted ADSCs-TR and MNLC showed positive labeling after sciatic nerve injection

Conclusion : These findings indicate that neurotransplantation and gene transfer techniques can be used in clinical applications and treatment of CNS disorders

Keywords : Fluorogold tracing, gene therapy, neurotrophin, GDNF, regeneration

Count: 608

Abstract ID: 142

subject: Motor Systems
and Movement Disorders: Motor Neurons and Muscle

Presentation Type: Poster

Evaluation of frequency and electro-diagnostic findings of Guillain-Barre syndrome in Isfahan

Submission Author: Yegane Derakhshan

Yegane Derakhshan¹, Dr. Keivan Basiri², Dr. Behnaz ansari³

1. Sina trauma and surgery research center, Tehran University of Medical Sciences
2. Associate Professor of neurology, neurology department, Isfahan University of Medical Sciences
3. Associate Professor of neurology, neurology department, Isfahan University of Medical Sciences

Background and Aim : Guillain-Barre syndrome (GBS) is an immune-mediated Peripheral neuropathy. We wanted to compare clinical, laboratory characteristics, disease course of GBS subtypes in a large group of Iranian patients in Isfahan.

Methods : We collected data from patients who were admitted to Alzahra referral university Hospital, Isfahan, Iran with a diagnosis of GBS. In this population-based cross sectional research characteristic of 388 cases with Guillain-Barre syndrome between 2010 and 2015 were studied.

Results : The current study recruited 388 patients with Guillain-Barre syndrome including 241 males (62.1%) and 147 females (37.9%) with a mean age of 42.78 ± 21.34 . patients with polyradiculopathy had the highest mean age of 55.12 ± 20.59 years, whereas the least age was seen in AMAN with the mean of 36.30 ± 18.71 years. The prevalence of Guillain-Barre syndrome witnessed the highest frequency in spring with 113 cases (29.1%) and winter with 101 cases (26%). patients' electro diagnostic (EDX) findings indicated that the highest frequency pertained to AMSAN with 93 cases (24%), while the least frequent diagnosis was acute Polyradiculopathy with 8 cases (2.1%).

Conclusion : In conclusion, our study demonstrated incidence, sex distribution, preceding infection and surgery similar to other previous studies. However, our data differs from study in Tehran that showed AIDP is more prevalence than other types and we found a seasonal preponderance in cold months particularly in axonal types.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Guillain-Barre Syndrome; Epidemiology; Subtypes; Electro diagnosis

Count: 609

Abstract ID: 59

subject: Motor Systems
and Movement Disorders: Motor Neurons and Muscle

Presentation Type: Poster

The effect of SPARK training program on fine motor skills development and improvement of Neuromuscular coordination in male elementary school students

Submission Author: Saman Pirialam

Saman Pirialam¹, Mahmud Sheikh²

1. Department of Physical Education, Sport Faculty, University of Tehran, Tehran, Iran
2. Department of Physical Education, Sport Faculty, University of Tehran, Tehran, Iran

Background and Aim : The movement represents existence of life among living entities, and in fact, the basis of human life is based on the movement process. The child's development also gets meaning from the very beginning by movement, while it becomes more complicated and qualified as his mental and cognitive abilities, as well as his neuropsychological coordination get stronger. Basic motor skills, characterized by fine and clumsy motor skills, form the main element of motor growth. One of the abilities that a child develops in his developmental stages is the neuromuscular coordination necessary for many basic and fundamental movements in life.

Methods : Since growth is visible and measurable, and it manifests itself in the nervous system through physiological symptoms, we decided to investigate the effects of a selected training program (SPARK training) related to fine motor movements on improvement of Neuromuscular coordination. To do so, 60 male elementary students between 6 to 9 years of old were randomly put into an experimental and control group. 24 sessions of selected training program, which is a part of SPARK program for children, were hold for the experimental group, while the control group received no training. Both groups participated in a pretest and posttest measured by Bronx-Ozeretski Test. correlated tests were applied, respectively. The significance level was considered 0.5 for all the tests.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Results of data investigation in SPSS software confirmed that SPARK selected training program had made significant difference between the two groups in terms of development of fine motor skills and improvement of Neuromuscular coordination

Conclusion : as a consequence, spark training can be effective to improve neuromuscular coordination. we can apply this training method for people involving in the movement deficiency such as MS.

Keywords : fine motor skills, of Neuromuscular coordination, SPARK training program

Count: 610

Abstract ID: 665

subject: Motor Systems

and Movement Disorders: Motor Neurons and Muscle

Presentation Type: Poster

The effects of plantar flexor muscles fatigue on the lower extremity and trunk muscles onset latency in response to external perturbation

Submission Author: Zahra Rojhani Shirazi

Zahra Rojhani Shirazi¹, Samaneh Ebrahimi², Zahra Amiri³

1. School of Rehabilitation Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
2. School of Rehabilitation Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
3. School of Rehabilitation Sciences, Shiraz University of Medical Sciences, Shiraz, Iran

Background and Aim : The ability to maintain a stable, upright stance against external forces is an essential component of daily activities. In order to maintain an upright stance, the CNS must integrate and reweigh information from different sensory systems and modulate commands to the neuromuscular systems continuously. Plantar flexor muscles play a significant role in postural control during small perturbations. These perturbations result from external forces and torques elicited by rapid changes in the distribution of body mass, which may lead to loss of balance and increase the incidence of falling. Previous studies have shown that muscle fatigue, which is common during strenuous dynamic physical activities, can be a predisposing factor for musculoskeletal injuries. Therefore the aim of this study was to investigate the effects of plantar flexor muscles fatigue on the Soleus, Semitendinosus and Transvers abdominis muscles onset latency in response to external perturbation.

Methods : 20 healthy female subjects (25-30 years) participated in this interventional study through convenience sampling. The electrical activity of right/left Soleus, Semitendinosus and Transvers abdominis muscles were recorded following external perturbation (started 5s before and stopped 10s after applying the perturbation) in the sagittal plane before and after plantar flexor muscles fatigue, which was applied through a digital dynamometer. Each test was done 3 times and the mean data were used for statistical analysis.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The results of this study demonstrated a significant delayed onset of bilateral Soleus, Semitendinosus and Transvers abdominis following external perturbation after plantar flexor muscles fatigue condition ($P<0.05$).

Conclusion : The human neuromuscular system appears to use distinct control strategies in the fatigue condition .Therefore, it seems that there is a potential risk for loss of balance and sports injury duo to delayed activation of muscles after strenuous exercises, which induce plantar flexor muscle fatigue. Therefore, it is important to pay more attention to the plantar flexor muscles fatigue during dynamic tasks and activities.

Keywords : External perturbation; Fatigue; Plantar flexor; Electrical muscle activity

Count: 611

Abstract ID: 816

subject: Motor Systems
and Movement Disorders: Motor Neurons and Muscle

Presentation Type: Poster

Evaluating the trunk muscles Synergy during lifting by squat

Submission Author: Mohammad hossein Sorayani bafghi

Mohammad hossein Sorayani bafghi¹, Farhad Tabatabaie Ghomshe², Siavash Etemadi nezhad³

1. Institute for Cognitive Science Studies
2. University of Social Welfare and Rehabilitation Sciences ,Pediatric Neurorehabilitation Research Center
3. Mazandaran University of Medical Science

Background and Aim : Trunk muscles synergy is necessary for stability of the spine.Co-activation of muscles is an adapted mechanisms in neuromuscular control system for stabilizing the spine.Evaluation the trunk muscles synergy during lifting by squat is the aim of this study

Methods : 27 men with any low back pain or overweight was participated and they were asked to lift 3 weights (4 ,8 and 12 kg) With three different speeds (slow, medium and fast) by squat from the ground. Trunk muscles activation was assessed by EMG. Recorded signal was normalized and processed in MATLAB®, minimum and maximum indexes of EMG were used for calculating the Co-activation Index (CI) by Rudolph, Axe and Snyder-Mackler. Finally statistical analysis was performed using SPSS®.

Results : Co-activation Indexes obtained from trunk muscles include group 1: Erector spinae with External Oblique and group 2: Multifidus with Rectus Abdominis, co-activation indexes of group 1 are more than group 2 ($p<0.05$).

Conclusion : The synergy of External Oblique with Erector spinae muscles are more than Multifidus with Rectus Abdominis muscles during lifting by squat.so the quantity of its muscles synergy is clear in healthy people.It is suggested this research design for people with disabilities for inventing a new evaluation method by comparing them.

Keywords : muscle synergy;EMG;lifting

Count: 612

Abstract ID: 697

subject: Motor Systems

and Movement Disorders: Movement Disorders (Parkinson, Huntington's, ALS, Ataxia, education-induced Movement Disorders)

Presentation Type: Poster

Genetic testing in hereditary movement disorders

Submission Author: Mohammad taghi Akbari

Mohammad taghi Akbari¹

1. 1- Medical Genetics Department, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, 1411513116, Iran 2- Tehran Medical Genetics Laboratory, Taleghani Ave, Tehran, Iran

Background and Aim : Hereditary movement disorders comprise a group of enetically defined diseases characterized by an impaired control of movements, ataxia and/or spasticity. Affected individuals are disabled, their quality of life significantly reduced and their life expectancy shortened. Common disorders in this group, includes Alzheimer's disease or Parkinson's disease and rarer disorders such as Huntington's disease, spinocerebellar ataxias, and hereditary dystonias.

Methods : Since 2005, we have carried out genetic testing for Huntington disease, autosomal dominant ataxias and autosomal dominant dystonias using polymerase chain reaction and Sanger sequencing techniques.

Results : We confirmed the genetic diagnosis for 57% of patients (135 out of 237) suspected of Huntington disease due to pathogenic CAG repeat expansion in HTT gene. The most frequent type of dystonia, DYT1, was diagnosed in 14% of the patients (15 out of 105) due to GAG deletion as the most common pathogenic mutation of TOR1A gene. We identified pathogenic CAG repeat expansion in 16% (8 out of 50) of patients referred with spinocerebellar ataxias in ATXN1 (3 out of 8) and ATXN2 (5 out of 8) genes related to SCA1 and SCA2 respectively.

Conclusion : Since most of these disorders are genetically heterogeneous, genetic testing using single gene approaches is not time and cost effective. Recent techniques such as Next Generation Sequencing (NGS) has dramatically improved diagnostic yield in such diseases by analyzing all responsible genes in a single test. This approach becomes more important when there is a need to differentiate genetic basis of disease conditions with phenotypic overlap which is a common

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

attribute of most of the diseases of movement impairment. Finally, it may be hoped that better understanding of the genetics and pathogenetic mechanisms involved in hereditary movement disorders will improve clinical management.

Keywords : hereditary movement disorders, genetic testing, NGS, ataxia, dystonia

Count: 613

Abstract ID: 255

subject: Motor Systems

and Movement Disorders: Movement Disorders (Parkinson, Huntington's, ALS, Ataxia, medication-induced Movement Disorders)

Presentation Type: Poster

Study the effect of crocin following hypoxia induction in pregnancy on motor activity and balance in rat offspring

Submission Author: Fahime Fahimi truski

Fahime Fahimi truski¹, Zohreh Ghotbeddin², Mohammad Reza Tabandeh³, Mahdi Pourmahdi Borujeni⁴

1. Department of Basic Sciences, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran
2. Department of Basic Sciences, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran
3. Department of Basic Sciences, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran
4. Department of Basic Sciences, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran

Background and Aim : Hypoxia, as one of the most common clinical stresses during pregnancy, can cause destructive changes in the sensory motor cortex, resulting in the defective organization in motor responses. Pregnancy hypoxia cause normal brain developmental disorders and the formation of neurological activity at different stages of Origin. Crocin is a carotenoid soluble in water and one of the most active components of saffron. Studies have shown that saffron extract has antioxidant properties and has a significant role in improving memory, movement and oxygen diffusion in different tissues. Regarding to this point that crocin can improve movement and balance; this study examined the effect of hypoxia during pregnancy on motor function of offspring and role of crocin as treatment factor for motor disorders.

Methods : In this experiment, female Wistar rats were used on the 20th day of gestation. The rats were randomly divided into 4 experimental groups: control, crocin, hypoxia only, and submitted to hypoxia followed by crocin treatment. For hypoxia induction rats placed in hypoxia container with 10% O₂ and 90% N₂ for 1 hour In the crocin group, the newborns received crocin 30 mg/kg

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

intra-peritoneal 2 weeks after lactation period for 2 weeks. In the same period, saline was injected to the sham group. Finally, balance and motor activity were assessed respectively by Rotarod and open field tests.

Results : Results showed that motor activity in the hypoxia group and the hypoxia group treated with crocin significantly decrease compared to sham group ($p < 0.01$) and balance differences between groups were not significant.

Conclusion : The results indicate the importance of maternal hypoxia on motor impairment in offspring. In relation to balance, the severity of hypoxia may not be enough to discover disorder in balance and require more intensive induction of hypoxia. Reducing motor activity following crocin injection may also be associated with sedative properties of crocin.

Keywords : Prenatal hypoxia, Crocin, Motor activity, Balance, rat offspring

Count: 614

Abstract ID: 819

subject: Motor Systems

and Movement Disorders: Movement Disorders (Parkinson, Huntington's, ALS, Ataxia, education-induced Movement Disorders)

Presentation Type: Poster

Protective effects of chamomile extract against harmaline toxicity

Submission Author: Zahra Gharaeian morshed

Zahra Gharaeian morshed¹, Gholami zohan F², Roohbakhsh Y³, Abbassian H⁴

1. neuroscience Dept, Medical school, Mashhad university of medical sciences
2. neuroscience Dept, Medical school, Mashhad university of medical sciences
3. neuroscience Dept, Medical school, Mashhad university of medical sciences
4. neuroscience Dept, Medical school, Mashhad university of medical sciences

Background and Aim : Chamomile is one of the most ancient medicinal herbs known to mankind. It is a member of Asteraceae/Compositae family. The dried flowers of chamomile contain many terpenoids and flavonoids contributing to its medicinal properties. Chamomile preparations are commonly used for many human ailments such as hay fever, inflammation, muscle spasms, menstrual disorders, insomnia, ulcers, wounds, gastrointestinal disorders, and rheumatic pain. Chamomile has been used for centuries as an anti-inflammatory, antioxidant, mild astringent and healing medicine. In the present study we aimed to study the effect of chamomile extract on some behavioural symptom induced by severe harmaline toxicity in rats.

Methods : All animal care and experimental procedures were in accordance with National Institutes of Health guidelines and approved by the Mashhad University of Medical Sciences. Male Wistar rats (40–60), were group and maintained on a 12 h light–dark cycle at a $23 \pm 2^\circ\text{C}$ with access to food and water ad libitum. Experiments were conducted during the light phase (08:00–16:00 h). Three experiments were undertaken, each of which employed four behavioural tasks: tremor scoring, open field test, rotarod test and grip strength test. 30 mg/ kg harmaline induced stable tremor in this population. Chamomile extracts administered 50, 100 and 300 mg/kg for three days. The behavioral tests run after 15 min of tremor induction by harmaline 30 mg/kg according to previous studies in fourth day. data were collected and statistical tests applied in prism 6 software.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Harmaline 30 mg/kg induced a significant and persistent tremor that affected all body parts. Chamomile aqueous extract showed increased activity in open field activity than control also in Grip test significant improvement by Chamomile extract was seen.

Conclusion : Our results demonstrated that administration of Chamomile can improved some aspects of behavioral symptoms of harmaline toxicity in rat model.

Keywords : harmaline, chamomile, neuroprotection

Count: 615

Abstract ID: 18

subject: Motor Systems

and Movement Disorders: Movement Disorders (Parkinson, Huntington's, ALS, Ataxia, education-induced Movement Disorders)

Presentation Type: Poster

The serum levels of NADPH oxidase1, ferritin, selenium, and acid uric as biomarker in diagnosis of Parkinson's disease

Submission Author: Mohsen Hemmati Dinarvand

Mohsen Hemmati Dinarvand¹, Mohammad valilo², Dr. Nasser Samadi³, Dr. Ali-Akbar Taher Aghdam⁴, Ali Mota⁵, Sepideh Zununi Vahed⁶

1. Department of Clinical Biochemistry and Laboratory Medicine, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
2. Department of Clinical Biochemistry and Laboratory Medicine, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
3. Department of Clinical Biochemistry and Laboratory Medicine, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
4. Department of Neurology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
5. Department of Clinical Biochemistry and Laboratory Medicine, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
6. Kidney Research Center, Tabriz University of medical sciences.

Background and Aim : Parkinson's disease (PD) is a common neurodegenerative disease. Oxidative stress is considered as a key modulator in the development of PD. This study aimed to investigate associations between serum NOX1 (NADPH oxidase1), ferritin, selenium (Se) and uric acid (UA) levels and clinical parameters in patients with PD.

Methods : Serum levels of NOX1, ferritin, Se and UA were measured in 40 PD patients and 40 healthy individuals. Receiver operating characteristic (ROC) analysis was performed to investigate incremental diagnostic value of each factor in the study groups.

Results : Mean serum NOX1 levels was markedly higher in patient group (22.36 ± 5.80 ng/mL) versus healthy individuals (8.89 ± 2.37 ng/mL) ($p < 0.001$). Significant differences were also observed in the serum concentrations of ferritin ($p = 0.005$) and Se ($p = 0.001$) between patients

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

with PD and healthy individuals. However, the serum concentrations of UA were not statistically significant between the study groups ($p = 0.560$). ROC analysis revealed a diagnostic ability of serum NOX1 and ferritin levels for PD with an area under ROC curve of 0.7 ($p < 0.05$) and relatively high sensitivity and specificity. Combination of serum NOX1 and Se along with ferritin and UA levels increased the sensitivity up to 85%, specificity up to 97% and area under the ROC curve up to 0.94 (95% confidence interval (95% CI): 0.89 to 0.99, $p < 0.001$).

Conclusion : Our findings indicated that serum concentrations of NOX1, ferritin and Se are significantly higher in the patients with PD. Therefore, these factors can be considered as potential diagnostic biomarkers for diagnosis and monitoring of PD patients. Further studies are required with larger sample size to provide more detailed information about the cognitive profile of participants and the outcome measures.

Keywords : NADPH oxidase1, Ferritin, Selenium, Uric acid, Parkinson Diseases

Count: 616

Abstract ID: 241

subject: Motor Systems

and Movement Disorders: Movement Disorders (Parkinson, Huntington's, ALS, Ataxia, medication-induced Movement Disorders)

Presentation Type: Oral

White Matter Tract Alterations in Drug-naive Parkinson's Disease Patients with Excessive daytime sleepiness

Submission Author: Ghazaleh Kheiri

Ghazaleh Kheiri¹, Mohammad Hadi Aarabi²

1. Tehran University of Medical Sciences, Tehran, Iran
2. Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Daytime sleepiness is now reported frequently in Parkinson's disease (PD) patients, the reports range from 26 to 65%. Excessive daytime sleepiness (EDS) in patients may happen due to disruption of circadian rhythm, primary sleep disorders (restless legs syndrome, insomnia) or drug therapy (Levodopa, Selegiline). In this study, we have compared PD-ESS patients, PD-nESS patients, and control group.

Methods : Data used in the preparation of this article were obtained from the Parkinson's Progression Markers Initiative (PPMI) database (www.ppmiinfo.org/data). This dataset was acquired on a 3 Tesla Siemens scanner with 64 directions. Diffusion MRI was conducted in 93 cases divided into three groups of de-novo PD patients to find detectable white matter abnormalities between groups with or without ESS and healthy control. Groups were matched according to age at the time of diagnosis, gender, handedness, duration of disease, HY stage, UPDRS III, and MOCA score. Diffusion MRI connectometry was used to carry out group analysis between matched PD patients with and without ESS and healthy control. Diffusion MRI connectometry is based on spin distribution function (SDF) which quantifies the density of diffusing water and is more sensitive to psychological differences between groups.

Results : Compared with PD-nESS patients, PD-ESS patients showed decreased connectivity in left and right fornix, left and right inferior longitudinal fasciculus (ILF), middle cerebellar peduncle and left inferior cerebellar peduncle. PD-nESS group demonstrated decreased connectivity in the left inferior fronto-occipital fasciculus, the splenium, the left corticospinal tract

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

(CST) and the right cingulum contrast to HC. Comparing PD-nEES patients with HC group reveals that the connectivity differences in HC were higher than that in PD-nESS patients in the left inferior fronto-occipital fasciculus, the left ILF, the body of the corpus callosum, the splenium, the CST and the right cingulum.

Conclusion : EDS in PD patients is associated with decreased connections the left ILF and splenium. Also, Difference between PD-ESS and PD-nESS patients reflects microstructural differences may secondary to EDS. These findings may have important implications for understanding the neural substrates underlying EDS in PD.

Keywords : Parkinson's disease; Diffusion MRI; Excessive daytime sleepiness

Count: 617

Abstract ID: 292

subject: Motor Systems

and Movement Disorders: Movement Disorders (Parkinson, Huntington's, ALS, Ataxia, edication-induced Movement Disorders)

Presentation Type: Poster

Study of folic acid protective effects on motor deficits induced by administration of homocysteine during postnatal period in rat

Submission Author: Hakimeh Koochpeyma

Hakimeh Koochpeyma¹

1. Damghan university biology

Background and Aim : Abnormal elevation of plasma Hcy (homocysteine) levels is regarded as independent risk factor for development of some of neurological diseases. We designed this study to evaluate effect of folic acid, as an antioxidant, on motor deficits induced by administration of homocysteine during postnatal period in rat.

Methods : Pups rats divided to 4 group including control, Hcy, Hcy + folic acid and Folic acid groups. Hcy administration (0.3–0.6 mmol/g body weight) was initiated on postnatal day (PD) 4 and continued until PD 25 by subcutaneous injection twice on a day with 8 hours interval. Pups Folic acid (0.011 mmol/g body weight) administrated by i.p injection from their 4th to their 25th day of age. On day 25, motor behaviors and locomotor activity were assessed. Plasma Hcy level, level of lipid peroxidation, the activities of several antioxidant enzymes including superoxide dismutase (SOD) and glutathione peroxidase (GPx) in cerebellum were determined. Also, after completion of behavioral study on histological study was performed on PD 28.

Results : Our results showed that postnatal administration of Hcy significantly disrupted balance, impaired motor behavior in rat pups compared to control. Hcy could induce lipid peroxidation in cerebellum. Folic acid Administration attenuated lipid peroxidation and could improve motor deficits in Hcy exposure group. Also, Histological analysis indicated that Hcy could decrease number of Purkinje cell and folic acid prevented from this toxic effect.

Conclusion : Folic acid can protect the cerebellum against the complications of Hcy exposure.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Homocysteine, Folic acid, Cerebellum, Postnatal period, Rat.

Count: 618

Abstract ID: 129

subject: Motor Systems

and Movement Disorders: Movement Disorders (Parkinson, Huntington's, ALS, Ataxia, education-induced Movement Disorders)

Presentation Type: Oral

Revisiting the therapeutic effects of neurotrophic factors in treatment of Parkinson's disease: A closer look at the CDNF/MANF family's neurorestorative effects

Submission Author: Ava Nasrolahi

Ava Nasrolahi¹, Javad Mahmoudi², Mehdi Farhoudi³

1. Molecular Medicine Department, Faculty of Advanced Medical Sciences, Tabriz University of Medical Sciences, Tabriz, Iran
2. Neurosciences Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
3. Neuroscience Department, Faculty of Advanced Medical Sciences, Tabriz University of Medical Sciences, Tabriz, Iran

Background and Aim : Parkinson's disease (PD) is characterized by degeneration of the nigrostriatal dopaminergic neurons (DAergic) and hypokinetic motor signs. This condition is not curable and current therapies are only able to alleviate early symptoms of PD without affecting disease progression. Neurotrophic factors (NTFs) are extracellular proteins promoting the survival of the neurons. NTFs are including: neurotrophins, neurokines, the glial cell line-derived neurotrophic factor (GDNF) family of ligands, and the cerebral dopamine neurotrophic factor (CDNF)/mesencephalic astrocyte-derived neurotrophic factor (MANF) family. Although some of NTFs such as GDNF and NRTN have been studied in clinical trials, they have showed adverse effects and low clinical effectiveness for PD patients. Of these families, CDNF/MANF family promotes the survival and development of DA neurons at low concentrations without any side-effects. Evidence shows that, neurorestorative effects of the CDNF/MANF family in injured DAergic neurons is mediated through reduction of endoplasmic reticulum (ER) stress, oxidative stress, apoptotic cell death and neuroinflammatory reactions.

Methods : Parkinson's disease (PD) is characterized by degeneration of the nigrostriatal dopaminergic neurons (DAergic) and hypokinetic motor signs. This condition is not curable and current therapies are only able to alleviate early symptoms of PD without affecting disease

progression. Neurotrophic factors (NTFs) are extracellular proteins promoting the survival of the neurons. NTFs are including: neurotrophins, neurokines, the glial cell line-derived neurotrophic factor (GDNF) family of ligands, and the cerebral dopamine neurotrophic factor (CDNF)/mesencephalic astrocyte-derived neurotrophic factor (MANF) family.

Results : Although some of NTFs such as GDNF and NRTN have been studied in clinical trials, they have showed adverse effects and low clinical effectiveness for PD patients. Of these families, CDFN/MANF family promotes the survival and development of DA neurons at low concentrations without any side-effects. Evidence shows that, neurorestorative effects of the CDFN/MANF family in injured DAergic neurons is mediated through reduction of endoplasmic reticulum (ER) stress, oxidative stress, apoptotic cell death and neuroinflammatory reactions.

Conclusion : Although some of NTFs such as GDNF and NRTN have been studied in clinical trials, they have showed adverse effects and low clinical effectiveness for PD patients. Of these families, CDFN/MANF family promotes the survival and development of DA neurons at low concentrations without any side-effects. Evidence shows that, neurorestorative effects of the CDFN/MANF family in injured DAergic neurons is mediated through reduction of endoplasmic reticulum (ER) stress, oxidative stress, apoptotic cell death and neuroinflammatory reactions.

Keywords : CDFN, MANF, Parkinson's disease

Count: 619

Abstract ID: 156

subject: Motor Systems

and Movement Disorders: Movement Disorders (Parkinson, Huntington's, ALS, Ataxia, education-induced Movement Disorders)

Presentation Type: Oral

Effect of allopregnanolone on motor and synaptic deficits in experimental parkinsonism

Submission Author: Akram Nezhadi

Akram Nezhadi¹, Saeed Esmaeili-Mahani², Vahid Sheibani³, Mohammad Shabani⁴, Fatemeh Darvishzadeh⁵

1. Department of Anatomy, Faculty of Medicine, AJA University of Medical Sciences, Iran
2. Department of Biology, Faculty of Sciences, Shahid Bahonar University of Kerman, Kerman, Iran
3. Laboratory of Molecular Neuroscience, Kerman Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
4. Laboratory of Molecular Neuroscience, Kerman Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
5. Laboratory of Molecular Neuroscience, Kerman Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran

Background and Aim : The striatum is an important brain structure for the learning and memory as well as motor and cognitive skills. Abnormalities in subcellular localization and synaptic cell surface proteins occur within the striatum in Parkinson's disease (PD). In this study; we tested the effects of neurosteroid allopregnanolone (Allo) in the restoration of the nigrostriatal pathway output in 6-OHDA-lesioned rats.

Methods : To simulate PD, 6-hydroxydopamine (6-OHDA) was injected into the rat's substantia nigra. Allo (5 and 20 mg/kg, orally) was administered on the day after the 6-OHDA injection and continued every other day for 8 weeks. Motor-skill learning and motor behaviors were assessed by the apomorphine-induced rotation, accelerating rotarod, beam-balance (BB) and beam-walk (BW), and bar tests. The levels of striatal postsynaptic density protein 95 (PSD-95) and neurexin 1 as well as cyclooxygenase-2 (COX-2) and caspase-3 proteins were determined by immunoblotting.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The data indicated that Allo significantly improved the 6-OHDA-induced motor impairment which revealed by the increase in the ability to remain on a rotating rod and the increase in balancing and crossing on beam and also with decrease in the degree of catalepsy in bar test. Furthermore, PSD-95 and neurexin 1 levels were significantly decreased, while COX-2 and activated caspase-3 were increased in the striatum of 6-OHDA-treated animals. The mentioned molecular changes were attenuated by Allo treatment.

Conclusion : The data demonstrated that Allo has protective effect in 6-OHDA-treated rats and inhibits striatal inflammation and apoptosis and preserves pre- and post-synaptic proteins and maybe the synaptic integrity in nigrostriatal pathway.

Keywords : Parkinson's disease, Allopregnanolone, Motor disability, Striatum, Apoptosis, PSD-95, Neurexin 1.

Count: 620

Abstract ID: 818

subject: Motor Systems

and Movement Disorders: Movement Disorders (Parkinson, Huntington's, ALS, Ataxia, education-induced Movement Disorders)

Presentation Type: Poster

Protective effects of fennel extract against harmaline toxicity

Submission Author: Pardis Oliazade

Pardis Oliazade¹, Gholami zohan F², Roohbakhsh Y³, Abbassian H⁴

1. Neuroscience Department, Medical school, Mashhad university of medical sciences
2. Neuroscience Department, Medical school, Mashhad university of medical sciences
3. Neuroscience Department, Medical school, Mashhad university of medical sciences
4. Neuroscience Department, Medical school, Mashhad university of medical sciences

Background and Aim : The name fennel is from the Latin word 'foenum' = 'hay'. Fennel essential oil is a high-antioxidant compound. The analysis of the fennel essential oil showed that there are about 23 compounds. Fennel essential oil have 23 compounds, with trans-anethol, fenchone .estragole and limonene as the major components. The fennel seed extracts contained appreciable levels of total phenolic contents and flavonoid contents. Extracts also exhibited good radical scavenging activity, and inhibition of peroxidation. The present study aimed to study the effect of fennel extract on experimental tremors in rats.

Methods : All animal care and experimental procedures were in accordance with National Institutes of Health guidelines and approved by the Mashhad University of Medical Sciences. Male Wistar rats (40–60 g;P 24–28), were group housed and maintained on a 12 h light–dark cycle at a $23 \pm 2^\circ\text{C}$ with access to food and water ad libitum. Experiments were conducted during the light phase (08:00–16:00 h). Three experiments were undertaken, each of which employed three behavioural tasks: tremor scoring, open field test, rotarod test, 30 mg/ kg harmaline induced stable tremor in this population. Fennel extracts administered 25 mg/kg and 30 min before tremor induction. The behavioral tests run after 15 min and data were collected and statistical tests applied in prism software.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Harmaline reliably induced a significant and persistent tremor that affected all body parts. Fennel extract showed significant increased activity in open field and indurance on rotarod apparatus

Conclusion : Our results demonstrated that administration of fennel can improved severe behavioral symptoms of harmaline toxicity.

Keywords : harmaline, Fennel, neuroprotection

Count: 621

Abstract ID: 514

subject: Motor Systems

and Movement Disorders: Movement Disorders (Parkinson, Huntington's, ALS, Ataxia, medication-induced Movement Disorders)

Presentation Type: Oral

Outcome of STN-DBS on long-term motor function of patients with advanced Parkinson Disease

Submission Author: Romina Rashedi

Romina Rashedi¹, Gholam Ali Shahidi², Bahram Haghi Ashtiani³, Zeynab Noori Motlagh⁴

1. Medical Student Research committee, Iran University of Medical Sciences, Tehran, Iran.
2. Department of Neurology, Rasool Akram Hospital, Iran University of Medical Sciences, Tehran, Iran.
3. Department of Neurology, Firoozgar Hospital, Iran University of Medical Sciences, Tehran, Iran
4. Medical Student Research committee, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : Parkinson disease (PD) is a disabling neurodegenerative disease that is characterized with resting tremor, rigidity and stooped posture and it can variably affect the daily functions of the patients. Levodopa is known as the best medication for treating Parkinson Disease, yet this medication has many side effects such as dyskinesia if taken for a long period. Deep Brain Stimulation (DBS) is a trending surgical method that is mostly used in the last two decades due to being less invasive and the fact that it can be performed bilaterally. The objective of our study was to assess UPDRS score in Parkinson Disease patients who underwent STN DBS 6 years after their surgery and to compare their UPDRS score 6 years after DBS with their score before surgery and 6 months after their operation.

Methods : In this cross sectional study which was carried out at Neurology department of Rasoul-e-Akram hospital in Tehran, Iran affiliated to Iran University of Medical Sciences (IUMS) between 2008 and 2014, 36 patients with advanced Parkinson disease were enrolled using non-randomized sampling method. All of the patients underwent STN-DBS surgery and one of the patients passed out before being discharged, therefore; we started our study with 35 patients. The UPDRS III total score at pre-operative state, 6 -month follow-up and 6- year follow-up state were compared respectively using repeated-measure ANOVA.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : 36 patients (26 Male and 10 Female) with the mean age of 50.08 ± 3.04 ranging from 32 to 72 years underwent STN-DBS surgery. All patients were suffering from the advanced Parkinson disease with the mean period of 11.28 ± 1.88 years. All patients except one, were followed up during six months. And 14 patients (8 Male and 6 Female) were included in a six-year follow-up. The UPDRS score measurements before surgery, at 6-month follow-up and 6-year follow-up were relatively 18.22 ± 2.88 , 12.8 ± 3.14 , 25 ± 11.8 . Significant increase in UPDRS score was observed between the pre-operative and six-year follow-up score ($p < 0.001$).

Conclusion : In conclusion, this study suggested that total UPDRS score will increase at 5 years following STN DBS and also showed that resting tremor, one of UPDRS sub-scores, will improve over time and the benefit of DBS will be persistent even after 6 years.

Keywords : Parkinson Disease; Deep brain stimulation(DBS); Unified Parkinson Disease Rating Scale (UPDRS)

Count: 622

Abstract ID: 512

subject: Motor Systems

and Movement Disorders: Movement Disorders (Parkinson, Huntington's, ALS, Ataxia, education-induced Movement Disorders)

Presentation Type: Poster

A pilot trial of deferiprone in pantothenate kinase-associated neurodegeneration patients

Submission Author: Saeed Razmeh

Saeed Razmeh¹, mohammad rohani²

1. iran university of medical sciences
2. iran university of medical sciences

Background and Aim : PKAN is the most common form of NBIA, it is the autosomal recessive disease due to mutation in PANK 2 on chromosome 20, that cause the accumulation of iron in basal ganglia and production of free radicals that cause degeneration of the cells, the Deferiprone is an iron chelator that was used in treatment of thalassemia patients, it can to cross the blood-brain barrier and reverse the iron deposition in the brain This study evaluates the efficacy of Deferiprone based on clinical symptoms and brain MRI of the patients

Methods : Five patients with genetically confirmed PKAN received 15 mg/kg Deferiprone twice daily. All patients were examined at baseline, 12 and 18 months according to UPDRS and BFM score and magnetic resonance imaging (MRI) was done at the baseline and after 18 months.

Results : . In our study Qualitative evaluation of MRI showed that deferiprone was able to reduce the iron load in globus pallidus all of the patients and the results of Clinical rating scales show that in four patients, there is an improvement in the 12 first month

Conclusion : The result of our paper shows that the deferiprone can prevent the progression of the disease.

Keywords : Deferiprone; Pantothenate kinase-associated neurodegeneration; Neurodegeneration with brain iron accumulation

Count: 623

Abstract ID: 563

subject: Motor Systems

and Movement Disorders: Movement Disorders (Parkinson, Huntington's, ALS, Ataxia, education-induced Movement Disorders)

Presentation Type: Oral

New surgical approaches for treating movement disorders

Submission Author: Mohammad Rohani

Mohammad Rohani¹

1. Iran University of Medical Sciences

Background and Aim : While there is no breakthrough progress in the medical treatment of movement disorders, in the past decades several remarkable achievements happened in the surgical field, such as deep brain stimulation (DBS), radiofrequency and gamma knife thalamotomy. The most recent advance in this area is magnetic resonance-guided focused ultrasound (MRgFUS).

Methods : The objective of this review is to gather the newest advances in the surgical treatment of movement disorders. We will briefly discuss the potential applications of the new technologies of DBS, and MRgFUS.

Results : Novel DBS devices are being introduced, particularly electrodes allowing a longer stimulating Surface, stimulating multiple targets at the same time and and current radial steering (to minimize side effects of stimulation). There are new implantable pulse generators which are able to record neurons and stimulate them at the same time. Over the last years, 'minimally-invasive' neurosurgical approaches for the treatment of movement disorders have been developed the most important one is MRgFUS. Recent studies have shown the benefits of MRgFUS targeting the thalamus and pallidus for the treatment of tremor and Parkinson's disease.

Conclusion : The initial data are certainly promising and have expanded the current neurosurgical treatments of movement disorders. Many issues should be addressed, including safety of MRgFUS-and how to compare these new treatments with the existing ones.

Keywords : Deep brain stimulation, MRI-guided-FUS, Parkinson's disease, tremor, movement disorder

Count: 624

Abstract ID: 605

subject: Integrative system: Neurogenetics

Presentation Type: Oral

What do the genetic association data say about the high risk of suicide in depressed people? A novel network-based approach to find common molecular basis for depression and suicidal behavior and relat

Submission Author: Ali Bozorgmehr

Ali Bozorgmehr¹, Mohammad Ghadirivasfi²

1. Department of Neuroscience, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran
2. Research Center for Addiction and Risky Behavior (ReCARB), Iran University of Medical Sciences (IUMS), Tehran, Iran,

Background and Aim : Available sources indicate that the risk of suicide in people with major depression is higher than other psychiatric disorders. Although it seems that these two conditions may have a shared cause in some cases, no studies have been conducted to identify a common basis for them.

Methods : In this study, following an extensive review of literature, we found almost all the genes that are involved in major depression and suicidal behavior, and we isolated genes shared between the two conditions. Then, we found all physical or functional interactions within three mentioned gene sets and reconstructed three genetic interactive networks. All networks were analyzed topologically and enriched functionally. Finally, using a drug repurposing approach, we found the main available drugs that interacted with the most central genes shared between suicidal behavior and depression.

Results : The results demonstrated that BDNF, SLC6A4, CREB1, and TNF are the most fundamental shared genes; and generally, disordered dopaminergic, serotonergic, and immunologic pathways in neuronal projections are the main shared deficient pathways. In addition, we found two genes, SLC6A4 and SLC6A2, to be the main therapeutic targets, and Serotonin-Norepinephrine Reuptake Inhibitors (SNRI) and Tricyclic Antidepressants (TCA) to be the most effective drugs for individuals with depression at risk for suicide.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Our results, in addition to shedding light on the integrated molecular basis of depression-suicide, offer new therapeutic targets for individuals with depression at high risk for suicide and could pave the way for future preclinical and clinical studies. However, integrative systems biology-based studies highly depend on existing data and related databases, and the arrival of new experimental data sources in the future, could affect the results.

Keywords : major depression; suicidal behavior; genetic network; enrichment analysis; drug repurposing

Count: 625

Abstract ID: 707

subject: Integrative system: Neurogenetics

Presentation Type: Poster

Analysis of RORA gene expression in multiple sclerosis

Submission Author: Maryam Kazemzadeh Hemmesi

Maryam Kazemzadeh Hemmesi¹, Arezou Sayad², Soudeh Ghafouri-Fard³, Mir Davood Omrani⁴, Alireza mosavi jarrahi⁵, Mohammad Taheri⁶

1. Shahid Beheshti university of medical sciences
2. Shahid Beheshti university of medical sciences
3. Shahid Beheshti university of medical sciences
4. Shahid Beheshti university of medical sciences
5. Shahid Beheshti university of medical sciences
6. Shahid Beheshti university of medical sciences

Background and Aim : Multiple sclerosis (MS) is an autoimmune disease characterized by recurrent episodes of demyelination and loss of oligodendrocytes. The demyelination process is caused by various subsets of CD4+ T cells with a Th1 and Th17 phenotype. The retinoid acid-related orphan receptor A (RORA) is expressed in Th17 cells and promote Th17 differentiation.

Methods : In this study, we compared the expression level of RORA gene in the blood of 50 relapsing-remitting MS (RRMS) patients who were treated with IFN- β and 50 healthy controls by TaqMan Quantitative Real-Time PCR.

Results : We found that RORA expression was significantly down-regulated in MS patients compared with controls (P=0.006). However, there was no significant correlation between RORA gene expression and Kurtzke Expanded Disability Status Scale (EDSS).

Conclusion : Our findings suggest a possible contribution of IFN- β in the downregulation of RORA. In addition, RORA downregulation may be a potential indicator of positive response to interferon beta treatment of multiple sclerosis patients.

Keywords : Multiple Sclerosis; RORA; IFN- β

Count: 626

Abstract ID: 671

subject: Integrative system: Neurogenetics

Presentation Type: Oral

Understanding the molecular basis of Brown-Vialetto-Van Laere syndrome and Fazio-Londe syndrome as allelic disorders: in silico analyses of the SLC52A3 mutations

Submission Author: Nejat Mahdieh

Nejat Mahdieh¹, Mohammad Kazem Bakhshandeh², Mohammad Reza Navaeifar³, Ali Abbaskhanian⁴

1. Rajaie Cardiovascular Medical and Research Center
2. Bahrami Children Hospital, Department of Pediatric Neurology, Tehran University of Medical Sciences
3. Pediatric Infectious Diseases Research Center, Mazandaran University of Medical Sciences
4. Pediatric Infectious Diseases Research Center, Mazandaran University of Medical Sciences

Background and Aim : Brown-Vialetto-Van Laere syndrome, a rare neurological disorder with progressive bulbar palsy, sensorineural hearing loss and respiratory failure, is due to SLC52A3 mutations. Here, the SLC52A3 protein and its mutations are in silico structurally and functionally analyzed among all the reported patients and a novel mutation is reported. After clinical evaluations, SLC52A3 gene was sequenced and segregation analysis of the mutations was also checked. A comprehensive search was performed on the reported mutations of SLC52A3 gene. In silico analyses of the mutations were done using available software tools. Interactome, in silico structural and functional analyses of the protein were also performed using I-TASSER and Phyre2 servers. Brown-Vialetto-Van Laere syndrome, a rare neurological disorder with progressive bulbar palsy, sensorineural hearing loss and respiratory failure, is due to SLC52A3 mutations. Here, the SLC52A3 protein and its mutations are in silico structurally and functionally analyzed among all the reported patients and a novel mutation is reported.

Methods : After clinical evaluations, SLC52A3 gene was sequenced and segregation analysis of the mutations was also checked. A comprehensive search was performed on the reported mutations of SLC52A3 gene. In silico analyses of the mutations were done using available software tools. Interactome, in silico structural and functional analyses of the protein were also performed using I-TASSER and Phyre2 servers.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Mutations of 37 affected individuals were identified. Thirty three mutations were determined. c.502A>C was a novel variant that its pathogenicity was checked by segregation analysis and in silico software tools. One mutation (c.639C>G) was responsible for 12% of the mutations. Segregation analysis, secondary structure, functional prediction achieved for the novel mutation showed pathogenicity of this variant.

Conclusion : BVVL is a very rare disorder; SLC52A3 mutations are distributed among different populations and there might be one frequent mutation in this gene. BVVL should be more considered in Iran. In addition to segregation analysis, computational analyses could accelerate understanding the extent of pathogenicity of the novel variants.

Keywords : Fazio Londe Syndrome, SLC52A3 mutation, in silico analysis, Iran population

Count: 627

Abstract ID: 672

subject: Integrative system: Neurogenetics

Presentation Type: Poster

Genotype, phenotype and in silico pathogenicity analysis of HEXB mutations: panel based sequencing for differential diagnosis of gangliosidosis

Submission Author: Nejat Mahdieh

Bahareh Rabbani¹, Nejat Mahdieh², Sahar Mikaeeli³, Alireza Tavassoli⁴

1. Genetic Research Laboratory, Rajaie Cardiovascular Medical and Research Center, Iran University of Medical Sciences
2. Genetic Research Laboratory, Rajaie Cardiovascular Medical and Research Center, Iran University of Medical Sciences
3. Genetic Research Laboratory, Rajaie Cardiovascular Medical and Research Center, Iran University of Medical Sciences
4. 2. Children's Hospital Center, Pediatric Center of Excellence, Tehran University of Medical Center, Tehran, Iran

Background and Aim : Gangliosidosis is an inherited metabolic disorder causing neurodegeneration and motor regression. Preventive diagnosis is the first choice for the affected families due to lack of straightforward therapy. Genetic studies could confirm the diagnosis and help families for carrier screening and prenatal diagnosis. An update of HEXB gene variants concerning genotype, phenotype and in silico analysis are presented.

Methods : Genetic testing of four cases was performed to confirm the clinical diagnosis and for reproductive planning. Direct sequencing of HEXA and HEXB genes showed recurrent homozygous variants at c.509G>A (p.Arg170Gln) and c.850C>T (p.Arg284Ter), respectively.

Results : A novel variant at c.416T>A (p.Leu139Gln) was identified in the GLB1 gene. Panel based next generation sequencing was performed for an undiagnosed patient which showed a novel mutation at c.1602C>A (p.Cys534Ter) of HEXB gene. Bioinformatic analysis of the HEXB mutation database showed 97% consistency of in silico genotype analysis with the phenotype. Bioinformatic analysis of the novel variants predicted to be disease causing. In silico structural

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

and functional analysis of the novel variants showed structural effect of HEXB and functional effect of GLB1 variants which would provide fast analysis of novel variants.

Conclusion : panel based studies could be performed for overlapping symptomatic patients. Consequently, genetic testing would help affected families for patients' management, carrier detection, and family planning's.

Keywords : HEX B variants; Gangliosidosis; next generation sequencing; in silico analysis

Count: 628

Abstract ID: 478

subject: Integrative system: Neurogenetics

Presentation Type: Oral

A novel mutation in the TSC2 gene causing severe Tuberous Sclerosis

Submission Author: Farshid Parvini

Farshid Parvini¹

1. Department of Cell and Molecular Biology, Faculty of Science, Semnan University, Semnan, Iran

Background and Aim : Tuberous sclerosis complex (TSC) is an autosomal dominant disorder characterized by hamartomas in multiple organ systems, including the brain, heart, skin, lung, and kidneys. This disorder derived by heterozygous mutations in either TSC1 or TSC2 genes. Approximately 10 to 30% of cases of tuberous sclerosis are due to mutations in the TSC1 gene whereas the frequency of cases due to mutations in the TSC2 gene is consistently higher. TSC2 mutations are associated with more severe disease.

Methods : In this study, we have investigated the TSC2 gene of a 7-year-old male patient presenting classical features of the tuberous sclerosis complex. Targeted sequencing using Next Generation Illumina Sequencing was used to enrich all exons of TSC1 and TSC2 genes as well as some other important genomic regions in the affected patient. Subsequently, Sanger sequencing was used for confirmation of novel mutation found.

Results : A novel deleterious heterozygous 17-nucleotide deletion causing frameshift in TSC2 gene (c.1313_1329del:p.V438fs) was identified in an 7 years old boy with epilepsy, severe learning difficulties, behavioral problems, lack of speech, melanotic macules, facial angiofibromas, patches of connective tissue nevi and autism.

Conclusion : Current study uncovered one rare novel mutation in TSC2 gene in patient with TSC disorder. Such studies may help to conduct genetic counseling and prenatal diagnosis more accurately for individuals at the high risk of these types of disorders.

Keywords : Tuberous Sclerosis, TSC2 gene, Novel mutation

Count: 629

Abstract ID: 615

subject: Integrative system: Neuroendocrinology

Presentation Type: Poster

The shell part of nucleus accumbens and its laterality has important role in response to chronic stress in female rats

Submission Author: Tahereh Sadat Javadifar

Tahereh Sadat Javadifar¹, Mohammad-Ali ketabi²

1. Neuroscience Research Center, Baqiyatallah (a.s) University of Medical Sciences, Tehran, Iran.
2. Department of Endodontics, School of dentistry, Aja University of Medical Sciences, Tehran, Iran.

Background and Aim : Regarding the key role of the nucleus accumbens (NAc) and its laterality and sex difference in brain's response to stress. We examined the effects of chronic stress and transient inactivation of NAc shell on the metabolic and hormonal changes in female rats.

Methods : Canulation uni- or bilaterally in the NAc shell and lidocaine (0.2%) administration was performed and then electric foot shock was applied to them four days consecutively. After termination of stress in fourth day food and water intake, delay to eating time, plasma glucose, corticosterone, estradiol and progesterone were measured.

Results : Outcome show that chronic stress effects on some metabolic factors that evaluated in present study were as below: no effect on delay to eating time and the amount of water intake plus significant increase in food intake and glucose concentration. Also, the roles of NAc shell in delay to eating time in the right side and in food intake in the left side and also in water intake and plasma glucose in both sides are dominant and in according with stress effect. In addition, hormonal changes in responses to chronic stress include no changes for corticosterone and progesterone but show elevation in stradiol concentration. Moreover, NAc shell has prominent and consistent role with stress effect in right and left sides for corticosterone and in right side for progesterone and also no effect for stradiol.

Conclusion : It can be concluded that the role of NAc shell in responses to chronic stress is dependent on side in female rats.

Keywords : nucleus accumbens shell, chronic stress, female rats.

Count: 630

Abstract ID: 325

subject: Integrative system: Neuroendocrinology

Presentation Type: Poster

The effect of neonatal stress on insulin secretion in response to pubertal psychological stress in adult male rats.

Submission Author: Forouzan Sadeghimahalli

Forouzan Sadeghimahalli¹, Homeira Zardooz²

1. Educational Development Center, Mazandaran University of Medical Sciences, Sari, Iran.
2. Neurophysiology Research Center and Department of Physiology, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Background and Aim : It is well documented that a variety stressful manipulations impair the activity of central neuronal pathways related to hormonal and metabolic responses to stress in adulthood. So, we studied the effect of chronic neonatal foot-shock stress on insulin output from pancreatic isolated islets in response to pubertal psychological stress in adult male rats .

Methods : Male Wistar rats were divided into 4 study groups: Control (only placed inside the communication box with no application of stress at 2 and/or 8-10 weeks of age), Early STR (placed inside the communication box with induction of foot-shock stress only at 2 weeks of age), adult STR (placed inside the communication box with induction of psychological stress only at 8-10 weeks of age), Early + adult STR (placed inside the communication box with induction of foot-shock stress only at 2 weeks of age and psychological stress at 8-10 weeks of age). Stress was induced for 5 consecutive days (2 times/day) at two levels of age. At the end of the experiment, following pentobarbital anesthesia, male adult rats were decapitated and dissected to remove pancreas tissue. After carrying out islets separation procedure, glucose-stimulated insulin secretion from pancreatic isolated islets in response to 5.6 and 16.7 mM glucose concentrations, was assessed.

Results : Our results exhibited that early life stress in Early STR group reduced non-significantly insulin output from pancreatic isolated islets in the presence of low glucose concentration (5.6 mM) as compared to Control group and enhanced significantly insulin secretion in response to high glucose concentration (16.7 mM) ($P < 0.01$) in comparison with Control group. Pubertal psychological stress was not able to change insulin secretion in adult STR in comparison with

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Control group, while early stress in combination with pubertal psychological stress in Early + adult STR group increased significantly insulin output in presence of 5.6 mM glucose level ($P < 0.01$) as compared to Early STR group and in response to 16.7 mM glucose level as compared to control and adult STR groups ($P < 0.05$).

Conclusion : Our results suggest that neonatal stress in combination with adulthood stress impaired the pancreatic insulin secretion. Thus, early life stress maybe predispose organism to metabolic disorders such as impaired glucose homeostasis, type-2 diabetes development and metabolic syndrome later in life.

Keywords : neonatal stress, insulin secretion, psychological stress.

Count: 631

Abstract ID: 629

subject: Integrative system: Brain Immune System and Brain Tumors

Presentation Type: Oral

The cytotoxic effect of diclofenac on brain cancer cells in cell culture media

Submission Author: Sarah Nouri

Sarah Nouri¹, Rahim Ahmadi², Bahare seyed Hoseini³

1. Department of biology, faculty of science, Ardabil Azad University, Ardabil, Iran
2. Islamic Azad University, Hamedan Branch, Iran; International Avicenna College, Hungary, European Union
3. Department of biology, faculty of science, sistan and balochestan university, zahedan, iran

Background and Aim : Research results indicate that diclofenac has anti-cancer effects in a variety of cancer cells. According to this, the present study examines the cytotoxic effects of diclofenac on brain glioblastoma tumor cells (A172) in cell culture media.

Methods : In this experimental study, glioblastoma cells were exposed to diclofenac at different concentrations of 10, 1, 0.1, 0.01, 0.001 and 0.0001 milligram per milliliter after cell culture and incubated for 24 hours. Then, the MTT color was added to the medium and the cells were again incubated for 24 hours.

Results : After 24 hours, to monitor the effect of diclofenac on brain tumor cell, isopropanol was added to solution and the absorbance was measured at 570 nm. At the end, the results were analyzed using SPSS statistical method. The results indicated that diclofenac at concentrations of 10, 1 and 0.1 mg / ml caused significant changes in the survival of glioblastoma cells.

Conclusion : The present study showed that high concentrations of diclofenac could reduce the survival of glioblastoma cells in cell culture media. Based on this, the use of diclofenac as an adjuvant to cure glioblastoma can be considered.

Keywords : vitality, diclofenac, A179

Count: 632

Abstract ID: 31

subject: Integrative system: Brain Immune System and Brain Tumors

Presentation Type: Oral

Perifosine enhances bevacizumab-induced apoptosis and therapeutic efficacy by targeting PI3K/AKT pathway in a glioblastoma heterotopic model

Submission Author: Sara Ramezani

Sara Ramezani¹, Nasim Vousooghi², Mohammad Taghi Joghataei³

1. Neuroscience Research Center, school of medicine, Guilan University of Medical Sciences, Rasht, Iran
2. Department of Neuroscience, School of Advanced Technologies in Medicine, Tehran University of Medical Sciences, Tehran, Iran
3. Neuroscience Department, School of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : Bevacizumab (BVZ) as an antiangiogenesis therapy leads to a transient therapeutic efficacy in high-grade glioma. However, the proapoptotic potential of BVZ has not been well elucidated, yet. There is also a tumor resistance to BVZ that is linked to post-treatment metalloproteinases and AKT activities. Herein, the association between therapeutic efficacy and putative proapoptotic activity of low-dose BVZ either alone or in combination with a specific inhibitor of AKT called perifosine (PRF), in a glioma model was investigated.

Methods : BALB/c mice bearing C6 glioma tumor were treated with BVZ and PRF either alone or combined for 13 days (n = 11/group). At the end of treatments, apoptosis, proliferation and vascular density, in the xenografts (3/group) were detected by TUNEL staining, Ki67 and CD31 markers, respectively. Relative levels of cleaved-caspase3, phospho-AKT (Ser473) and matrix metalloproteinase2 (MMP2) were measured using western blotting.

Results : PRF and BVZ separately slowed down tumor growth along with the cell apoptosis induction associated with a profound increase in caspase3 activity through an AKT inhibition related pathway for PRF but not BVZ. Unlike PRF, BVZ significantly increased the intratumor MMP2 and phospho-AKT (Ser473) levels coupled with the slight antiproliferative and significant antivascular effects. Co-administration of PRF and BVZ versus monotherapies potentiated the proapoptotic effects and reversed the BVZ-induced upregulation of phospho-AKT (Ser473) and

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

MMP2 levels in C6 xenografts, leading to the optimal antiproliferative activity and tumor growth regression and longer survival.

Conclusion : In conclusion, BVZ plus PRF renders a paramount proapoptotic effect, leading to a major therapeutic efficacy and might be a new substitute for GBM therapy in the clinic.

Keywords : Glioblastoma multiforme · Combination therapy · Bevacizumab · AKT signal · Apoptosis · C6 heterotopic xenograft

Count: 633

Abstract ID: 567

subject: Integrative system: Brain Immune System and Brain Tumors

Presentation Type: Oral

The cytotoxic effect of ibuprofen on brain cancer cells in cell culture media

Submission Author: Bahare Seyed hosseini

Bahare Seyed hosseini¹, Dr rahim ahmadi², Sarah noori yengeje³

1. Department of biology, university of sistan and baluchestan
2. Department of physiology, Islamic Azad University, Hamedan Branch, Iran
3. Department of biology, Islamic Azad University, ardabil branch, Iran

Background and Aim : Research results indicate that ibuprofen has anti-cancer effects in a variety of cancer cells. According to this, the present study examines the cytotoxic effects of ibuprofen on brain glioblastoma tumor cells (A172) in cell culture media.

Methods : In this experimental study, glioblastoma cells were exposed to ibuprofen at different concentrations of 10, 1, 0.1, 0.01, 0.001 and 0.0001 milligram per milliliter after cell culture and incubated for 24 hours. Then, the MTT color was added to the medium and the cells were incubated again for 24 hours. After 24 hours, to monitor the effect of ibuprofen on brain tumor cell, isopropanol was added to the solution and the absorbance was measured at 570 nm. At the end, the results were analyzed using SPSS statistical method.

Results : The results indicated that ibuprofen caused significant changes in the survival of glioblastoma cells at concentrations of 10, 1 and 0.1 mg / ml.

Conclusion : The present study showed that high concentrations of ibuprofen can reduce the survival of glioblastoma cells in cell culture media. Based on this, the use of ibuprofen as an adjuvant to cure glioblastoma can be considered.

Keywords : A179, survival, ibuprofen

Count: 634

Abstract ID: 421

subject: Integrative system: Neural Circuits and Connectivity

Presentation Type: Poster

Altered serum ghrelin and glucose levels following CRH administration into hypothalamic paraventricular and central amygdala nuclei

Submission Author: Atefeh Rayatpour

Atefeh Rayatpour¹, Maryam Radahmadi², Maedeh Ghasemi³, Mina Sadat Izadi⁴

1. MSc of Physiology, Department of Physiology, School of Medicine, Isfahan University of Medical Science, Isfahan, Iran
2. Assistant Professor, Department of Physiology, School of Medicine, Isfahan University of Medical Science, Isfahan, Iran
3. Ph.D of Physiology, Department of Physiology, School of Medicine, Isfahan University of Medical Science, Isfahan, Iran
4. MSc of Physiology, Department of Physiology, School of Medicine, Isfahan University of Medical Science, Isfahan, Iran

Background and Aim : Corticotropin releasing hormone (CRH) as a neuropeptide, has long been identified as the regulator of hypothalamus-pituitary-adrenal axis (HPA). CRH has also been identified as a neurotransmitter involved in many cerebral activities such as metabolic control and energy homeostasis. CRH neurons are found in different brain areas such as Hypothalamic Paraventricular nucleus (PVN) and Central Amygdala (CeA) that are two main centers of CRH secretion. Therefore, this study tries to investigate the effects of repeated administration of CRH into PVN and CeA, on serum ghrelin and glucose levels.

Methods : Twenty five male Wistar rats were distributed into control, sham (for both PVN and CeA), CRH treated PVN and CRH treated CeA groups. The CRH (2 μ g/kg) was administrated into the PVN and CeA for 7 days, as well as saline for sham group. The serum ghrelin and glucose were measured, after a period of food deprivation about 16-18 hr. The fasted glucose levels were determined by glucometer and the serum ghrelin levels were measured by ELISA test.

Results : The results showed that ghrelin level increased in the CRH treated PVN and CRH treated CeA groups when compared to control group, however it wasn't significant. Also fasting blood glucose reduced in both CRH treated PVN and CRH treated CeA groups compared to control

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

group but this decline was only significant in CRH treated CeA group compared to control group ($P < 0.05$).

Conclusion : The serum ghrelin levels should be reduced due to fasting but, contrary to expectations, it increased after repeated injection of CRH in both CRH treated groups. It seems that various pathways may be involved in repeated administration of CRH into the PVN and CeA nuclei. Additionally, different levels of glucose reduction in PVN and CeA show that, CRH administration into PVN and CeA activate different neuronal circuits.

Keywords : Corticotropin releasing hormone, hypothalamic paraventricular nucleus, central amygdala, ghrelin, glucose, rat.

Count: 635

Abstract ID: 534

subject: Integrative system: Neural Circuits and Connectivity

Presentation Type: Poster

Glucocorticoid receptors in the basolateral amygdala mediate the restraint stress-induced reinstatement of methamphetamine seeking in rats

Submission Author: Zahra Taslimi

Zahra Taslimi¹

1. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran

Background and Aim : Methamphetamine (METH) addiction is a growing epidemic worldwide. It is a common psychiatric disease and stress has an important role in the drug seeking and relapse behaviors. The involvement of basolateral amygdala (BLA) in the effects of stress on reward pathway is discussed in several studies. In this study, we tried to find out the involvement of glucocorticoid receptors (GRs) in the BLA in stress-induced reinstatement of extinguished methamphetamine-induced conditioned place preference (CPP) in rats.

Methods : The CPP paradigm was done in adult male Wistar rats weighing 220–250g. Animals received effective dose of methamphetamine (0.5 mg/kg) daily, during the 3-day conditioning phase. In extinction phase, rats were put in the CPP box for 30 min a day for 8 days. After extinction, animals were exposed to acute restraint stress (ARS), 3 h before subcutaneous administration of ineffective dose of methamphetamine (0.125 mg/kg) in order to reinstate the extinguished methamphetamine-CPP. In another group during the extinction phase animals were exposed to chronic restraint stress (CRS) for 1 h each day. To block the glucocorticoid receptors in the BLA, after stereotaxic surgery and placing cannula in this area, animals unilaterally received GR antagonist mifepristone (RU38486; 10, 30 and 90 ng/0.3 µl DMSO) in all ARS groups in reinstatement day. In another set of experiment, RU38486 (3, 10 and 30 ng/0.3 µl DMSO) was microinjected into the BLA in CRS groups prior to exposure to stress every day in extinction period.

Results : The results revealed that intra-BLA mifepristone in ARS groups 90 ng/0.3 µl DMSO and in CRS groups 30 ng/0.3 µl DMSO prevents the stress-induced reinstatement. It can be

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

proposed that stress partially exerts its effect on the reward pathway via glucocorticoid receptors in the BLA, Also, effect of acute and chronic stress are not quite similar.

Conclusion : Since that higher doses of glucocorticoid receptors in acute stress required than chronic stress, it seems that following the acute stress accrued downregulation in BLA glucocorticoid receptors.

Keywords : Reward; Restraint stress, Methamphetamine; Glucocorticoid receptor; Basolateral amygdala; Reinstatement; Extinction; Rat

Count: 636

Abstract ID: 466

subject: Integrative system: Other

Presentation Type: Oral

Ahwazi viewpoints on brain temperament: beyond the simplicity and linear medical thinking

Submission Author: Majid Anushiravani

Majid Anushiravani¹, Zeinab JaberZadeh²

1. Department of Persian Medicine, School of Persian and Complementary Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Department of Psychology, Torbat-e jam branch, Islamic Azad University, Torbat-e jam, Iran

Background and Aim : Ancient physician in Greek, Persia and Islamic lands believed that basic variations of individuals in physical, mental, emotional, and behavioral traits are strongly related to their original temperament. Temperament can be defined as a biologic superfactor that extremely takes part in organizing and conducting the structural and functional characteristics in living systems. Although initial temperament seems to follow a hereditary pre-setting but it can widely be influenced by numerous environmental variables. Based on the teachings of ancient sage Hakims in Persia, each organ in the human body acts, reacts, and interacts in accordance to its temperament; therefore it's so important to understand and consider this innate dynamics in the spectrum of health and sickness. In other words any plan for self-care, health promotion, preventive medicine, and therapeutic approach should consider the general temperament of the whole body as well as the specific temperament of the chief organs (Brain, Heart, and Liver).

Methods : In this review, the Arabic manuscript of Kitāb Kāmil aṣ-Ṣinā'a aṭ-Ṭibbiyya was assessed in order to explore the teachings and opinions of Ahwazi about the brain temperament. The internal theme of textual findings was extracted, categorized and interpreted.

Results : The famous Persian physician, Ahwazi,(? 930-994 CE) who is known as Haly Abbas in western world, describes six semiological aspects for medical students to achieve an observational diagnosis of the brain temperament.. In his famous book Kitāb Kāmil aṣ-Ṣinā'a aṭ-Ṭibbiyya (کتاب کامل الصناعة الطبية "Complete Book of the Medical Art") he presents these aspects as follows: - Size and shape of the head - Properties of the hair grows on scalp (quantity, texture, color, thickness) - Functions of the brain (neurologic, psychological) - Discharges as nasal and postnasal drainage -

Tactile sensation felt through touching the head skin - Signs and symptoms relating to the eye He describes several clinical indicators for each of the above aspects to differentiate temperamental patterns.

Conclusion : According to Ahwazi viewpoint, through a mixed-method combining objective observation and deductive reasoning, the physician can find and understand both the original and acquired temperaments of the brain through the above-mentioned clinical features. It is interesting that Ahwazi presents a multi-dimensional approach to discover the brain temperament. He considers not only various morphologic, physiologic, neurologic, and psychological characteristics of the head and brain in different temperaments, but also concerns the eye as a diagnostic aspect. It seems Ahwazi believes that brain should be comprehended not only through its direct physical features and morphologic, neurologic and mental-emotional functions, but also in relation with its neighboring organs including nasal cavity and eye. Ahwazi presents a novel empirical idea; Unlike Avicenna and many other famous Persian physicians, he firstly and mainly emphasizes on finding the specific features of chief organs' temperament (including brain) instead of general manifestations of temperament. In fact he thoughtfully underlines the polygonal interaction between chief organs and other parts of the body in order to comprehend the temperament dynamics. Ahwazi also noted the interaction of brain with other systems especially digestive system. Needless to say that such a non-linear observation leads to a different clinical interpretation and final decision making on treatment.

Keywords : Ahwazi; haly Abbas; brain; temperament; persian medicine

Count: 637

Abstract ID: 25

subject: Integrative system: Other

Presentation Type: Oral

Designing and implementation of a Sleep Apnoea Treatment System based on Electrical Stimulation

Submission Author: Vida Mehdizadehfar

Vida Mehdizadehfar¹, Hamed sadjedi ², Maryam Banimostfa arab³, Samira kushkestani⁴

1. Department of Research and Development in Tanin Pardaz Pasargad
2. Department of Research and Development in Tanin Pardaz Pasargad, Faculty of Biomedical Engineering, Shahed University
3. Department of Research and Development in Tanin Pardaz Pasargad
4. Department of Research and Development in Tanin Pardaz Pasargad

Background and Aim : Obstructive sleep apnoea is the most common form of sleep-disordered breathing, defined as a clinical condition in which there is intermittent and repeated upper airway collapse during sleep which results in interrupted and irregular breathing at night and, typically, excessive sleepiness during the day. Electrical stimulation of the upper airway dilator muscles for patients with obstructive sleep apnoea has been used for several decades; the results of several studies have revealed the potential of electrical stimulation in the treatment of sleep apnoea.

Methods : Treating the functional loss of the neuromuscular tone with sleep onset and the contributing anatomical factors at the same time in order to keep the upper airway during sleep is hypothetical way to treat sleep apnoea. To this end an electrical stimulator is designed. In this device, stimulation information such as waveform, frequency, current intensity and impulse duration are determined by installed software on the PC. In the present study, the electrical stimulation device can produce sine, pulse, triangular and combined waveforms in the frequency range of 0 to 50 kHz. The applied voltage range is ± 18 volts. In addition, it is possible to change the trigger time. The technical specifications allow the device to be used for the treatment of respiratory apnoea.

Results : To ensure the correct operation of the device, electrical tests are carried out under different conditions. The results of these tests indicate that the output voltage in a constant load is

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

linear with the input voltage and independent of load. Output voltages correspond to 0.871, 3.56, 8.89, 11.56 and 14.22 ohm load resistance are 14.85, 14.96, 15, 14.90 and 14.96 volt respectively.

Conclusion : Electrical stimulation of the upper airway dilator muscles in sleep apnoea has the potential to develop into a clinical intervention. It could be useful for patients who fail standard therapy due to poor long-term compliance. Anatomical features, mechanical narrowing of the upper airway and also play an important role in sleep apnoea. Non-invasive electrical stimulation of electrical transcutaneous stimulation using bipolar electrodes to the skin of the patients in the submental region is new approach to treat this disorder, but it will be needed to test on diversity of patients to more ensure the correct operation of the proposed device.

Keywords : Sleep apnoea; Disordered breathing; Transcutaneous stimulation; Electrical stimulation; Upper airway

Count: 638

Abstract ID: 167

subject: Computational Neuroscience: Modeling and Simulation

Presentation Type: Poster

new laboratory model -based spinal fixation training program along with navigational techniques in surgical training

Submission Author: Azin Arabkhazaie

Azin Arabkhazaie¹, Azar Arab Khazaie², Sina Haghi³, Afsane Asgar Khah⁴

1. Msc student of surgical technology, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran
2. Msc student of surgical technology, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran
3. Msc student of surgical technology, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran
4. Msc student of surgical technology, Faculty of allied medicine, Iran university of medical sciences, Tehran, Iran

Background and Aim : Vertebral body fractures with an accompanying neurological deficit, represent an indication for operative stabilization . In spinal fusion surgery, The main problem of the procedure is the false positioning of the pedicle screws that has a direct effect on the surgical outcome. Screw misplacement can also lead to the un-stability of the internal fixateur and may cause neurovascular complications or pseudoarthrosis formation. Current training for pedicle screw insertion technique involves didactic teaching and supervised placement in the operating room . This study demonstrated that compared with a didactic-only training model, using navigation simulation with cadavers and Sawbones models.

Methods : the present study is systematic review in electronic database pubmed, ovid, scopus, that conducted in 2017 To justify the need to develop new methods for optimizing pedicle screw paths. The study group in all of the article was exposed to an additional pilot program that included a training session using navigation software combined with cadaveric specimens and accessibility to Sawbones models. Navigation-supported procedures can reduce the rate of false positioning, but cannot exclude the possibility of considerable false positions.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : We evaluated the use of Laboratory training models with Guided pedicle screw insertion as a training tool for the accuracy with which screws are inserted in the pedicle (Manbachi et al , 2014). Simulation-based methods are being increasingly adopted in surgical training(David et al ,2013) .Laboratory training models are essential for developing and refining surgical skills prior to clinical application of spinal surgery(Swetha et al,2016). The closer to live surgery the model is, the greater the benefit(Markus et al,2009).

Conclusion : Most current teaching techniques for screw insertion involve “learning by doing” in the operating room .One possible manner to minimize the misplacement of pedicle screws in the long term is seeking ways to train surgical residents with accessible technologies or new technological advancements. It also describes educational aids that have the potential for reducing the training process.

Keywords : spinal fixation; navigational techniques; surgical training

Count: 639

Abstract ID: 349

subject: Computational Neuroscience: Modeling and Simulation

Presentation Type: Poster

Brain Effective Connectivity Pattern Modulation by Repeating Blocks of an fMRI Task

Submission Author: Shamim Fazeli

Shamim Fazeli¹, Amirsalar Jafarpisheh²

1. Department of Biomedical Engineering, Tehran South Branch, Islamic Azad University, Tehran, Iran
2. Department of Ergonomics, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.

Background and Aim : Effective connectivity is an active type of association between brain regions, and its resulting network is observed to change with time. The change of links' strength in effective connectivity networks has been studied before using Granger Causality method but as far as we know, the change in the structure of the network has not yet been tested.

Methods : We used a simulated time-variable data including three regions and one input to validate our method. In addition we used a real fMRI data in order to evaluate the time-variability of brain effective connectivity between four brain regions using Dynamic Causal Modeling. For this data the model space contained 38 models, all including the four regions of ventromedial prefrontal cortex, dorsolateral prefrontal cortex, amygdala, and ventral striatum. In both data a proper moving window algorithm was used to find the changes during time.

Results : The results of simulated data showed good compliance to the input pattern change during time. The results of real data initially showed time-dependent changes in the strength of some of the connections between brain regions. The most valid changes happened in the input and non-linear modulatory links. The input links' strength increased and the nonlinear links' strength decreased exponentially during time. These results show that the pattern of effective connectivity network changes during time and so reporting a single network for the whole data acquisition period is not meaningful.

Conclusion : In this study, we have used a method to find the time-dependent pattern change during an fMRI task. We have shown the links' strength change during time and accordingly the structure of the network changes.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Dynamic Causal Modeling, fMRI, Time Variability

Count: 640

Abstract ID: 694

subject: Computational Neuroscience: Modeling and Simulation

Presentation Type: Poster

Eye-controlled wheelchair using an EEG headset for ALS patient

Submission Author: Mohammad Fiuzy

Mohammad Fiuzy¹, Abbas Koohpayezade²

1. , Department of Control, School of Electrical Engineering, Iran University of Science and Technology
2. Biomedical Engineering Department, Faculty of Electrical Engineering, Hakim Sabzevari University

Background and Aim : Aim and objective: This paper aims at helping ALS patients and other patients with motor neuron disease which has caused irreparable damage to their central nervous system, brain, spinal cord and peripheral nervous system.

Methods : Material and Method: These people need a channel for communication that is not dependent on muscle control. In fact, this channel should not be dependent on the output passages of the brain like nervous system to indicate the needs of patients. This new communication channel can be set for commands that the brain states them without intermediate muscle-entrance ways. These ways can be the connection between brain and computer (BCI) and brain and machine (BMI).

Results : Result: They can be used for artificial dentures, moving the wheelchair or just conveying the needs of a person to other people around him/her. Creating a simple and portable communication channel between the eyes and wheelchair using EEG signals is the aim of this article.

Conclusion : Conclusion: To receive EEG signals, we have used Emotiv EEG headset that has 14 dry electrodes. Analysis and classification of data in Python programming language in single board computers like Raspberry Pi2 are done with 84.5% of accuracy due to the small size and good speed of these boards.

Keywords : Brain-machine interface, Electroencephalography, corneoretinal potential

Count: 641

Abstract ID: 727

subject: Computational Neuroscience: Modeling and Simulation

Presentation Type: Oral

Provide a model base on chaos for essential tremor of hand using the chaotic time series of logistics map

Submission Author: Seyedeh zohreh Hosseini marashi

Seyedeh Zohreh Hosseini Marashi¹, Ali Maleki²

1. Biomedical Engineering Department, Semnan University
2. Biomedical Engineering Department, Semnan University

Background and Aim : Tremor is an involuntary act, which is often oscillation and pseudo sinusoidal movement and it is one of the most common move disorders. The main tremor representation happens in hands. In the previous researches, sinusoidal signals or real tremor signals were used which were recorded from patients as tremor models. The sine pattern is not an accurate model. Although, data recording method makes more accurate information accessible, the recording equipment are only available in the laboratory and in that case just limited examples are available which would not have sufficient variety needed for researches concerning inhibition of tremor. Therefore, it is desirable that a pattern of tremor is available which is close to reality and includes the non-linear property of tremor.

Methods : In this article, a model with pseudo-sinusoidal pattern is presented that is based on chaos for tremor. In this model, Periodicity parameters and the moment amplitude is determined by the chaotic time series of logistics map. Real tremor data is used in order to validate the tremor model.

Results : The comparison of the time waveform and frequency spectrum pattern of real recorded signals recorded from 5 people suffering from essential tremor, with the obtained time waveform and frequency spectrum of signals obtained from the model shows its efficiency.

Conclusion : The chaotic model performance for tremor is an accurate and efficient model of essential tremor that represents the dynamic nonlinear tremor feature. This model is able to provide the tremor signal with desired period of time and infinite variation to researchers.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Essential Tremor Model; Chaos; Nonlinear Dynamics

Count: 642

Abstract ID: 625

subject: Computational Neuroscience: Modeling and Simulation

Presentation Type: Poster

The Effect of Positive and Negative Feedback on Working Memory Performance: Mathematical Modelling

Submission Author: Ainaz Jamshidi

Ainaz Jamshidi¹, Golnaz baghdadi²

1. Biomedical Engineering Department, Amirkabir University of Technology
2. PHD, Biomedical Engineering Department, Amirkabir University of Technology

Background and Aim : Working memory is a theoretical framework that has fundamental roles in cognitive activities like manipulating and processing information. Also working memory is thought to be one of the most important and critical mental features for cognitive abilities such as problem solving, learning, and reasoning. Many studies have been done to investigate the effect positive and negative feedbacks on working memory performance. However, the main reasons behind this effect have not been fully understood. Since modeling is an approach that can help the study of a system, using the concepts of feedback in control engineering, we have proposed a model to provide some suggestion for the mentioned reasons.

Methods : A special kind of two back continues performance task was designed in C sharp software in order to investigate the effect of positive and negative feedbacks on individual performances. We consider two groups to assess these effects (i.e., positive feedback group and negative feedback group). A sequence of single letters was presented. Each letter was presented for 100 milliseconds. The inter stimuli interval was two seconds. Subjects were requested to press the left or right key if the current letter was or was not the same as the one presented two trials before, respectively. In positive feedback group, participants received positive visual and auditory feedback for correct answers, and they did not receive any feedback for wrong answers. In negative feedback group, they received negative visual and auditory feedback for wrong answers and no feedback for correct responses. The reaction time and accuracy of participants' responses were recorded as indexes of working memory performance. Then, a mathematical model has been proposed to mimic the behavioral results.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The result of the experiment showed that negative feedback improved the reaction time and accuracy of participants' responses in comparison with positive feedback. A black model and a Proportional-Differential (PD) controller were used for simulating this behavioral results. The step response of closed loop system with negative feedback had less rise time and steady state error in comparison with positive feedback.

Conclusion : According to concepts in control engineering, derivative (Differential) controllers compare the current state with a previous state in every sample of time and affect the time rise. The same scenario may happen in the brain. That is, human brain compares its performance in the current trial with the previous one, and during this process, the negative feedback causes the participants pay more attention and make them compensate their poor performance in subsequent trials. But, receiving positive feedback possibly make participants confident, and consequently, they do not pay enough attention to the task. In control systems, the gain of a proportional controller can affect both time rise and steady state error. Similarly, very high and low level of attention can decrease the individual performance.

Keywords : Negative feedback; Positive feedback; working memory; mathematical modeling.

Count: 643

Abstract ID: 391

subject: Computational Neuroscience: Modeling and Simulation

Presentation Type: Poster

Study the Importance and Usage of 3D Printing in Neurosurgery

Submission Author: Zahra Janbani

Zahra Janbani¹, Mohammad Taheri Rad²

1. -
2. Zahra janbani

Background and Aim : 3D printing (3D) includes techniques for creating 3D objects using computer data. 3D technology has many applications in medical . Since its introduction in neurosurgery in 1999, 3D printing has shown its ability to perform neurosurgery. However, most imaging methods include X-rays (CT) and (MRI) images in both dimensional (2D) or 3D volumes in 2D slices. Since most surgical and pathological procedures relevant neurological surgeons that involved the complex structures of anatomy that can not be seen from the outside, this technology has made this possible. Similarly, 3D printing capabilities can be applied to the design of surgical simulators. 3D printing provides a realistic learning environment. As an educational tool, 3D models can be useful for surgical surgeons to understand spatial anatomy and better understanding of surgery. 3D models and navigation systems for neurosurgery can be combined to improve surgical and surgeon training .The purpose of this study is to clarify the importance and use of 3D printing research done in neurosurgery.

Methods : This integrated review study was conducted with extensive search using the key words of the 3D printing and neurosurgery in the Medline, Pubmed, SID, Magiran, and Google Scholar databases. total of 30 articles published between 1990 and 2017 on the subject, the definition of 3D printing, theoretical 3D printing dimension in surgery, and its foresight in neurosurgery were studied based on the content analysis process.

Results : 3D printing technologies is Prototyping a precise tool for producing patient models and illnesses. Three-dimensional printing studies in neurosurgery focused on three main areas: the creation of specific patient models for surgical planning, surgical education, neurosurgery design, and the development of biological tissue engineering implants. Preoperative planning is possible using 3D models in the preparation of complex operations. 3D printing transforms 3D images into

Basic and Clinical 6th NEUROSCIENCE Congress 2017

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

a real model. This increases awareness of morphology and the desired location; this enables surgeons to directly understand and analyze the complex anatomy of the brain. Surgeons can perform a real surgery in an ex vivo environment. The internal images obtained are used by medical systems and are used to separate the desired structure. From the image information, a 3D model is produced on a specific computer software and sent to create biomodels. Dorsal internal fixation is beneficial in treating CVJ defects with 3D printed model and can have a potent effect on spinal surgery.

Conclusion : With the advancement of technology, 3DP is a way of understanding the surgical anatomy, practicing surgical and implant construction and surgical planning, and using the model to guide the neurosurgery.

Keywords : usage , 3D printing, Neurosurgery

Count: 644

Abstract ID: 368

subject: Computational Neuroscience: Modeling and Simulation

Presentation Type: Poster

A Neural Spike Sorting Algorithm Based on Features Reduction and Modified K-Means for Implantable BCIs

Submission Author: Fereshteh Kalantari

Fereshteh Kalantari¹, Hossein Hosseini-Nejad², Amir M. Sodagar³

1. Faculty of Electrical Engineering, K.N. Toosi University of Technology, Tehran, Iran
2. Faculty of Electrical Engineering, K.N. Toosi University of Technology, Tehran, Iran
3. Faculty of Electrical Engineering, K.N. Toosi University of Technology, Tehran, Iran

Background and Aim : Recently, extensive basic and clinical neuroscience research has been conducted on prediction, diagnosis, and exploration of new treatments for neural diseases such as Alzheimer, MS, Parkinson's, and Paralysis. In a wide variety of such neuroscientific research activities, intra-cortical recording then processing of extracellular neuronal activities is of crucial importance. Assignment of the recorded spikes to individual neurons, referred to as spike sorting, is an essential step in many neural processing systems, which usually involves spike detection, feature extraction, and clustering. In this paper, a new spike sorting algorithm is proposed, which is based on feature reduction and the use of a modified k-means technique. Fulfilling efficient implementation requirements in terms of low hardware complexity and real-time operation, the proposed approach is suitable for use in implantable brain-computer interfaces (BCIs).

Methods : In the proposed algorithm, selected samples of neural spikes are used as the significant features instead of using all the samples. To select these features, first, the indexes of the extrema (both maximum and minimum values of the template spikes) are calculated. For each template spike, the first and last extremum points (samples) of a spike are taken as the first and last features. Then, occurrence times of the extremum points are found, and the occurrence time difference between every two consecutive extrema is calculated. Half of the smallest occurrence time difference for the spike template under study is determined and named T_i . The same procedure is followed for all the template spikes, yielding one T_i value per template spike. The smallest among all the T_i values achieved is taken as the "spanning step", TSS. After the completion of the training phase, in the operation phase, down-sampling the spike under study with the pace of TSS, the remaining samples are selected as the features that will be used for spike sorting. These features

are then given to a modified k-means classifier for clustering. The spike under study (SUS) is assigned to the cluster having the maximum number of neighboring samples. For a given sample, neighboring samples are those that are of a short enough Euclidian distance (shorter than a certain predefined threshold). The threshold level is determined in a preliminary training phase.

Results : The proposed feature selection method reduces the number of samples used for spike sorting up to 73%. This reduces the computational complexity and consequently the cost of hardware implementation in terms of power consumption and silicon area. Performance of the proposed algorithm was evaluated for a rather wide range of Signal-to-Noise-Ratio (SNR) values, ranging from 18 dB down to 5 dB. While exhibiting almost the same spike sorting accuracy (93.51% versus 93.78% for standard k-means without feature selection), the proposed approach is implemented using almost 27% of the hardware complexity of the standard k-means approach without feature selection.

Conclusion : In this paper, a new spike sorting algorithm with low computational complexity and high accuracy was proposed. This algorithm is promising for implantable BCIs applications with low power consumption and small silicon area.

Keywords : Spike sorting; feature selection; modified k-means; implantable BCIs

Count: 645

Abstract ID: 273

subject: Computational Neuroscience: Modeling and Simulation

Presentation Type: Poster

Improving the prediction of functional connectivity in rs-fMRI data by two different shrinkage estimators

Submission Author: Atiye Nazari

Atiye Nazari¹, Hamid Alavimajd², Nezhat Shakeri³, Mohsen Bakhshandeh⁴, Hengameh Marzbani⁵

1. MSc in Biostatistics, Department of Biostatistics, Faculty of Paramedical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
2. Prof. in Biostatistics, Department of Biostatistics, Faculty of Paramedical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
3. Ph.D. in Biostatistics, Department of Biostatistics, Faculty of Paramedical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
4. Ph.D. in Medical Physics, Department of Radiology Technology, Faculty of Paramedical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
5. MSc in Biomedical Engineering, Department of Biomedical Engineering and Medical Physics, Faculty of Medicine, Tehran University of Medical Sciences and Neuralengineering Research Center, Noorafshar Hospital, Tehran, Iran.

Background and Aim : Recently studying functional connectivity have been interested in researchers. Finding the correct connection between voxels and ROIs is an important issue in these studies. Traditional prediction of connectivity is "Pearson correlation coefficient". But using shrinkage approach can improve the result of the prediction. This estimator due to the reliability of each voxel's time series weighs on each subject's information and average sample information. In the low reliability, the value of subject's information is lower and the average is gaining more weight. If reliability is higher, subject's information will be more effective in shrinkage estimator.

Methods : At first step, the traditional estimator should be calculated. Pearson correlation is given by correlation between BOLD's time series of voxel-pairs. To improve prediction of Pearson correlation, based on the reliability of BOLD's time series of each voxel-pairs, shrinkage estimator gives weight to individual and group information. Two different shrinkage estimators have been used, which are named, "Individual shrinkage estimator" and "Global shrinkage estimator". The difference between shrinkage estimators due to different weighting methods. In the individual

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

method, weight is calculated for each subject and each voxel-pair, but in global for all subjects and voxel-pairs, a single value has been assigned. Also, the prediction performance of estimators is evaluated by Mean Square Error (MSE). Lower MSE means the lower difference between true and estimated correlation.

Results : We used 21 healthy subjects scan-rescan fMRI data from "ADHD-200" data source. We choose "Precentral gyrus" as an ROI to implement traditional and two shrinkage estimators. Results show, on the average given weight for individual and global shrinkage estimator are 35.47% and 53.54%. The average of MSE over all subjects for Pearson correlation and individual and global shrinkage estimator is 19.52%, 5.34%, and 5.84%, respectively. Both shrinkage estimators improved prediction of connectivity in comparison with Pearson correlation with MSE reduction 72.39% for individual and 69.76% for global. Results show "Individual shrinkage estimator" has the lowest MSE among all estimators and can predict functional connectivity better than other estimators.

Conclusion : Shrinkage approach has been used to improve many traditional estimators. In this paper, the advantage of using this method to analyze big data with many variables and low observation has been studied. This will play an important role in the future of fMRI data. When data has large test-retest variability, the estimated of subject-specific functional connectivity can be improved by information of other subjects.

Keywords : Keywords: functional connectivity; resting-state fMRI; shrinkage prediction; correlation

Count: 646

Abstract ID: 679

subject: Computational Neuroscience: Modeling and Simulation

Presentation Type: Poster

Manipulating phase relation between neuronal population by time delay

Submission Author: Aref Pariz

Aref Pariz¹, Alireza Valizadeh²

1. Institute for advanced studies in basic sciences
2. Institute for advanced studies in basic sciences

Background and Aim : Cortical neurons in awake animals show irregular activity due to receiving excitation and inhibition from other connected neurons in a way that the mean of input of single neuron is below threshold and neurons almost fire stochastically. Regardless of this irregular activity, when an area of cortex involved in signal processing the synchronous state will emerge in different frequency ranges. It is hypothesized that the coherence among the oscillations of brain regions affects neuronal communications and the changes in the phase relationship between the rhythms of these regions will change effective communication routes.

Methods : We have generated the balanced neural network (BNN) using the conductance-based model neurons. The networks are set in Synchronous-Irregular state at which the network has a degree of coherence in a gamma range while the dynamics of single neurons is irregular. We then numerically calculated phase resetting curve (PRC) of the networks by applying a pulse to 50% of the neurons in the networks and recording the phase shift due to the applied pulse.

Results : The theory predicts that with the delay in the positive and the negative range of the PRC slope, anti-phase locking and in-phase states are respectively stable. This result is in agreement with the result of two coupled neural networks. By changing the delay between two networks we can synchronize or desynchronize them.

Conclusion : In communication through coherence (CTC) of two coupled neuron, the exact timing of inputs is important. If the input comes when the neuron is in the excitable state, then the input can make the neuron to fire sooner or later. This can be used in defining the effective connectivity among neurons or neuronal networks. We show that by knowing the PRC of an oscillator (here

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

BNN) we can define some bins in the period of oscillation that the network can be highly affected. Our result shows the interaction of two coupled BNN following the PRC of single BNN.

Keywords : Phase response curve, Balanced networks, Communication through coherence

Count: 647

Abstract ID: 370

subject: Computational Neuroscience: Modeling and Simulation

Presentation Type: Oral

Analytic solution for the effect of a transient signaling input on spike timing distribution reveals network architecture

Submission Author: Safura Rashid Shomali

Safura Rashid Shomali¹, Majid Nili Ahmadabadi², Hideaki Shimazaki³, Seyyed Nader Rasuli⁴

1. School of Cognitive Sciences, Institute for Research in Fundamental Sciences (IPM), Tehran 19395-5746, Iran
2. Control and Intelligent Processing Center of Excellence, School of Electrical and Computer Engineering, College of Engineering, University of Tehran, Tehran 14395-515, Iran
3. Graduate School of Informatics, Kyoto University, Sakyo-ku, Kyoto 606-8501, Japan; Honda Research Institute Japan, Wako-shi, Saitama, 351-0188, Japan
4. Department of Physics, University of Guilan, Rasht 41335-1914, Iran; School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran 19395-5531, Iran

Background and Aim : The variability of neuronal networks is suggested as a hallmark of neuronal operation near the threshold regime, where small fluctuations in synaptic inputs to neurons govern output spikes. One of the basic questions in neuroscience is how the spike timing of presynaptic neuron affects postsynaptic spiking density. Since there is nonlinearity in neuron's response to its presynaptic inputs, it seems hard to have an analytic expression to trace input-output relation. To successfully transfer signals under the noisy conditions, it has been proposed that most neurons signal through a few strong synapses with the aid of majority weak synapses. Thus it is fundamental to ask the impact of such relatively strong input, which we term as a signaling input, on the spiking activity of a neuron while it receives background noisy inputs near the threshold. However achieving such an exact analytic result for even the leaky integrate-and-fire (LIF) neuron is scarce.

Methods : Here we theoretically analyze the impact of a specific transient signaling input on the spike timing of LIF neurons that receive white Gaussian inputs near the threshold regime. To this end, we have done perturbation analysis of the first passage time density of the LIF neuron [Shomali et. al, J CNS 2017]. The analytic solution relates the signaling input's properties like timing and amplitude as well as the background noise level to spiking statistics of the postsynaptic

neuron. This exact solution facilitates investigating problems in the neuronal signal transfer, correlation, plasticity, and learning.

Results : The non-trivial role of synaptic activities in transmitting information was quantified by calculating the Fisher information (FI) from spiking density with respect to input's strength. As a function of background noise, the maximum of FI shows stochastic resonance effect. Moreover, in the low level of the noise, FI has two maximums, one in strong and the other in weak synaptic strengths. This novel finding shows that in the low level of noise, the information transfer is efficient in two opposing input strengths, strong signals and weak ones. In particular, the strong synaptic inputs caused by some learning mechanisms can be discriminated most precisely in the low noise regime. The correlation among the neural population is also investigated using the analytic spiking density. By constructing a model, we calculate the interactions among neurons in different structures which lead to revealing the underlying network architecture, under ubiquitously observed sparse population activity in cortical and hippocampal neurons. Particularly, we predict the architecture behind the data from V1 neurons of macaque [Ohiorhenuan et.al, Nature 2010]; the result shows that shared excitatory inputs to pairs of neurons do explain the strong negative triple-wise interactions among neurons, in contrary to existing intuition that shared inhibition is the cause of observed sparse activity.

Conclusion : The achieved analytical spiking density is not only capable to address the best discrimination and/or network identification; it can also help to answer other questions including timing-dependent plasticity and information processing. We hope it acts as a building block to address various questions, which involve careful prediction of postsynaptic neuron's spike timing density.

Keywords : Spike timing distribution; Gaussian noise; transient signaling input; Fisher information; Correlation; Network architecture

Count: 648

Abstract ID: 204

subject: Computational Neuroscience: Modeling and Simulation

Presentation Type: Oral

Determination of Chemical Exchange Rate Utilizing Optimal RF Duration in the CEST MRI studying

Submission Author: Mohamadreza Rezaeian

Mohamadreza Rezaeian¹

1. School of Biomedical Engineering, College of Eng., Univ. of Technology of Hamedan, Hamedan, Iran.

Background and Aim : Molecular imaging has been applied to measure metabolites and byproducts such as glucose, glycogen, and lactate as well as enzymes and viruses and holds great promise for in vivo translation. It (Molecular imaging) is done by different imaging modalities such as optical, radioactive, and MRI. MRI is a non-invasive technique with high spatial resolution that enhances the soft tissue contrast particularly when paramagnetic contrast agents are used. It was introduced a new concept called chemical exchange saturation transfer (CEST), based on observing exchangeable protons through MRI. CEST MRI utilizes contrast agents that exchange protons with water molecules at different exchange rates. The CEST effect depends not only on the radio frequency (RF) pulse characteristics, the characteristic of the magnetization transfer (MT) pool, and the relaxation properties of the tissue, but also varies with the chemical exchange rates. Developing a quantitative CEST MRI technique that can estimate the chemical exchange rate of CEST agents is very useful for in vivo imaging. In the other hand, the RF pulse is one of the most important factors that promote the CEST effect, especially for contrast agents with fast exchange rates. In particular, the CEST effect is susceptible to the RF duration, leading to an optimal RF duration at which this effect is maximal. It is noted that the optimal RF duration strongly varies with chemical exchange rate of contrast agent.

Methods : The present study aims at determining the chemical exchange rate based on the optimal RF pulse duration through a definition of the CEST effect. Based on definition, through precise mathematical calculations, the CEST effect is isolated from the undesired effects (direct water saturation and MT effects) without assuming that their effects are symmetric. This model is formulated by solving the Bloch-McConnell equation through the R1 (rho) method for both of the MT and CEST effects as well as their interactions.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The extracted optimal RF pulse duration is compared with that of the MTR asymmetry definition (it is popular definition that agreement with experimental studying) in a three-pool system, using synthetic data that are similar to the muscle tissue. To further validate the model, an approximate expression is created for the RF pulse duration, using the Taylor series, which corroborates to the findings of the previous research.

Conclusion : The proposed approximated optimal RF pulse duration is the first formulation in which the MT effect is considered. It also considers the effects of the metabolite concentrations on the RF pulse duration. Our results show that the optimal RF pulse duration strongly varies with the exchange rate of the CEST pool through numerical simulation, and experimental validation is needed to further evaluate the proposed technique.

Keywords : Bloch-McConnell equations, CEST MRI, Chemical exchange, Numerical solution, Z-spectra modeling

Count: 649

Abstract ID: 681

subject: Computational Neuroscience: Modeling and Simulation

Presentation Type: Poster

Does the asymmetry of diffusion coefficient have a role in permeation of ion channels?

Submission Author: Ebrahim Zargaran

Ebrahim Zargaran¹

1. Ph.D. student of Biomedical Engineering Biomedical Engineering Department, Semnan University, Semnan, Iran

Background and Aim : The “constant field” or the “Goldman-Hodgkin and Katz” current equation is a commonly accepted formalism of electro-diffusion in ionic channels. This equation, however, seems to have some shortcomings, such as inability to explain the nonlinear relation between the single channel current and the membrane potential of some channels when they are placed in the symmetric solutions of ions.

Methods : In this study, we introduce the “general” and “extended” versions of constant field equation. To reach gCFe (general Constant Field equation) we integrating this equation from the inner mouth to the outer mouth and assuming that a factor is dividing the channel into inner and outer parts so that the diffusion coefficients of the inner and the outer parts are unequal. eCFe (extended Constant Field equation) takes into account the relative diffusion coefficient on the inner and the outer parts of the channel this equation complicates to the oCFc equation when outer diffusion isn't equal to inner diffusion.

Results : Our results showed the ability of these equations to simulate the NMDAR current not only in the symmetric “uni-ionic” solutions but also in the asymmetric “bi-ionic” solutions of sodium and calcium ions in which the calcium ions are blocking the channel. Our results also showed that the concentration dependent on change in the asymmetry of diffusion coefficient is remarkably effective in shaping the I-V curve of the channel.

Conclusion : It seems that the previously identified cation binding sites of the channel have a prominent role in changing the diffusion coefficient of ions inside the channel.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : NMDAR;CFe;electro-diffusion;

Count: 650

Abstract ID: 765

subject: Computational Neuroscience: Cellular Models

Presentation Type: Poster

Comparison between two different medium for the differentiation of amniotic membrane stem cells into nerve cells

Submission Author: Javaneh Khosravi babadi

Javaneh Khosravi babadi¹, Nooshin Barikrow², Saeed Aminzadeh³

1. Pharmaceutical Sciences Research Center, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran-Iran (IAUPS)
2. Department of Molecular and Cellular Sciences, Faculty of Advanced Sciences & Technology, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran - Iran (IAUPS)
3. Bioprocess Engineering Research Group, Institute of Industrial and Environmental Biotechnology, National Institute of Genetic Engineering and Biotechnology, Tehran – Iran

Background and Aim : Stem cells are undifferentiated cells that can differentiate into all types of specialized cells in the body. Stem cells are a repairing system and replace Instead of cells that damage through various diseases. These cells have different types such as neural stem cells (NSCs). One of the sources of stem cells is mesenchymal stem cells that isolated from bone marrow, dental pulp, adipose tissue, amniotic membrane and fluid. For this reason, Stem cell therapy is a way for regenerating and repair injured tissues in the body and Causes the treatment of diseases like Parkinson and Alzheimer. Mesenchymal stem cells have many benefits among different types of stem cells and they can differentiate into neural cells. Stem cell therapy with MSCs represents a Succeeded strategy in spinal cord injury (SCI). Nerve disease may leading to severe disability in patients. Researchers used stem cells to treatment neurological diseases and regenerate nerve injuries. Amniotic stem cells, in the transplantation have not any immunological or tumorigenic reactions and lacks any blood vessels and nerve fibers and this is a reasons that they are useful for treatment.

Methods : In this study, we isolated mesenchymal stem cells from amniotic membrane. Differentiate to nerve cell with bFGF and EGF as differentiate medium. After 2 days we used 2 differentiation media and exchanged media with 1) indomethacin, butyric acid, ascorbic acid and 2) retinoic acid, ascorbic acid. Finally, used Immunofluorescence and in this way studying the presence of β -tubulin III and MAPII protein.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The Immunofluorescence result show that in both medium, Differentiate occurs and the amount of expression of β -tubulin III and MAPII in medium 2 more than medium 1. Amount of β -tubulin III in medium 1 was about 14.54% and in medium 2 was about 16.99%. Amount of MAPII in medium 1 was about 13.89% and in medium 2 was 15.09%.

Conclusion : the cell were in medium 2 had morphology higher similarity with neuronal cells. Protect of Neurons is important in neurological diseases and expression of mRNA such as β -tubulin III and MAPII play an effective role on neural differentiation. For the first time we used amniotic membrane mesenchymal stem cells that produce nerve cells.

Keywords : Mesenchymal stem cell; Differentiate; Nerve cell; Amniotic membrane

Count: 651

Abstract ID: 134

subject: Computational Neuroscience: Network Models

Presentation Type: Poster

High Frequency Excitation of Subthalamic Nucleus Quenches Parkinson's Disease Beta Oscillations: A Computational Study.

Submission Author: Seyed Mojtaba Alavi

Seyed Mojtaba Alavi¹, Dr. Amin Mirzaei², Dr. Reza Ebrahimpour³

1. Faculty of Computer Engineering, Shahid Rajaei Teacher Training University, Tehran, Iran
2. Institute of Neuroscience and Medicine, University of Jülich, Jülich, Germany
3. Faculty of Computer Engineering, Shahid Rajaei Teacher Training University, Tehran, Iran

Background and Aim : Parkinson's disease (PD) is associated with increased synchronized bursting activity and abnormal beta band oscillations (10-30 Hz) in the cortico-basal ganglia circuits. Abnormally increased striato-pallidal inhibition and strengthening the synaptic coupling between subthalamic nucleus (STN) and globus pallidus externa (GPe), due to loss of dopamine, are accounted as the potential sources of beta and synchronization in the basal ganglia. Deep Brain Stimulation (DBS) of the basal ganglia subregions is known as a way to reduce the pathological beta and motor deficits related to PD. Despite the success of DBS, its underlying mechanisms is poorly understood. Computational modeling helps to understand the underlying mechanisms of DBS. Computational studies such as [Terman et al. 2004; Activity patterns in a model for the subthalamopallidal network of the basal ganglia; The Journal of neuroscience] based on Hodgkin-Huxley type neurons, could quench PD-like (8 Hz) oscillations through high frequency excitation of STN. We improved parameter settings and structure of the network model proposed by Terman et al. 2004 such that our modified network model shows beta band oscillations (similar to what has been observed in PD). In addition, our modified network model captures realistic subthalamic and pallidal population firing rates, similar to the experimental results.

Methods : Here, we modified the computational network model of Hodgkin-Huxley type neurons proposed by Terman et al. 2004. Our modified network model consists of GPe, STN as well as globus pallidus interna (GPi), and Thalamus. Each neuronal population consists of 20 neurons. STN excites GPe and GPi while receiving inhibitory input from GPe. GPe neurons send inhibitory input to other GPe neurons as well as GPi neurons. GPi neurons inhibit thalamus neurons.

Basic and Clinical 6th NEUROSCIENCE Congress 2017

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Parameter settings representing dynamics of sodium and calcium ion channels were modified as compare to Terman et al. 2004.

Results : Our modified network model is able to demonstrate healthy activity, PD beta oscillations, and pathological bursting activity, similar to the experimental studies. Moreover, thalamus fidelity decreases from healthy to pathological state of the network model. By applying high frequency DBS on STN, the PD signs of the network model are abolished as well as the healthy thalamus fidelity is recovered.

Conclusion : With the help of our network model we show that high frequency excitation of the STN is the potential underlying mechanism of DBS. Such DBS mechanism is able to quench PD beta oscillations and to improve thalamus fidelity in response to cortical motor commands.

Keywords : Basal Ganglia; Parkinson's Disease; Beta Oscillations; Subthalamic Nucleus; Deep Brain Stimulation

Count: 652

Abstract ID: 577

subject: Computational Neuroscience: Network Models

Presentation Type: Oral

Sparse and burst spiking in artificial neural networks inspired by synaptic retrograde signaling

Submission Author: Faramarz Faghihi

Faramarz Faghihi¹

1. Institute for Cognitive and Brain studies, Shahid Beheshti University, Tehran, Iran

Background and Aim : The bursting of action potential and sparse activity are ubiquitously observed in the brain. Although the functions of these activity modes remain to be understood, it is expected that they play a critical role in information processing. In addition, the functional role of retrograde signalling in neural systems is under intensive research.

Methods : we propose a bio-inspired neural network that is capable of demonstrating these activity modes as well as shifting themselves from normal to bursting or sparse modes by changing model parameter values. Accordingly, we model diffused retrograde signalling with different activity patterns in dendrites and presynaptic neurons. Using in a three-layered spiking neural network, simulation studies are conducted using different conditions and parameter values to find factors underlying the change in firing rate of output neurons.

Results : Our findings propose the application of retrograde signalling as a known synaptic mechanism for the development of artificial neural systems to encode environmental information by different spiking modes.

Conclusion : Brain-like artificial architectures using spiking neural networks (SNN) have many industrial applications including cognitive robotics. This work proposes novel experimental studies on the role of retrograde signaling in short time scale on the controlling of neurotransmitter release of presynaptic neurons by postsynaptic neurons. This work presents a cellular hypothesis on how neurons exhibit persistent sparse or burst spiking activity by changing their probability of neurotransmitter release in synapses.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Retrograde signalling, Neurotransmitter release, Spiking neural networks, Closed loop

Count: 653

Abstract ID: 189

subject: Computational Neuroscience: Network Models

Presentation Type: Oral

Functional connectivity networks in free viewing behavior

Submission Author: Hossein Seidkhani

Hossein Seidkhani¹, Andrey R. Nikolaev², Radha Nila Meghanathan³, Hamid Pezeshk⁴, Ali Masoudi-Nejad⁵, Cees van Leeuwen⁶

1. Institute of Biochemistry and Biophysics, University of Tehran
2. Laboratory of Perceptual Dynamics, Brain&Cognition Research Unit, KU Leuven - University of Leuven
3. Laboratory of Perceptual Dynamics, Brain&Cognition Research Unit, KU Leuven - University of Leuven
4. School of Mathematics, Statistics and Computer Science, University of Tehran
5. Institute of Biochemistry and Biophysics, University of Tehran
6. Laboratory of Perceptual Dynamics, Brain&Cognition Research Unit, KU Leuven - University of Leuven

Background and Aim : In free visual exploration, eye-movement is immediately followed by dynamic reconfiguration of brain functional connectivity. We studied the task- dependency of this process in a combined visual search-change detection experiment.

Methods : Participants viewed two (nearly) same displays in succession. First time they had to find and remember multiple targets among distractors, so the ongoing task involved memory encoding. Second time they had to determine if a target had changed in orientation, so the ongoing task involved memory retrieval. From multichannel EEG recorded during 200 ms intervals time-locked to fixation onsets, we estimated the functional connectivity using a weighted phase lag index at the frequencies of theta, alpha, and beta bands, and derived global and local measures of the functional connectivity graphs.

Results : We found differences between both memory task conditions for several network measures, such as mean path length, radius, diameter, closeness and eccentricity, mainly in the alpha band. Both the local and the global measures indicated that encoding involved a more segregated mode of operation than retrieval. These differences arose immediately after fixation onset and persisted for the entire duration of the lambda complex, an evoked potential commonly associated with early visual perception.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : We concluded that encoding and retrieval differentially shape network configurations involved in early visual perception, affecting the way the visual input is processed at each fixation. These findings demonstrate that task requirements dynamically control the functional connectivity networks involved in early visual perception.

Keywords : EEG; Eye movement; Free viewing behavior; Task requirements; Functional connectivity; Graph theoretical analysis

Count: 654

Abstract ID: 392

subject: Computational Neuroscience: Computational Tools

Presentation Type: Poster

Elimination of ECG Artifact from Semi-Simulated EEG Signal Using Independent Component Analysis

Submission Author: Aida Arami

Aida Arami¹, Farnaz Ghassemi², Zahra Tabanfar³

1. Department of Biomedical Engineering, Amirkabir University of Technology, Tehran, Iran
2. Department of Biomedical Engineering, Amirkabir University of Technology, Tehran, Iran
3. Department of Biomedical Engineering, Amirkabir University of Technology, Tehran, Iran

Background and Aim : Electroencephalogram signals comprise considerable information about brain activity and function. Lots of useful information in the signal is not detectable visually; therefore, processing methods can be effective in detecting neurological diseases and disorders. Due to the many physiological and non-physiological artifacts that affect the signal during signal recording, the preprocessing of raw data is one of the most crucial steps in preparing a signal for processing. One of the physiological artifacts that affect the EEG signal is the effects of cardiac activity as a strong muscle in the body. The purpose of this study is to provide a method to eliminate the effect of this artifact in a way that the least useful information from the EEG signal is lost. The method that we used in this study is BSS .

Methods : In this study semi-simulated and experimental data are used to evaluate the method. Semi-simulated data is constructed by clean ECG data added to clean EEG data using coefficients extracted from mixing matrix in experimental data. 19 channels experimental EEG data contaminated with ECG artifact, another 19 channels artifact-free EEG data and clean ECG data were available to test our method. An elliptic low-pass (70 Hz) filter is used to signal preprocessing to experimental data. By applying MULTICOMBI method realized using ICALAB toolbox source components were extracted. The ECG related component was chosen manually and its coefficients in the mixing matrix was extracted. The clean ECG data was added to the artifact-free EEG signals using these coefficients in order to obtain semi-simulated signals. In this stage, Independent Component Analysis was used to estimate independent sources of semi-simulated signal. Then the ECG related component was chosen according to the correlation among extracted components and

the clean ECG signal and was eliminated. Then remaining components were back projected to the initial space.

Results : The component with maximum correlation (0.95) is assumed as the ECG component. The time-domain diagram and PSD of the detected component confirm our assumption. To evaluate our method, Normalized Root Mean Square Error (0.6) and correlations between clean EEG signal before simulation and artifact free signal after ECG component removal (0.99 ± 0.01) in semi-simulated data were computed.

Conclusion : The aim of this study was to eliminate ECG artifacts from EEG signals without considerable loss of information. The method was evaluated using semi-simulated signal. The amount of NRMS error indicates that ECG related component has been eliminated perfectly in semi-simulated signals.

Keywords : EEG Signal Processing; ECG Artifact; Semi-Simulated Data; Independent Component Analysis

Count: 655

Abstract ID: 378

subject: Computational Neuroscience: Computational Tools

Presentation Type: Poster

A Neuro-Heuristic technique to calculate one-dimensional FitzHugh-Nagumo Neuron Model

Submission Author: Amin Ghaderi Kangavari

Amin Ghaderi Kangavari¹, Amin Ghaderi-Kangavari², Jamal Amani Rad³, Hamidreza Pouretemad⁴

1. -
2. The Institute for Cognitive and Brain Science, Shahid Beheshti University, Tehran
3. The Institute for Cognitive and Brain Science, Shahid Beheshti University, Tehran
4. The Institute for Cognitive and Brain Science, Shahid Beheshti University, Tehran

Background and Aim : Action Potential, the most important feature of the Nerve cells, is a brief fluctuation in the membrane potential, which conducts information by conveying electrical signals along the axon. The concentration of Sodium and Potassium ions inside and outside of the membrane have the key roles over neuronal membrane potential. The first time Hudgkin-Huxley quantitatively measure the ionic mechanism underlying the action potential from the point neuron model. Hudgkin-Huxley's major attainment was analyze the opening gates of sodium and potassium channels over electrical conductance during an action Potential. Thereafter, the FitzHugh-Nagumo (FHN) model of spike propagation is a developing version of the Hudgkin-Huxley model, which is a second-order Partial differential equation formed $(\partial^2 u)/(\partial x)^2 = \partial u/\partial t + (u+1)(u-m)(u-1)$. FHN's model is a details representation dynamics of a spiking neuron in both dimensions spatial and time. Nagumo designed equivalent electrical circuit composed some of elements like a Capacitor (representing lipid bilayer membrane), Tunnel Diode (representing the nonlinear dynamics of the fast membrane current), Resistor (representing ion channels), and Battery (representing reversal or Nernst potential of ions) which are parallel in the circuit.

Methods : In this investigation, by the Unsupervised Feed-Forward Artificial Neural Network (ANN) model, the FHN's equation has been represented to Fitness model such as an Unrestricted Optimization problem. Then by Heuristic Genetic Algorithm as the global search and Interior-point Optimization method as the local search, the Fitness model has been optimized.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The FitzHugh-Nagumo mathematical Neuron model is computed by the hybrid methods of Artificial Neural Network, Heuristic Genetic and Interior point with the absolute error of order $10e-5$.

Conclusion : The obtained results are presented showing that the Neuro-Heuristic technique is efficient and applicable for these type models of Neuron.

Keywords : Artificial Neural Network; Membrane Potential; FitzHugh-Nagumo's model; Partial differential equation

Count: 656

Abstract ID: 714

subject: Computational Neuroscience: Computational Tools

Presentation Type: Oral

EEG-based sleep stage classification using morphological features and Support Vector Machine

Submission Author: Hojat Ghimatgar

Hojat Ghimatgar¹, Kamran Kazemi², Mohammad Sadegh Helfroush³, Ardalan Aarabi⁴

1. Department of Electrical and Electronic Engineering, Shiraz University of Technology, P. O. Box 71555-313, Shiraz, Iran.
2. Department of Electrical and Electronic Engineering, Shiraz University of Technology, P. O. Box 71555-313, Shiraz, Iran.
3. Department of Electrical and Electronic Engineering, Shiraz University of Technology, P. O. Box 71555-313, Shiraz, Iran.
4. Faculty of Medicine, University of Picardie-Jules Verne, 3 Rue des Louvels, 80000 Amiens, France

Background and Aim : Multi-channel EEG is an efficient tool for sleep staging commonly used for diagnosis and treatment of sleep disorders in clinical routine. Visual sleep scoring is generally time consuming and complex. This is why automatic sleep staging has gained increasing attention in the past decade. The qualitative EEG analysis for sleep staging generally includes feature extraction from EEG signals tagged as wake, REM-sleep and Non-REM sleep and Non-REM sleep, which is divided into 4 sub-stages (S1-S4 sleep stages). In this study, a sleep staging method is introduced by using morphological features and a Support Vector Machine (SVM) classifier.

Methods : In this study, 126 hours of wake-sleep EEG data collected with a sampling frequency of 100 Hz from 8 healthy subjects (21-35 years old) were used for sleep scoring. The EEG data were first band-pass filtered between 0.5 and 30 Hz. Then the filtered EEG signals were normalized and divided into non-overlapping segments of 30 seconds. A total of 28 morphological features were extracted from each segment. Morphological features represented the contextual information of the EEG signal for different stages of sleep. The Minimum Redundancy Maximum Relevance (mRMR) method was used to select an optimal set of features for classification purpose. For each subject, the EEG data were randomly divided into training and test sets. This procedure was repeated ten times. In each run, half of the data was randomly selected to train the SVM

classifier and the remaining was used to evaluate its performance. Finally, the average performance was reported over ten runs.

Results : The mRMR method selected 15 features including mean of amplitudes, mean of durations, mean of slopes, and mean of curvatures. Over ten runs, the classifier achieved an average accuracy, sensitivity and specificity of 80.87%, 59.04% and 94.98% respectively on the training set. On the test set, the average accuracy, sensitivity and specificity were slightly decreased to 80.39%, 58.28% and 94.66%, respectively.

Conclusion : In this paper, an EEG-based sleep stage classification algorithm was introduced using morphology-based features and SVM. The combined mRMR-SVM classification approach could improve the wake-sleep classification performance compared to other existing methods.

Keywords : EEG signal, Wake-sleep stage, morphological features, SVM classifier

Count: 657

Abstract ID: 384

subject: Computational Neuroscience: Computational Tools

Presentation Type: Oral

Poincare map analysis using short EEG signal for depth of anesthesia monitoring

Submission Author: Seyyed abed Hosseini

Seyyed abed Hosseini¹

1. Research Center of Biomedical Engineering, Mashhad Branch, Islamic Azad University, Mashhad, Iran.

Background and Aim : The Poincare map is a non-linear analytical approach in a two-dimensional plane, where a timed signal is plotted against itself after a time delay. Poincare map and its length and width are known as a criterion for short-term variations of electroencephalogram (EEG) signals.

Methods : This study evaluates the effect of time delay on changes in the width of the Poincare map in the EEG signal during different anesthesia states. Poincare maps are drawn with one to six delay in three sets, including awake state, light anesthesia, and general anesthesia. This paper quantified the degree of dispersion (i.e. standard deviation, SD) along the diagonal line of the EEG-Poincare map (named as SD1 and SD2), and compared SD1/SD2 values.

Results : The results show that during the general anesthesia, the width of the Poincare map increases with increasing latency. Also, the Poincare plot is shifted to lower values during anesthesia. It is also shown that with increasing delay in general anesthesia, the SD1 value increase rate is higher than the previous ones, such as light anesthesia and awake state.

Conclusion : Quantification of a Poincare map of the EEG signal has potential to determine the depth of anesthesia.

Keywords : Phase space representation; EEG signal; Poincare map; Depth of Anesthesia.

Count: 658

Abstract ID: 511

subject: Computational Neuroscience: Computational Tools

Presentation Type: Poster

A new numerical simulation of dynamical mechanism of spike generation in squid giant axons

Submission Author: Mohammad Mahdi Moayeri

Mohammad Mahdi Moayeri¹, Kouros Parand², Jamal Amani Rad³

1. Department of Computer Sciences, Faculty of Mathematical Sciences, Shahid Beheshti University, G.C. Tehran, Iran
2. 1-Department of Computer Sciences, Faculty of Mathematical Sciences, Shahid Beheshti University, G.C. Tehran, Iran 2-Department of Cognitive Modeling, Institute for Cognitive and Brain Sciences, Shahid Beheshti University, G.C. Tehran, Iran
3. Department of Cognitive Modeling, Institute for Cognitive and Brain Sciences, Shahid Beheshti University, G.C. Tehran, Iran

Background and Aim : The theory of neuron firing and propagation of nerve action potentials is a significant subject in neuroscience. Moreover, electric signaling or firing by individual nerve cells is one of the most common studies in this field. The pioneering and fundamental work was studied in the nerve axon of giant squid done by Hodgkin and Huxley. Actually, electrical signals is derived from the effects of the permeating of the various chemical ions such as potassium ions and sodium ions, etc. The Fitzhugh-Nagumo (FHN) model is derived from the Hodgkin-Huxley model. When there is not any applied current, but there exists the spatial diffusion in the transmembrane, the FHN model is a system of partial differential equations (PDEs). On the other hand, in a special case, by limiting some of the parameters, the FHN system is converted to the following one –dimensional time dependent PDE: $\partial u / \partial t = D(\partial^2 u) / (\partial x)^2 + u(a-u)(u-1)$. Where D is the diffusion coefficient associated with the axial current in the axon.

Methods : In this study, a numerical method based on shifted-Chebyshev collocation method and finite difference method is proposed to approximate the solution of the aforementioned model. By the proposed method, the FHN model is converted to a system of linear algebraic equations; then, the solution of the model is approximating by solving this system of linear algebraic equations.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The solution of the one-dimensional time dependent FHN model is approximated by the combination of the time discretization and shifted-Chebyshev collocation method with an acceptable accuracy (Maximum of absolute error is about 10^{-4}).

Conclusion : The results indicate that the proposed numerical method can be an effective and useful method to investigate these types of models in computational neuroscience.

Keywords : Numerical simulation; Fitzhugh-Nagumo dynamical model; Spike generation

Count: 659

Abstract ID: 394

subject: Computational Neuroscience: Computational Tools

Presentation Type: Oral

SecondBrain, a simplified micro-module for EEG signal processing

Submission Author: Amirhesam Rayatnia

Amirhesam Rayatnia¹, Reza Khanbabaie², Hamid Jazayeri³

1. Babol Noshirvani University of Technology
2. Babol Noshirvani University of Technology
3. Babol Noshirvani University of Technology

Background and Aim : Many experimentalists and biologists need an easy and quick computational tool to compute the desired parameters of their data. We present the SecondBrain, a simplified module which can easily apply various major analysis on EEG data with common data formats.

Methods : The SecondBrain has been developed with Python which is an open source programming language which is easy to learn and available anywhere in the world. Python has many powerful modules that help users to analyze their data.

Results : This module has the power to windowing data, averaging, computing common spatial patterns (CSP), whitening transform, calculating pre-frequency covariance, download the public datasets and applying the requested analysis.

Conclusion : The SecondBrain, can fill the gap of missing a simple micro-module that can easily analyze the data of researchers from different fields like EEG, MEG, ECG, fMRI and BCI with the compatibility to different programming languages. However, for now, it is a simplified and powerful computational tool for processing EEG data and computing the related common parameters.

Keywords : SecondBrain, CSP, EEG, BCI, Python

Count: 660

Abstract ID: 303

subject: Computational Neuroscience: Other

Presentation Type: Poster

Quantum computation approaches in the higher brain functions

Submission Author: Mohsen Annabestani

Mohsen Annabestani¹, Monireh Houshmand²

1. Ferdowsi University of Mashhad
2. Imam Reza International University

Background and Aim : It has always been a question for scientists that how brain works especially in higher functions like consciousness, and still a very small part of brain activities have been figured out. Most of scientists believe that the brain processing system is similar to the classical computer processing and they consider each neuron as a bit of data. They also believe that since the size of neurons is bigger than the quantum scale, the quantum phenomena has no effect on the neural system and the brain works completely classical. This paper talks about this issue, and by providing reasonable reasons from well-known scientists including Roger Penrose and Stuart Hameroff, it has been shown that the process of processing and calculating in the brain is based on quantum. We also have to use quantum computation approaches in order to describing higher functions of the brain. First we talk about the neural cells and then explain the quantum processing and transfer of information in the brain. Subsequently, by introducing the microtubule structures and explaining the concept of objective wave function collapse and the non-algorithmic nature of the brain computation, we will explain the concept of quantum consciousness. And finally, Orch-OR quantum theory as the main theory of quantum computation of the brain will be described.

Methods : Reviewing of the related references to find what is the relationship between the brain's processing method and quantum computation and quantum information theory.

Results : In this paper it has been explained that for describing of the brain's processing method in the higher functions, applying quantum mechanics concepts are unavoidable and we have to use quantum computation approaches.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : We concluded that it is an open problem and we are inevitable to accept this fact that brain's processing process and especially its higher functions like consciousness completely tied up with quantum computing approaches.

Keywords : Quantum computing, Brain's processing, Orch-OR, Consciousness

Count: 661

Abstract ID: 371

subject: Computational Neuroscience: Other

Presentation Type: Poster

Can vitamin C improve spatial memory during Crack cocaine addiction in male rats?

Submission Author: Somayyeh Hatami

Somayyeh Hatami¹, Abolfazl Almasi², Homeira Hatami³

1. Department of Animal Biology, Faculty of Natural Sciences, University of Tabriz, Tabriz, Iran.
2. Department of Animal Biology, Faculty of Natural Sciences, University of Tabriz, Tabriz, Iran.
3. Department of Animal Biology, Faculty of Natural Sciences, University of Tabriz, Tabriz, Iran.

Background and Aim : Crack cocaine is a strong central nervous system stimulant that interferes with dopaminergic and serotonergic systems in the brain. These systems are responsible for learning and memory functions. Also oxidative stress is known to play a prominent role in the neurocognitive deficit and is caused by an imbalance between the production of reactive oxygen species and a biological system's ability to detoxify the reactive intermediates. In this study the effects of vitamin C on spatial memory and oxidative stress parameters were investigated in male rats during crack cocaine addiction.

Methods : 49 male rats were divided randomly into seven groups, including: control, sham, crack cocaine (15 and 40 mg/kg), vitamin C (50 mg/kg), pretreatment of vitamin (50 mg/kg) + crack cocaine (15 and 40 mg/kg) (n=7). The period of intraperitoneal injection (IP) was for 5 consecutive days. Morris Water Maze test was used for studying the spatial memory. Brains of rats were extracted after the last injection and Superoxide dismutase (SOD) and Katalase (KAT) were assayed in all groups. Data analysis was performed by using one way ANOVA.

Results : Crack cocaine in both doses reduced spatial memory ($P<0.01$). Vitamin C improved the spatial memory in comparison to control group ($P<0.01$). Pretreatment of vitamin C + crack cocaine (15 and 40 mg/kg) improved the spatial memory in two groups ($P<0.05$). SOD and CAT levels increased in crack cocaine group in comparison to control group ($P<0.05$). But Pretreatment of vitamin C reduced the elevated level of SOD and CAT in comparison to crack cocaine group ($P<0.05$).

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : It seems that crack cocaine can damage the hippocampal neurons and cause more severe cognition disorders. Vitamin C by reducing oxidative stress and modulating oxidative stress markers in prefrontal cortex, improves the spatial memory in male rats addicted to crack cocaine.

Keywords : Crack cocaine, Vitamin C, Oxidative stress, Spatial memory.

Count: 662

Abstract ID: 450

subject: Computational Neuroscience: Other

Presentation Type: Poster

Correlation of LFPs, spike and membrane potential in evoked responses of neurons in the Mouse Auditory Cortex

Submission Author: Shahriar Hosseinjany

Shahriar Hosseinjany¹, Babak Mohammadzadeh Asl², Mir-Shahram Safari³

1. Faculty of Electrical and Computer Engineering, Tarbiat Modares University, Tehran, Iran and Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Faculty of Electrical and Computer Engineering, Tarbiat Modares University, Tehran, Iran
3. Brain Science Institute, RIKEN, Wako, Japan and Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : Improving our understanding about sensory processing in Auditory cortex requires analysis of neural data recorded by different approaches. Neural data has different types and each type has some advantages. In this study we record and analyze different electrophysiological signal types from neurons in layer 2/3 and 4 of mouse Auditory Cortex.

Methods : We record 3 different data types including: LFPs, in vivo Cell-attached and whole-cell patch-clamp. 5 NMRI Urethane anesthetized mice aged 8–10 weeks were used for surgical procedure. To access auditory cortex, based on mice stereotaxic information, we search for the unique suture in the left hemisphere of mouse's head and consequently make a craniotomy above a plate called ectosylvain plate. Data was recorded by pipettes made from glass electrodes and amplified by an AXOPATCH 200B amplifier.

Results : Our results showed that, auditory responses to simple stimulus (Pure Tone: 4KHz-22KHz) in each type of before mentioned signals exist and have correlations. The best frequency of each cell was calculated by performing spiking analysis on the cell-attached recording data. In analyzed LFPs sub-bands we showed these set of frequencies as high response ones. Some cells are tuned to a specific frequency whereas have responses in some other frequencies. In case of white noise stimulus, in vivo whole cell patch clamp data has some correlations with LFPs data. The membrane potential and the LFPs amplitude decreased during noise stimulation.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Comparing to the response of neurons to visual stimuli recorded in previous studies, in our lab, auditory processes have more complex mechanisms than visual process. Relationship of different physiological signal types shows that these complexities are due to a cooperation of different components of a large number of neurons. Collecting a huge amount of data in different types is needed to solve these complexities. The solution would be obtained much easier if the data is simultaneously recorded.

Keywords : Auditory Cortex;Sensory Processing;LFPs;in vivo Cell-attached;in vivo whole-cell patch-clamp

Count: 663

Abstract ID: 767

subject: Computational Neuroscience: Other

Presentation Type: Poster

The electrical stimulation of the dorsal raphe nucleus (DRN) changes visual responses of neurons in primary visual cortex

Submission Author: Sareh Rostami

Sareh Rostami¹, Parviz Ghaderi², Mohammadhamid Azimi³, Shahryar Hosseinjani⁴, Leila Dargahi⁵, Mirshahram Safari⁶

1. Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
2. Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
3. Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
4. Faculty of Electrical and computer engineering, Tarbiat Modares University, Tehran, Iran.
5. Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
6. Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Background and Aim : Serotonergic system is involved in many basic functions including motor control, sleep, learning and memory, pain and sensory processing. It is also implicated in a wide range many disorders including depression, stress, drug addiction, schizophrenia, autism. Serotonin (5-HT) transmission forms a major modulatory network within sensory systems. This network influences various information-processing mechanisms. Serotonin has been shown to be involved in visual processing, specifically orientation processing, at the occipital and retinal level. We Investigated subthreshold and supra threshold responses of excitatory and inhibitory neurons using in vivo patch-clamp recording in layer II/III of primary visual cortex) V1(during contrast response function and orientation selectivity.

Methods : Naive mice of either sex (postnatal days 40-70) are used. Animal were anesthetized and craniotomy has done on the region of interest in V1. for electrical stimulating of the DRN serotonergic system, a bipolar tungsten electrode inserted into the DRN using a micromanipulator. Whole-cell recordings from inhibitory and excitatory neurons in layer II/III of V1 performed. In order to data acquisition and visual stimulation, square-wave grating (0.04 cycle/deg) at 100% contrast moved on an LCD in 12 directions at 30 degree steps (0-360 degrees) and 5 contrast patterns. These patterns of visual stimuli (2s before, 3s during stimulus and 2s post) presented 4-6 times in a randomly shuffled order. Membrane potentials (subthreshold and supra threshold) were

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

recorded at current-clamp mode using a molecular device amplifier, filtered, digitized and fed into a personal computer. Data were analyzed by matlab software. For statistical analysis, values without and with DRN stimulation from the same cells were compared with T-test.

Results : Electrical stimulation of the serotonergic system seems to be decreased spontaneous and evoked potentials (subthreshold and supra threshold responses) of neurons in V1 during orientation selectivity and contrast response function.

Conclusion : We are interested to find how serotonergic system change tuning curve of neurons in v1. Temporal and spatial dynamic of serotonin neuromodulation are another goals of our study. We suppose that the serotonergic system plays an important role in neural network dynamics in visual cortex sensory processing, which is essentially different cell and layer type specific.

Keywords : serotonergic system; visual response; primary visual cortex

Count: 664

Abstract ID: 390

subject: Computational Neuroscience: Other

Presentation Type: Poster

Brain Entrainment Caused by Frequency-Locked Auditory Stimulation

Submission Author: Tirdad Seifi Ala

Tirdad Seifi Ala¹, Mohammad Ali Ahmadi-Pajouh²

1. Department of Biomedical Engineering, Amirkabir University, Tehran, Iran
2. Department of Biomedical Engineering, Amirkabir University, Tehran, Iran

Background and Aim : Binaural beats is a method of auditory stimulation that is perceived when two carrier tones of slightly different frequency are presented separately to each ear, resulting in sensing a third tone with a frequency equal to the difference of the two separate tones. For example, if a tone of 300 Hz is presented to the right ear and 310 Hz to the left ear, a tone of 10 Hz will be perceived in the brain. This phenomenon is believed to cause brain entrainment which means neurons in the brain tend to oscillate with the locked frequency of the stimulation. In this study, both absolute and relative power of EEG signals are investigated to look for entrainment of the brain due to binaural beats.

Methods : Ten healthy participants (mean age of 25) with normal hearing ability participated in this study and all of them were provided written consent. The protocol consisted of 7 blocks (15 minutes) and EEG signals were recorded during all 7 blocks. The recordings took place in National Brain Mapping Lab (NBML) of Iran. The first block consisted of 3 minutes of pink noise for baseline recording (Ctrl block) and it followed by 3 minutes of 7 Hz (L = 207, R = 200 Hz) binaural beats (BB1 block). In order to prevent habituation of subjects to the stimuli, 1 minute of pink noise was presented in the third (PN1) block. The sequence of BB1 and PN1 was repeated two more times as BB2, PN2, BB3 and PN3 respectively. Absolute and relative power of theta band in different blocks were evaluated, using repeated-measure ANOVA and Sidak post hoc.

Results : No significant changes occurred during BB1. However, in BB2 block, the results of Repeated-measure ANOVA and Sidak post hoc revealed significant increase in relative power of theta band in T7 ($p = 0.045$) electrode compared to Ctrl. In BB3 block, relative power of theta band in electrodes of T7 ($p = 0.013$), T8 ($p = 0.042$), Pz ($p = 0.021$), P4 ($p = 0.029$) showed significant increase compared to Ctrl block. No changes in absolute power observed in any blocks.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : There have been numerous studies that have proved the effectiveness of binaural beats, but there are some contradictory reports among them too. One important element is brain habituation to the stimuli. It is believed that prolonged exposure of binaural beats can make the brain to block out the specific frequency, and therefore have reversed effect (Stevens et al; 2003). In this study, pink noise (PN blocks) was presented during stimulation to stop the brain from habituation. The results of statistical analyses showed 6 minutes of theta stimulation is required to increase relative power of theta, and lengthening it to 9 minutes will further improve relative power. Therefore, based on the results of current study, it can be concluded binaural beats are enable to entrain brain.

Keywords : Brain Entrainment; Binaural beats; Theta band; Electroencephalography

Count: 665

Abstract ID: 319

subject: Neurorehabilitation and Regeneration: Psycho-cognitive Rehabilitation

Presentation Type: Poster

The effectiveness of computer-based cognitive rehabilitation on reducing cognitive avoidance in Students with Specific Learning disorder

Submission Author: Akram Abbariki

Akram Abbariki¹, kamran yazdanbakhsh², khodamorad momen³

1. M.A General Psychology, razi University, kermanshah, Iran
2. Assistant Professor in Department of Psychology, Razi University of Kermanshah, Iran
3. Assistant Professor in Department of Psychology, Razi University of Kermanshah, Iran

Background and Aim : Specific learning disability (SLD) is a neurodevelopmental disorder Students with SLD have a high level of cognitive problems, resulting in their academic failure The aim of this study was the effectiveness of computer-based cognitive rehabilitation on reducing cognitive avoidance of students in Students SLD

Methods : This study was semi-experimental with pre-test and post-test. The population included all third grade to sixth female students with learning disabilities in the city of Kermanshah Of them, 28 patients were selected and divided into control and experimental groups. Research Instruments included The Cognitive avoidance Questionnaire (CAQ) of Sexton and Dugas, the Colorado Learning Difficulties Questionnaire (CLDQ) and the Wechsler Intelligence Scale for children- fourth edition. Captain Log's cognitive rehabilitation program at 12 session of 50- 60 minute twice a week for the study group was developed.

Results : Covariance analysis indicated that the effectiveness of computer-based cognitive rehabilitation caused reduction in children's cognitive avoidance ($P<0/001$).

Conclusion : The results of this study showed that the computer cognitive rehabilitation program can decrease their anxiety by increasing the performance level of these students and thus decrease the cognitive avoidance level of children. Therefore, the cognitive rehabilitation program can be used as an effective way to reduce students' cognitive avoidance

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : : computer-based cognitive rehabilitation, cognitive avoidance, Specific Learning Disorder, Students.

Count: 666

Abstract ID: 130

subject: Neurorehabilitation and Regeneration: Psycho-cognitive Rehabilitation

Presentation Type: Poster

Neurocognitive Deficits and Rehabilitation in Brain Tumors

Submission Author: Nima Ganji

Nima Ganji¹, Nasrin Arshadi², Soodabeh Bassak Nejad³, Azam Noferesti⁴

1. Member of Cognitive Science Research Group of Academic Center of Education, Culture and Research, Alborz Branch
2. Faculty member of Shahid Chamran University of Ahvaz
3. Faculty member of Shahid Chamran University of Ahvaz
4. Faculty Member of Cognitive Science Research Group of Academic Center of Education, Culture and Research, Alborz Branch

Background and Aim : Brain cancer is different from other cancers; not only do patients and their carers have to come to terms with the diagnosis of brain cancer, but they do so in the knowledge that this diagnosis will certainly mean progressive neurological and cognitive deficit. As it is, brain cancer-associated morbidity is multifaceted and largely under-recognized. It is one of the most lethal diseases; only 27 % of people treated for glioblastoma will be alive at the end of the second year following diagnosis. At 5 years, this drops to 9.8 %. The average number of years of life lost to a brain tumor is 20.1, compared to breast at 13.5. Most patients (995 %) will have physical, sensory, intellectual, psychological, or social problems at diagnosis. Survival rates vary from weeks to several years, depending on the tumor grade.

Methods : Neurocognitive rehabilitation should occur in parallel with disease-centered, medical management from the outset. It should not occur in series, as a restricted phase in a patient's pathway. Exercise, neurocognitive training, neurocognitive behavioral therapy, and medications to treat fatigue, behavior, memory, mood, and removal of drugs that may be associated with neurocognitive side effects (e.g., anti-epileptic drugs) all show promise in helping patients to manage the effects of their neurocognitive impairments better.

Results : As these are complex symptoms, multidisciplinary expertise is necessary to evaluate the influence of each variable to plan appropriate support and intervention. Neurocognitive

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

rehabilitation should therefore occur in parallel with disease-centered, medical management from the outset. It should not occur in series, as a restricted phase in a patient's pathway.

Conclusion : It should be considered in the pre- and post-operative period where there are good prospects of recovery, as one would for any brain-injured patient, so that the person may reach them optimal physical, sensory, intellectual, psychological, and social functional level. Yet the identification and selection of patients for early neurological rehabilitation and routine evaluation of cognition is uncommon in neurosurgical wards.

Keywords : Brain cancer, Neurocognitive Deficits, Rehabilitation

Count: 667

Abstract ID: 581

subject: Neurorehabilitation and Regeneration: Physiotherapy

Presentation Type: Poster

Can muscle relaxation affect balance in patients with Tension Type Headache?

Submission Author: Negar Ajdari

Negar Ajdari¹, Zahra Rojhani-Shirazi², Ali Barzegar³, Elham Nouraddini⁴, Marzieh Mohamadi⁵

1. Student Research Committee, Department of Physical Therapy, School of Rehabilitation Sciences, Shiraz university of Medical Sciences, Shiraz, Iran.
2. Associated Professor of Physical Therapy, Rehabilitation Sciences Research Center, School of Rehabilitation Sciences, Abiverdi 1 Street, Shiraz, Iran.
3. Student Research Committee, Department of Physical Therapy, School of Rehabilitation Sciences, Shiraz university of Medical Sciences, Shiraz, Iran.
4. Student Research Committee, Department of Physical Therapy, School of Rehabilitation Sciences, Shiraz university of Medical Sciences, Shiraz, Iran.
5. Student Research Committee, Department of Physical Therapy, School of Rehabilitation Sciences, Shiraz university of Medical Sciences, Shiraz, Iran.

Background and Aim : The proprioception input from the cervical region has an important role in a person's balance. There is a proprioceptive alteration in patients with Tension Type Headache (TTH). The effect of treatment of TTH on balance is not clear. The aim of this study is to evaluate the effectiveness of post- isometric relaxation (PIR) of the neck muscles on pain, disability and balance in patients with TTH.

Methods : 30 TTH patients with trigger point and tenderness in the upper trapezius, sternocleidomastoid (SCM), suboccipital and splenius muscles were enrolled in the study. The patients underwent PIR technique Based on Liebenson's method. Before and after treatment, the intensity and frequency of their headache were recorded during two weeks. The participants were requested to fill the neck disability index (NDI) and the balance of the participants were evaluated by Y balance test, time up and go test, functional reach test, and single leg stance test. Paired T-test was used to analyze the data.

Results : The participants of this study consisted of 19 females and 11 males. All the tested variables had a significant difference within the study group.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The results of this study indicated that application of PIR technique as a muscle relaxation method on the upper trapezius, SCM, suboccipital and splenius muscles may improve pain, disability and balance in patients with TTH.

Keywords : balance; tension type headache; muscle relaxation; disability

Count: 668

Abstract ID: 201

subject: Neurorehabilitation and Regeneration: Physiotherapy

Presentation Type: Poster

Evaluation of the Acute Effects of Whole body Vibration on the H-reflex Recruitment Curve in Soleus and Gastrocnemius muscles

Submission Author: Leila Dadashi arani

Leila Dadashi arani¹, Giti Torkaman²

1. MS in physiotherapy, Department of Physiotherapy, Shahid Beheshti hospital, Kashan, Iran.
2. Professor, Department of Physiotherapy, School of Medical Sciences, Tarbiat Modares University, Tehran, Iran

Background and Aim : Despite the facilitatory effects after applied whole body vibration (WBV), results of some studies have indicated the increase of muscle response depression. The purpose of this study was to investigate the acute response of H-reflex recruitment curve in soleus and gastrocnemius muscles after one session of WBV.

Methods : 26 voluntary non-athlete healthy young women (mean age 26.11 ± 2.85 years) were participated in our study. During each of the sessions of sham and test, the subjects stood on the vibration plate in semi squat position. In the test session, WBV was applied with frequency of 30Hz and peak to peak amplitude of 3mm during 3 minutes (3sets \times 1min). Soleus and gastrocnemius H-reflex recruitment curve was recorded before, immediately after, 5 and 10 minutes after WBV.

Results : The results of soleus H-reflex recruitment curve in sham session have shown significant increase in H-reflex recruitment curve threshold intensity in all recordings after intervention and significant decrease in Hmax peak to peak amplitude 10 min after and Mh response peak to peak amplitude immediately after intervention. The results of soleus muscle in the test session have indicated significant increase in H-reflex recruitment curve threshold intensity immediately and 5 min after, Mh response peak to peak amplitude 10 min after intervention. The main results of lateral gastrocnemius muscle in sham session have demonstrated significant increase in H-reflex recruitment curve threshold intensity in all recordings after intervention. The results of gastrocnemius muscle in test session have represented significant increase in H-reflex recruitment curve threshold intensity immediately after intervention. Also, there has been a strong difference

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

between two muscles that states decrease in peak to peak amplitude Hmax percentage change for soleus and increase for gastrocnemius 5 min after intervention.

Conclusion : Considering the right shift of H-reflex recruitment curve of both muscles and depression response in two sham and test sessions, it seems that maintaining of semi squat position and active control mechanisms, such as extensor muscle contraction, affects on this inhibitory response and WBV with these parameters had no facilitatory effects on this depression response.

Keywords : Whole body vibration, H-reflex recruitment curve, Soleus muscle, gastrocnemius muscle.

Count: 669

Abstract ID: 757

subject: Neurorehabilitation and Regeneration: Physiotherapy

Presentation Type: Poster

Carbon dioxide-enrich water bathing to treat painful diabetic neuropathy: A preliminary report

Submission Author: Gholamreza Esmaeeli Djauid

Gholamreza Esmaeeli Djauid¹, Mehrangiz Toutounchi², Mohsen Fateh³, Seyed Mehdi Tabaie⁴, Siamak Bashardoust Tajali⁵

1. Photo-Repair Research Group, Medical Laser Research Center, Academic Center for Education, Culture and Research
2. Photo-Repair Research Group, Medical Laser Research Center, Academic Center for Education, Culture and Research
3. Photo-Repair Research Group, Medical Laser Research Center, Academic Center for Education, Culture and Research
4. Photo-Repair Research Group, Medical Laser Research Center, Academic Center for Education, Culture and Research
5. School of Rehabilitation, Tehran University of Medical Sciences

Background and Aim : CO₂-enriched water bathing increases arterial flow, transcutaneous oxygen tension, and pain-free walking distance in the clinical trial of peripheral arterial disease. Also, experimental studies show that CO₂ bathing has a positive microcirculatory effect, stimulatory growth factor production, resulting in NO-dependent neocapillary formation associated with mobilization of endothelial progenitor cells. As a result, it seems that CO₂ enrich water bathing may help to improve painful neuropathic foot. In this study, we investigated the effect of immersion of painful neuropathic feet in CO₂-enriched water for reducing of patients with painful diabetic neuropathy (PND).

Methods : In this prospective randomized split-foot clinical trial, the feet of diabetic patients with PND were allocated CO₂ group (CO₂ immersion) or control group and were followed up for 1 months after beginning intervention. In each patient, The CO₂ foot group immersed the foot in CO₂-enriched water (depth of 20–30 cm, 37–38°C, duration for 20 minutes) three times per week. The difference in foot pain was compared between groups at week 4 in relation to baseline, rated on a 0-10 numerical pain score.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : The foot treated with CO₂-enriched water bathing showed a trend toward decreased foot pain compared to the control foot.

Conclusion : Our present study demonstrates that CO₂ bathing of painful neuropathic foot significantly reduces the level of foot pain in PDN subjects

Keywords : CO₂-enriched water bathing, painful diabetic neuropathy, clinical trial

Count: 670

Abstract ID: 484

subject: Neurorehabilitation and Regeneration: Physiotherapy

Presentation Type: Poster

Rehabilitation of upper limb robotics in neurological patients

Submission Author: Anahita Hasannejad

Anahita Hasannejad¹, kamran ezatti²

1. master student, Zahedan university medical science
2. Ph.D. in Physiotherapy, Research Associate, Neuroscience Research Center, Poursina Hospital, Assistant Professor, Guilan University of Medical Sciences, Department of Physiotherapy

Background and Aim : Traditional physiotherapy is required because of the low severity and duration of treatment, as well as the limitations of people and costs. These treatments sometimes even cause injury and fatigue of the patient and the therapist. Has created the revolution in revolutionary new technologies in the upper limb robotic rehabilitation of patients with neurodegenerative disorders. In recent years, the use of robots has been expanding a lot. Robotic rehabilitation devices include: MIT-Manus, MIME, ARM guide, Bi-Manu-Track, GENTLE, T-WREX, ARMin

Methods : A literature search for the period of 2005-2014 was performed, using PubMed, ProQuest, Science Direct, Thomson, EMBASE, OVID, CINAHL and MEDLINE databases. Rehabilitation, upper limb robotics, neurological were used as keywords.

Results : Robotic rehabilitation completes and facilitates the patient's therapeutic activity. Reducing the presence of the therapist, increasing the amount of treatment, increasing the co-treatment of patients, increasing the learning skill, awareness of the movements, facilitating antagonistic muscles and deepening sense are the advantages of this method. Upper limb robotics is generally divided into end-effector systems and exoskeleton, each of which has its own characteristics. 53/5000 The robotic rehabilitation method is based on three principles: 1- Patico movements 2. Auxiliary movements 3. Balloon movements (active training in cyberspace). These treatments have shown therapeutic effects even up to three months after follow up. This method has been used in patients with stroke, spinal cord injury, MS, Parkinson's disease. This article discusses the following: Comparison of different methods of robotic rehabilitation with other

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

methods, defects and advantages of robotic rehabilitation in neurological patients, the therapeutic range used in robotic rehabilitation and its effect on different patients.

Conclusion : : Robot rehab seems to be useful as a combination therapy along with physiotherapy.

Keywords : Rehabilitation, upper limb robotics ,neurological

Count: 671

Abstract ID: 592

subject: Neurorehabilitation and Regeneration: Physiotherapy

Presentation Type: Oral

Comparison of video game based training and motor-cognitive dual-task training on the preparation of brain prior to gait initiation in older adults

Submission Author: Roya Khanmohammadi

Roya Khanmohammadi¹

1. The Department of Physical Therapy, Rehabilitation Faculty, Tehran University of Medical Sciences; Tehran, Iran

Background and Aim : The reports have shown most falls occur in transition phases such as gait initiation (GI), such that, GI has been considered as an optimal task for diagnosing postural control deficiencies. On the other hand, it is speculated that the impaired preparatory postural adjustments in brain could be a contributory element in GI deficiency. So, it seems an appropriate treatment should improve this element in older adults and bring them closer to an ideal pattern in young adults. Many recent studies concerning postural control have focused on trainings combined cognitive and motor components. Motor-cognitive dual-task (MCDT) training and video game (VG) based training are treatments combined the cognitive and motor components, but it is unclear which treatment is more effective in improving GI. So, the aim of study is to compare modulations in brain of older adults following these trainings.

Methods : This study is a single-blind randomized clinical trial, in which 21 older adults were randomized to the MCDT training (n=10) or VG training (n=11) and the outcome measures were the contingent negative variation (CNV) peak amplitude, CNV peak time, amplitude of Late CNV. Moreover, the training course was 12-16 sessions, 3 sessions per week, and 60 minutes per session and the outcome measures were measured at 3 time points: (1) before initiation of intervention (baseline), (2) after completion of training, (3) 2 months after completion of training.

Results : the both trainings were equally effective in improving the brain-related parameters

Conclusion : These findings indicate that both trainings may result in improvement of GI. Thus both trainings could be further introduced in clinical setting.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : video game, motor-cognitive, gait initiation, brain

Count: 672

Abstract ID: 673

subject: Neurorehabilitation and Regeneration: Physiotherapy

Presentation Type: Oral

Effect of exercise training on autonomic balance assessed by heart rate variability in patients with heart failure after percutaneous coronary intervention

Submission Author: Zahra Rojhani Shirazi

Zahra Rojhani Shirazi¹, Zahra Rojhani -Shirazi², Sara Abolahrari -Shirazi³, Javad Kojuri⁴, Zahra Bagheri⁵

1. -
2. School of Rehabilitation Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
3. School of Rehabilitation Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
4. School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran
5. School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

Background and Aim : This study aimed to investigate the effect of exercise training on autonomic balance assessed by heart rate variability (HRV) and to examine the correlation between HRV parameters and the ejection fraction in patients with heart failure after percutaneous coronary intervention.

Methods : fifty patients with left ventricular ejection fraction $\leq 40\%$ who underwent percutaneous coronary intervention were randomly assigned to either an exercise training (ET) group or a control group. The ET group performed exercise training for 45 min, three times a week for seven weeks. Patients in both groups received a leaflet for daily exercising at home. HRV parameters including, the standard deviation of R-R intervals (SDNN), the root mean square of differences in successive R-R intervals (RMSSD), the percentage of successive R-R intervals differed by more than 50 ms (PNN50), using 24-hour Holter electrocardiographic monitoring was measured.

Results : After the intervention, the SDNN was increased in the ET group ($P=0.002$), while changes in all remaining HRV indices were nonsignificant ($P\geq 0.05$). The control group showed no significant changes in any HRV parameters ($P\geq 0.05$). Changes in SDNN in the ET group was significantly different from the control group ($P=0.003$). At baseline there was a significant weak

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

correlation between ejection fraction and SDNN ($r = 0.279$, $P = 0.047$). However, ejection fraction did not correlate significantly with RMSSD and PNN50

Conclusion : Exercise training is safe and feasible in post percutaneous coronary intervention patients, even in those with reduced ejection fraction. In a seven-week period, exercise training was effective in improving autonomic balance in heart failure patients after percutaneous coronary intervention.

Keywords : Exercise training, Heart failure, Percutaneous coronary intervention, Autonomic balance, Heart rate variability

Count: 673

Abstract ID: 328

subject: Neurorehabilitation and Regeneration: Speech and Language Therapy

Presentation Type: Poster

A review of the role of the Prefrontal Cortex in the processing of the perception of the Semantic of Speech

Submission Author: Alireza Aghaz

Alireza Aghaz¹, Ehsan Hemmati²

1. MSc, Research Committee and Department of Speech Therapy, School of Rehabilitation Sciences, Isfahan University of Medical Sciences, Isfahan, Iran.
2. MSc, Research Committee and Department of Speech Therapy, School of Rehabilitation Sciences, Isfahan University of Medical Sciences, Isfahan, Iran.

Background and Aim : The prefrontal cortex of the brain is usually involved in cognitive processes such as personality, working memory, attention, reasoning, emotions, and executive function. Recent studies have shown that prefrontal cortex, in addition to cognitive tasks, plays an important role in the semantic processing of sentences. The purpose of this study was to evaluate the role of prefrontal cortex in the processing of perception of the semantic of speech.

Methods : A comprehensive search in databases including MEDLINE, Cochrane, PubMed, Google Scholar, Scopus, EMBASE, Science Direct was conducted in experimental studies and clinical trials related to the roles of the prefrontal cortex.

Results : Different prefrontal regions play a significant role in semantic speech processing, most notably Ventromedial and Inferior Prefrontal. Medial and Ventral areas of prefrontal contribute more to the perception of social-emotional stories. The Inferior Prefrontal plays a role in semantic and phonological processing. The posterior region of this area is involved in phonological processing, and the anterior and ventral areas are more involved in semantic processing.

Conclusion : Although studies in design and tasks are diverse, they may activate different areas of brain imaging. Nevertheless, the medial prefrontal was active in various types of studies, which showed that the structures of the ventral and medial prefrontal cortex are a key element of the semantic integration of the text and coherence throughout the sentences.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Prefrontal Cortex; Processing; Perception; Semantic; Speech

Count: 674

Abstract ID: 519

subject: Neurorehabilitation and Regeneration: Speech and Language Therapy

Presentation Type: Poster

Transcranial direct current stimulation (tDCS) and Aphasia

Submission Author: Alireza Hajiyakhchali

Alireza Hajiyakhchali¹, Nima Ganji²

1. A ssistant professor, Shahid Chamran University of Ahvaz, Ahvaz, Iran
2. PhD Sstudent of Psychology, Shahid Chamran University of Ahvaz, Ahvaz, Iran

Background and Aim : Transcranial direct current stimulation (tDCS) is a non-invasive neuromodulation technique inducing prolonged brain excitability changes and promoting cerebral plasticity, a promising option for neurorehabilitation form of neurostimulation that uses constant, low direct current delivered via electrodes on the head; it can be contrasted with cranial electrotherapy stimulation which generally uses alternating current the same way.

Methods : It was originally developed to help patients with brain injuries or psychiatric conditions like major depressive disorder. tDCS appears to have some potential for treating depression. However, there is no good evidence that it is useful for cognitive enhancement in healthy people, memory deficits in Parkinson's disease and Alzheimer's disease, schizophrenia, non-neuropathic pain, nor improving upper limb function after stroke.

Results : Here, we review progress in research on tDCS and language functions and on the potential role of tDCS in the treatment of aphasia. Currently available data suggest that tDCS over language-related brain areas can modulate linguistic abilities in healthy individuals and can improve language performance in patients with aphasia.

Conclusion : Whether the results obtained in experimental conditions are functionally important for the quality of life of patients and their caregivers remains unclear. Despite the fact that important variables are yet to be determined, tDCS combined with rehabilitation techniques seems a promising therapeutic option for aphasia.

Keywords : Transcranial direct current stimulation, neurorehabilitation, aphasia

Count: 675

Abstract ID: 216

subject: Neurorehabilitation and Regeneration: Speech and Language Therapy

Presentation Type: Oral

Sentence Comprehension and Working Memory limitation in Patients with Frontal Lobe Traumatic Brain Injury and the relationship between them

Submission Author: Ehsan Hemmati

Ehsan Hemmati¹, Leila Ghasisin², Zahra Ghayoumi³, Mohammad-Reza Ehsaie⁴

1. Student Research Committee, Faculty of Rehabilitation, Isfahan University of Medical Sciences, Isfahan, Iran.
2. Communication Disorders Research Center, Faculty of Rehabilitation, Isfahan University of Medical Sciences, Isfahan, Iran.
3. Ph.D in Speech therapy, faculty of paramedical, Mashhad University of Medical Sciences, Mashhad, Iran.
4. Neurologist, Faculty of Medical, Mashhad University of Medical Sciences, Mashhad, Iran.

Background and Aim : Traumatic brain injury (TBI) in the frontal lobe effects on mental health, behavioral inhibition, attention, regulatory behaviors, and working memory. In addition, the inferior frontal gyrus (the Broca area) is known as a region of language production and syntactic comprehension. The results of studies have shown that working memory function is necessary for language comprehension, but the nature of the relationship between working memory and language comprehension in TBI patients, despite extensive research, has not been clearly established and requires further research, in particular. Therefore, the purpose of this study evaluates the comprehension of the sentence with different processing levels and working memory in mild to moderate frontal lobe injured subjects and determine the relationship with between them.

Methods : Twenty-four TBI patients with mild to moderate Frontal lobe and 40 healthy controls participated in this study. The subjects were aged between 18 and 45 years. In this study, the Digit Span of the Wechsler memory scale and N-back tests were used to evaluate the different components of working memory and from the syntactic comprehension of Bilingual Aphasia Test (BAT) was used for assessing sentence comprehension.

Results : There was a significant correlation between the mean scores of both healthy and patient groups in non-common sentences comprehension ($p = 0.002$) and common sentences

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

comprehension ($p = 0.01$). Also, in comparison to the working memory scores in both groups, there was a significant difference between the two groups in both phonological loop and central executive ($p < 0.001$). In addition, there was a significant correlation between the central executive of the working memory with the comprehension of common sentences ($p = 0.009$) and the comprehension of non-common sentences ($p = 0.001$) in the patients' group.

Conclusion : The results of this study showed that sentences comprehension in TBI patients with mild to moderate severity were significantly lower than healthy groups which can create problems for these people in their everyday communication. Also, according to the greater correlation between the central executive systems, possibly the resources used to comprehend sentences with the central executive of the working memory, would be more in common.

Keywords : Brain Injury; Working Memory; Sentence Comprehension; Frontal Lobe

Count: 676

Abstract ID: 440

subject: Neurorehabilitation and Regeneration: Speech and Language Therapy

Presentation Type: Oral

The efficacy of word retrieval treatment in Primary Progressive Aphasia: A Single-case Study

Submission Author: Salimeh Jafari

Salimeh Jafari¹, Ahmad Reza Khatoonabadi², Maryam Noroozian³, Azar Mehri⁴, Hassan Ashayeri⁵, Lyndsey Nickels⁶

1. PhD Student, Department of Speech Therapy, School of Rehabilitation, Tehran University of Medical Sciences, Tehran, Iran
2. PhD, Assistant Professor, chair, Department of Speech Therapy, School of Rehabilitation, Tehran University of Medical Sciences, Tehran, Iran
3. MD Professor of Neurology, Director, Memory and Behavioral Neurology Division, Chair, Department of Geriatric Medicine, Tehran University of Medical Sciences, Iran
4. PhD, Assistant Professor, Department of Speech Therapy, School of Rehabilitation, Tehran University of Medical Sciences, Tehran, Iran
5. Professor, Department of Basic Sciences, School of Rehabilitation Sciences, Iran University of Medical Sciences, Tehran, Iran
6. ARC Centre of Excellence in Cognition and Its Disorders (CCD) & NHMRC Centre of Clinical Excellence in Aphasia Rehabilitation, Department of Cognitive Science, Macquarie University, Sydney, Australia

Background and Aim : Primary progressive aphasia (PPA) with its three variants is a progressive neurodegenerative dementia in which language impairment is the first and most dominant symptom. Traditionally, speech-language pathologists who deliver therapy to adults with acquired neurogenic language disorders shy away from treatment of progressive aphasia as there is no promise of lasting effects and only limited data regarding treatment efficacy. Despite a growing literature characterizing connected speech and discourse impairments associated with primary progressive aphasia (PPA), intervention in PPA has focused predominantly on lexical retrieval and picture-naming treatments, with limited generalization of therapy gains reported. Recent developments in the post-stroke aphasia literature with discourse-level approaches have provided highly promising findings for the generalization of language gains to everyday communication, and an opportunity to investigate whether the same benefits may be found in the PPA population. The purpose of this study was to compare the effects of a combined semantic/ phonologic cueing treatment on single words and the context of discourse

Methods : One individual with Primary Progressive Aphasia participated in this interventional single-subject study. Over period of eight weeks the participant (FK) received word retrieval treatment with cueing hierarchy (phonological and semantic cueing hierarchies) and integrated therapy (cueing hierarchy in story retelling context). During the study, the patient's performance of treated and untreated stimuli was measured repeatedly 13 times for both therapy plans in order to examine the effectiveness of therapy, and were analyzed by WEST statistical method.

Results : The participant showed significant improvement in target word retrieval following the therapy without considering the treatment type. Visual analysis revealed positive slope and trend following both treatments in treated and untreated stimuli.

Conclusion : Generally, without considering the type of therapy during this study, in spite of Progressive nature of disease, word retrieval ability of FK improved via both treatments programs. Furthermore, generalization about untreated items and maintenance of treated items also were occurred to some extent.

Keywords : Primary Progressive Aphasia, Word retrieval deficit, Cueing therapy, Discourse. intervention;

Count: 677

Abstract ID: 184

subject: Neurorehabilitation and Regeneration: Speech and Language Therapy

Presentation Type: Poster

The Effect of Speech and Language Therapy Approaches with Music Therapy on the Language Function of Patients with Chronic Aphasia After Stroke

Submission Author: Ali Yazdan ramaji

Ali Yazdan ramaji¹

1. Speech and Language Therapy Student of Semnan University of Medical Sciences

Background and Aim : Aphasia is a disorder of language expression or understanding following brain damage. Most Aphasia are caused by a stroke with left cerebral hemisphere. One of the factors that has been proven to be a significant improvement in these patients is Speech and Language Therapy ,but the rate of healing by Speech and Language Therapy depends on several factors, such as personal factors, neuropsychiatric factors, and therapeutic factors. One of the effective therapeutic factors is the rate of improvement in the association of Speech and Language Therapy modalities with music therapy after a stroke. The purpose of this study was to investigate the effect of Speech and Language therapies with music therapy on the improvement of linguistic abilities of these patients.

Methods : Review of interventional studies by considering the PICO method based on selected keywords and combining them in the ISI web of knowledge, PubMed, Science direct, Google scholar databases, and ultimately taking into account entry and exit criteria in Selection of papers and thorough review of 20 articles were selected by 2017.

Results : Most studies have reported positive effects of Speech and Language therapies with music therapy on improving Language performance. Of course, the effectiveness of intervention in studies has been reported differently. Three studies of meaningful Language performance were reported by this concurrent treatment. Twelve studies have examined the impact of the use of this intervention, and all of them used it more effectively for a specified period of time on the desired parameter.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Since the effectiveness of the use of Speech and Language Therapy approaches along with relatively high frequency of music therapy has been reported in studies, it seems that the use of this method can be considered as the most appropriate rehabilitation treatment in the Language function of patients with post-stroke disorder Introduced. However, more studies are needed to support more decision-making based on the effectiveness of intervention. It should be noted that studies have indicated that it can generally be concluded that treatment with concurrent interventions In patients with aphasia, it is significantly more effective than single-intervention treatment.

Keywords : Speech and Language Therapy-Stroke-Language function-chronic- aphasia

Count: 678

Abstract ID: 669

subject: Neurorehabilitation and Regeneration: Medication and Stem Cell Therapy

Presentation Type: Oral

THE EFFECT OF BETA-BOSWELLIC ACID AND NURR1 OVEREXPRESSION ON DOPAMINERGIC PROGRAMMING OF MURINE EMBRYONIC STEM CELLS

Submission Author: Mozghan Abasi

Mozghan Abasi¹, mohammad massumi²

1. Department of Tissue Engineering and Applied Cell Sciences, School of Advanced Technologies in Medicine, Shahid Beheshti University of Medical Sciences, Tehran, IRI.
2. Lunenfeld3Tanenbaum Research Institute, Mount Sinai Hospital, Toronto, ON, Canada

Background and Aim : Parkinson's disease (PD) is a neurodegenerative disorder in which the nigro-striatal dopaminergic (DAergic) neurons have been selectively lost. Due to side effects of levodopa, a dopamine precursor drug, recently cell replacement therapy for PD has been considered. Lack of sufficient amounts of, embryos and ethical problems regarding the use of dopamine-rich embryonic neural cells have limited the application of these cells for PD cell therapy. Therefore, many investigators have focused on using the pluripotent stem cells to generate DAergic neurons. This study is aimed first to establish a mouse embryonic stem (mES) cell line that can stably co-express Nurr1 (Nuclear receptor subfamily 4, group A, member 2) transcription factor in order to efficiently generate DAergic neurons, and glutathione peroxidase-1 (GPX-1) to protect the differentiated DAergic-like cells against oxidative stress. In addition to genetic engineering of ES cells, the effect of Beta-boswellic acid (BBA) on DAergic differentiation course of mES cells was sought in the present study.

Methods : we established a CGR8 cell line co- overexpressing transcription factor Nurr1 (Nurr1-ES), which is involved in development of DAergic neurons, as well as Gpx1 as a antioxidant gene. Then the ES-differentiating cells as EBs were embedded by Matrigel, a natural extra cellular matrix, and plated on Matrigel coated plates. The BBA used in the step three of gold standard protocol for DAergic differentiation (Ron D. McKay et al., 2002). Then, Real-time RT-PCR, Immunocytochemistry (ICC) for expression of neuroectermal, mesencephalic or DAergic neuron-related markers such as Nestin, Pax2, Pax5, Tau , Map2, Nurr1 and TH, were performed. The

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

synthesis and secretion of dopamine was analyzed by reverse HPLC in supernatant and lysates of Nurr/Gpx1-ES-differentiated cells.

Results : The result showed that the programmed cells can express the marker of DAergic and intermediated cells in DAergic neurons development in the level of mRNA (RT-PCR) and protein (ICC). The differentiated cells could selectively synthesis and secrete dopamine and this effect was synergized by treatment of Nurr1/Gpx1-ES cells by BBA, whereas the cells did not express the Serotonin and Adrenalin, indicating the specificity of DAergic differentiation protocol.

Conclusion : overexpression of Nurr1 can promote DAergic differentiation of mES cells and the effect can be synergized by adding of BBA. The result of this study may have impact on future cell therapy of PD by ES or induced pluripotent stem cells (iPS).

Keywords : mouse embryonic stem cells, Nurr1; GPX-1; dopaminergic; Lentiviruses; Beta-boswellic acid

Count: 679

Abstract ID: 374

subject: Neurorehabilitation and Regeneration: Medication and Stem Cell Therapy

Presentation Type: Poster

The effects of metallic nanoparticles on neural stem cells

Submission Author: Shabnam Asghari

Shabnam Asghari¹

1. Anatomy department;Tabriz univercity of medical science;tabriz;iran

Background and Aim : Our recent period is witnessing an improved incidence of neurodegenerative disease such as Alzheimer's disease,parkinson's disease,Huntington's disease and brain tumors.Stem cells engage numerous niches in the mature body,maintaining populations and aiding in restore and upkeep.Researchs from 1965 confirmed the existance of neural stem cells in adults brain and embryo. Neural stem cells during neurigenesis and gliogenesis improves memory functions and learning, temper conctancy, endogenous repair subsequent brain injury.With the quick progress of nanotechnology,there is expanding notice on the use of nanoparticles in different field for instance photonics,catalysis,magnetic, and biotechnology including cosmetics, pharmaceuticals, and medicine. However, little is known about their probable toxicity to individuals health. Due to their unique properties, nanoparticles have the ability to bypass the Blood-Brain Barrier(BBB). However, the toxic effects of nanoparticles on Central Nervous System(CNS) function are still deficient. And the relations of nanoparticles with the cells and tissues in CNS are inadequatly understood. Thus,neurotoxicity induced by nanoparticles is still a novel subject that requires extra attention.

Methods : Review of some original study

Results : In this review,we summarized the pathways by which the metallic nanoparticles could go into the CNS and the current investigations on the neurotoxicity of metallic nanoparticles both in vitro and in vivk on neural stem cells.

Conclusion : In this review,we summarized the pathways by which the metallic nanoparticles could go into the CNS and the current investigations on the neurotoxicity of metallic nanoparticles both in vitro and in vivk on neural stem cells.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Metallic;nanoparticle;neural stem cell

Count: 680

Abstract ID: 726

subject: Neurorehabilitation and Regeneration: Medication and Stem Cell Therapy

Presentation Type: Poster

Comparative of relative ESR1 gene expression in major depression and healthy persons in order to hormone therapy

Submission Author: Vida Farzaneh ardabilly

Vida Farzaneh ardabilly¹, Mohammad Zaeifizadeh², ozra gaffari³

1. Psychology department ardabil branch.islamic azad university.ardabil.iran
2. Psychology department ardabil branch.islamic azad university.ardabil.iran
3. Psychology department ardabil branch.islamic azad university.ardabil.iran

Background and Aim : Depression is a common disease which emerges with a disorder in temper. It results from environmental genetically and physiological factors. One of the effective factors can be the change in hormones and disorder in their intake through cells. In way that one can explain these hypotheses with post-pregnancy depression.

Methods : The present study aimed to compare estrogen receptor1 gene expression in patients with major depression and healthy individuals. The study used causal-comparative method. For this study, 17 patients who suffered major depression referred to the clinic and 30 healthy subjects were randomly selected. After taking blood samples, estrogen receptor1 gene expression was carried out using Real Time PCR.

Results : The results showed that the expression of ESR1 gene was significantly reduced in patients with major depression (P value < 0.05)

Conclusion : This result showed that ESR1 gene can be used as a genetically marker for major depression. Also, stimulating estrogen receptor 1 or raising the estrogen level of blood can be applied to reduce depression signs

Keywords : ESR1 gene expression; major depression;pcr

Count: 681

Abstract ID: 69

subject: Neurorehabilitation and Regeneration: Medication and Stem Cell Therapy

Presentation Type: Oral

Chitosan-film associated with mesenchymal stem cells improved withdrawal reflex latency analysis in a rat sciatic nerve model

Submission Author: Mehrnaz Moattari

Mehrnaz Moattari¹, Gholamreza Kaka², Seyed Homayoon Sadraie³, Majid Naghdi⁴

1. Department of Animal Biology, Faculty of Biological Science, Kharazmi University, Tehran, Iran
2. Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.
3. Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.
4. Fasa University of Medical Science, Fasa, Fars, Iran.

Background and Aim : Peripheral nerve injuries comprise significant portion of the nervous system injuries. The aim of this study was to determine the effects of chitosan scaffold and human mesenchymal stem cells from Wharton's jelly on regeneration of the sciatic nerve injury in Wistar rats.

Methods : Male Wistar rats (n=42, 180-200g) were randomly divided into intact; control; sham; Cs; MSCs; MSCs + Cs groups. Functional recovery using withdrawal reflex latency analysis (WRL) was evaluated at 2, 4, 6 and 8 weeks after surgery.

Results : The rats in the MSCs+Cs group showed significant decrease in WRL during the 2nd to 8th weeks after surgery. At 8 weeks after surgery withdrawal reflex latency analysis significantly improved in MSCs + Cs group compared to control and sham groups (P<0.05).

Conclusion : The present study showed that mesenchymal stem cells associated with chitosan could improve withdrawal reflex latency analysis 8 weeks after surgery.

Keywords : Chitosan; Mesenchymal stem cells; Sciatic nerve; WRL; Rat

Count: 682

Abstract ID: 74

subject: Neurorehabilitation and Regeneration: Medication and Stem Cell Therapy

Presentation Type: Oral

The neuroprotective effect of Rosa damascena extract on CA1 neurons of adult rat hippocampus following ischemia

Submission Author: Farzaneh Moniri

Farzaneh Moniri¹, Azim Hedayatpour², Gholamreza Hassanzadeh³, Mohammad Reza Kouchakian⁴, Mahdi Vazirian⁵, Morteza Karimian⁶, Maryam Belaran⁷, Shahram Ejtemaie Mehr⁸, Mohamad Akbari⁹

1. Department of Anatomy, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Anatomy, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran
3. Department of Anatomy, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran
4. Department of Anatomy, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran
5. Department of Pharmacognosy, Faculty of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran
6. Department of Physiology, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran
7. Department of Physiology, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran
8. Department of Pharmacology, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran
9. Department of Anatomy, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Ischemic stroke is an important cause of death and disability worldwide. Brain ischemia causes damages to brain cells, and among brain neurons pyramidal neurons of hippocampal CA1 region are more susceptible to ischemic injury. Since ischemia reperfusion induced tissue injury is multifactorial it has remind unclear, however evidences indicate that reactive oxygen species (ROS) generation plays a critical role in ischemia injury and cell death. To ameliorate oxidative stress, the interest in potential therapeutic application of antioxidant has been growing during the last decades. A dietary component of Rosa damascene extract possibly is associated with expression of neurotrophic factors mRNA following ischemia, so it can have therapeutic effect on cerebral ischemia. The present study attempts to evaluate the neuroprotective effect of Rosa damascene extract on adult rat hippocampal neurons following ischemic brain injury.

Methods : Forty eight adult male wistar rats (weighting 250 ± 20 gr and ages 10-12 weeks) used in this study, animals randomly were divided into 6 groups including: Control, ischemia/ reperfusion

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

(IR), vehicle and three treated groups (IR+0.5, 1, 2 mg/ml extract). Global ischemia was induced by bilateral common carotid arteries occlusion for 20 minutes. The treatment was done by different doses of Rosa damascena extract for 30 days. After 30 days the Morris water maze test was used to assess spatial learning and memory then the animals were scarified and the pro-oxidant - antioxidant assay was performed, and gene expression and cell death in neurons of the CA1 region of hippocampus were evaluated by real time PCR assay and Nissl staining.

Results : In Morris water maze test for evaluation of spatial learning and memory, escape latency time was significantly reduced by Rosa damascena extract. A significantly higher pro-oxidant-antioxidant balance (PAB) value was observed in the ischemia group compared to the controls ($P < 0.0001$). The serum PAB values were lower in treated groups compared to ischemia and vehicle groups ($P < 0.0001$). We found a significant decrease in NGF, BDNF and NT3 mRNA expression in neurons of CA1 region of hippocampus in ischemia group compared to control group ($p < 0.0001$). Our results also revealed that the number of dark neurons significantly increases in ischemia group compared to control group ($p < 0.0001$). Following treatment with Rosa damascene extract reduced the number of dark neurons that was associated with NGF, NT3 and BDNF mRNA expression. All doses level had positive effects, but the most effective dose of Rosa damascena extract was 1mg/ml.

Conclusion : Our results suggest that neuroprotective activity of Rosa damascena can enhance hippocampal CA1 neuronal survival after global ischemia.

Keywords : Brain ischemia, Rosa damascene extract, ROS generation, Cell death, Neurotrophic factor

Count: 683

Abstract ID: 32

subject: Neurorehabilitation and Regeneration: Medication and Stem Cell Therapy

Presentation Type: Poster

Stem Cell and Gene therapy as new therapeutic platforms for Alzheimer therapy

Submission Author: Somayye Noruzi

Somayye Noruzi¹, Hamed Mirzaei², Seyed Atefe Hosseini³, Rezvan Mohammadi⁴, Reza Salarinia⁵

1. MSc of Medical Biotechnology, School of Medicine, Northern Khorasan University of Medical Sciences, Northern Khorasan, Iran
2. Department of Medical Biotechnology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3. MSc of Medical Biotechnology, School of Medicine, Northern Khorasan University of Medical Sciences, Northern Khorasan, Iran
4. MSc of Medical Biotechnology, School of Medicine, Northern Khorasan University of Medical Sciences, Northern Khorasan, Iran
5. Department of Medical Biotechnology and Molecular Sciences, School of Medicine, North Khorasan University of Medical Sciences, Bojnurd, Iran.

Background and Aim : Alzheimer's disease (AD) is known as one important CNS disorders among various populations. Various risk factors such as age could be associated with pathogenesis of AD. Multiple lines of evidence indicated that a variety of cellular and molecular events such as hyper-phosphorylation of tau (known as an intracellular microtubule-associated protein), cleavage of the APP protein, activation of microglia, and Mass neuronal and synaptic loss. These physiological events could lead to activation/inhibition of a variety of cellular and molecular pathways involved in AD pathogenesis and contribute to progression of this disease.

Methods : Despite, several efforts in this landscape, finding of new therapeutic approaches is needed. Among of various therapeutic approaches, cell therapy has been emerged as a new platform for AD therapy. The utilization of stem cell alone or with therapeutic genes could be associated with good results for AD patients.

Results : Numerous studies used various types of stem cells for AD therapy. They showed that various types of stem cells such as neural stem cells (NSCs), mesenchymal stem cells (MSCs),

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

embryonic stem cells (ESCs), and induced pluripotent stem cells (iPSCs) could be used as an effective therapeutic platform for patients with AD

Conclusion : Here, we highlighted utilization of various types of stem cells as new therapeutic approaches for patients with AD.

Keywords : CNS disorders, Alzheimer's disease, Stem Cell therapy , gene therapy

Count: 684

Abstract ID: 696

subject: Neurorehabilitation and Regeneration: Medication and Stem Cell Therapy

Presentation Type: Oral

Granulocyte-Colony Stimulating Factor Administration for Neurological Improvement of Chronic Incomplete Traumatic Spinal Cord Injuries: a Double Blind Randomized Controlled Clinical Trial

Submission Author: Hooshang Saberi

Hooshang Saberi¹, Nazi Derakhshanrad², Mir Saeed Yekaninejad³, Mohammad Taghi Joghataei⁴, Abdolreza Sheikhezadei⁵

1. 1Brain and Spinal cord Injury Research Center (BASIR), Neuroscience Institute, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran 2Department of Neurosurgery, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran
2. 1Brain and Spinal cord Injury Research Center (BASIR), Neuroscience Institute, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran
3. 3Department of Epidemiology and Biostatistics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran
4. 4Cellular and Molecular Research Center (CMRC), Iran University of Medical Sciences, Tehran, Iran 5Neuroscience Department, School of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran
5. 2Department of Neurosurgery, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran

Background and Aim : Granulocyte-Colony Stimulating Factor (G-CSF) is a major growth factor for activation and differentiation of granulocyte colonies in the bone marrow. This cytokine has been widely and safely employed, in different conditions over many years. In this study we have tried to determine the efficacy of G-CSF administration for Traumatic Spinal Cord Injury (TSCI).

Methods : This double blind parallel Randomized, placebo-controlled, Clinical Trial (RCT), phase III study, was performed from June 2013 to June 2016 in the Brain and Spinal cord Injuries Research (BASIR) center at Tehran University of Medical Sciences (TUMS) on 120 patients with incomplete chronic TSCI, American Spinal Injury Association (ASIA) Impairment Scale (AIS) B, C and D of at least six months duration. Sixty patients were allocated into the treatment group and 60 patients into the control group. All the cases had completed an outpatient rehabilitation program in the post-acute period and were in a neurological and functional plateau. Patients were assessed

by ASIA, Spinal Cord Independence Measure (SCIM III) and International Association of Neurorestoratology-Spinal Cord Injury Functional Rating Scale (IANR-SCIFRS) just before intervention and at 1, 3 and 6 months after seven subcutaneous administrations of 300 µg/day of G-CSF in the treatment group and placebo in the control group for 1 week. Randomization was performed with randomized block design, the patients and evaluators were blinded regarding the treatment groups. One patient did not receive the allocated intervention completely and 5 patients were lost to follow-up and finally, 114 patients were enrolled for analysis.

Results : One hundred twenty patients were randomized and allocated into the study groups. Among them, 56 patients (93.3%) in the G-CSF group and 58 patients (96.6%) in the placebo group completed the study protocol. After 6 months of follow up, AIS in the placebo group remained unchanged while in G-CSF group, 1 case improved from AIS B to C, and 4 AIS C patients improved to AIS D. The mean (\pm SE) improvement in ASIA motor score in G-CSF group was $5.5(\pm 0.62)$ scores, which was significantly more than placebo group (0.77 ± 0.20 scores) ($P < 0.001$). The mean (\pm SE) light touch and pinprick sensory scores increased $6.1(\pm 1.1)$ and $8.7(\pm 1.5)$ scores in G-CSF group and by $1.3(\pm 0.52)$ and $0.89(\pm 0.44)$ scores in the placebo group respectively ($P < 0.001$). Evaluation of functional improvement by IANR-SCIFRS instrument revealed significantly more improvement in G-CSF group (3.5 ± 0.37 scores) in comparison to the placebo group (0.41 ± 0.12 scores), ($P < 0.001$). Also, significant difference was observed in functional improvement between the two groups as measured by SCIM-III instrument (7.5 ± 0.95 vs. 2.1 ± 0.51 , $P < 0.001$).

Conclusion : Granulocyte-colony stimulating factor administration for incomplete chronic spinal cord injuries is associated with significant motor, sensory, and functional improvement.

Keywords : Spinal cord injury, Granulocyte-Colony Stimulating Factor (G-CSF), Neurological improvement.

Count: 685

Abstract ID: 486

subject: Neurorehabilitation and Regeneration: Other

Presentation Type: Poster

A review of the effect of ankle-foot orthosis on balance in patients with hemiplegia stroke

Submission Author: Reza yazdan ramaji

Reza yazdan ramaji¹, seyede gelare razavi khorasani²

1. Student orthosis and prosthesis, University of Welfare and Rehabilitation sciences
2. Student orthosis and prosthesis, University of Welfare and Rehabilitation sciences

Background and Aim : Brain stroke is currently one of the most common causes of death in the world, and if a person survives, he has a significant disability that greatly reduces his autonomy. Among all the sensory motor impairments after a stroke, impaired posture control has a great influence on the person's lack of autonomy in daily work and walking. Ankle foot orthosis is the most commonly used orthosis device used to restore the ankle function and to improve balance and walking in patients with hemiprotective stroke. Previous studies focused more on the benefits of biomechanics of ankle-foot orthotics. The purpose of this study was to evaluate the effect of ankle-foot orthosis on balance in hemiplegic stroke patients.

Methods : Review of interventional studies by considering the PICO method based on selected keywords and combining them in the ISI web of knowledge, PubMed, Science direct, Google scholar databases, and ultimately taking into account entry and exit criteria in Selection of papers and thorough review of 15 articles were selected by 2017.

Results : A total of 12 studies were suitable for this study according to entry and exit criteria. In 9 studies, balance recovery was demonstrated using ankle-foot orthoses in patients with hemiplegic stroke and 3 studies were found that there was a significant difference in the improvement of balance with wearing ankle sprain in patients with hemiplegic stroke Pelagic was not seen.

Conclusion : According to the findings, it can be concluded that ankle foot orthosis can be suggested as an appropriate treatment option for improving the balance of patients with hemiplegic stroke.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : stroke †Cerebrovascular accident †CVA †Hemiplegia †Ankle foot orthoses †AFO †brace †balance †Postural sway †stability †instability.

Count: 686

Abstract ID: 437

subject: Neurorehabilitation and Regeneration: Other

Presentation Type: Poster

Study of energy consumption when using different types of ankle-foot orthosis in children with cerebral palsy

Submission Author: Reza yazdan ramaji

Reza yazdan ramaji¹

1. Student orthosis and prosthesis, University of Welfare and Rehabilitation sciences

Background and Aim : Cerebral palsy is a primary disability of the nervous system that has symptoms such as abnormal tone of the muscles and loss of motor control. These early characteristics, after time and growth, lead to secondary symptoms such as bone deformation, joint articulation, and abnormal gaites. Rehabilitation goals for children with cerebral palsy, achieving the best level of mobility, performance and presence in society, and thus reducing their disability. In general, people with cerebral palsy, lower limb orthoses, balance during the phase of the stance and prevent stroke during the swing phase.

Methods : Review of interventional studies by considering the PICO method based on selected keywords and combining them in the ISI web of knowledge, PubMed, Science direct, Google scholar databases, and ultimately taking into account entry and exit criteria in Selection of papers and thorough review of 20 articles were selected by 2017.

Results : Considering the effect of all the ankle-foot orthoses, such as posterior leaf spring (PLS), afo ankle joints and hard ankle-foot on walking energy in children with cerebral palsy, almost all Studies have shown the effectiveness of these orthoses in terms of energy consumption in these children and the results are close to each other.

Conclusion : All of these 12 studies have reported a reduction in energy use when using all types of ankle-foot orthosis. Only one of these studies has not shown a reduction in energy consumption in these children for both peoples with Hemiplegia and diplegia people, and it is specific to people in the Quadriplegia. Another study in 2014 outlined the superiority of hard polyethylene ankle-foot compared to other plastic orthoses for energy use. Considering the increased energy consumption of these children while walking and the findings of studies in this field, it can be argued that the

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

use of ankle-foot orthosis for children with cerebral palsy is necessary to achieve a better motor and functional level. Found.

Keywords : Energy consumption, cerebral palsy, ankle-foot orthosis

Count: 687

Abstract ID: 275

subject: Neurorehabilitation and Regeneration: Other

Presentation Type: Poster

Influence of motor imagery practice on upper-extremity function in multiple sclerosis patients

Submission Author: Mahdieh Azin

Mahdieh Azin¹, Amir Hossein Ghassemi², Nasser Zangiabadi³

1. Department of Physiology and Pharmacology, School of Medicine, Rafsanjan University of Medical Sciences, Rafsanjan, Iran; Physiology-pharmacology Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran
2. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran
3. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran

Background and Aim : Approximately 2.5 million people worldwide are afflicted with multiple sclerosis (MS), a chronic neuroinflammatory disease of the brain and spinal cord that is a common cause of serious physical disability in young adults, especially women. For many patients with damage to the central nervous system, execution of motor tasks is very difficult, sometimes impossible, even after early participation in an active rehabilitation program. Several investigators have recently proposed that mental practice could be used by these patients as a therapeutic tool to improve their performance of motor functions. Motor training performed by using motor imagery (MI) is a low-cost and low-risk motor rehabilitation intervention. Reports have described the contribution of MI practice for improving upper-extremity functions in patients with different neurologic diseases. Motor imagery can be defined as the covert cognitive process of imagining a movement of your own body (-part) without actually moving that body (-part). The aim of current study is to evaluate the effect of MI practice on hand mental rotation (HMR) ability and upper-extremity rehabilitation in MS patients

Methods : 18 right-handed MS patients completed the study. The intervention consisted of 10 sessions for 2 consecutive weeks. On the first day of training, the rules of motor imagery were explained as: • Each action is imagined in the first person, that is, patients imagine they are moving • imagining that another person is doing the action (visual imagery) should not be practiced •

During motor imagery, the patient should not make movements For each activity: 1. The physician demonstrated the movement to be imagined by the patient: 2 repetitions 2. Patients use the dominant upper limb to physically perform the movement: 2 repetitions 3. Patients imagine the movement using the dominant limb: 2 repetitions. 4. Patients imagine movement using dominant upper limb: 3 repetitions (repeated 3 times to provide a total of 9 repetitions of the imagined activity). Same verbal instructions given as for non-dominant limb. The Box and Block Test (BBT) and 9-Hole Peg Test (9-HPT) evaluated manual dysfunction in MS patients. In HMR task, after the presentation of hand stimulus, patients judged the laterality (left or right) of hands, as quickly and accurately as possible. Response time and response accuracy were automatically recorded by the Psytask software in computer. Baseline and final measures of HMR ability and upper-extremity function were compared after a 10-day intervention period.

Results : MI practice significantly improved manual dexterity in both hands, as detected by a reduction of time required to complete the 9HPT ($p=0.002$) and increased number of cubes transferred in 1 minute ($p=0.02$). However, MI practice significantly increased response accuracy of HMR task ($p< 0.001$) but it had no significant effect on reaction time of HMR of HMR task.

Conclusion : Current evidence suggests that MI training can improve manual function in MS patients and may be of use to the clinician.

Keywords : mental practice; motor imagery; rehabilitation; upper-extremity; multiple sclerosis

Count: 688

Abstract ID: 608

subject: Neurorehabilitation and Regeneration: Other

Presentation Type: Poster

Treadmill exercise attenuates ecstasy-induced apoptosis in the hippocampus of male rat

Submission Author: Sara Soleimani Asl

Sara Soleimani Asl¹, Alireza Komaki², Mehdi Mehdizadeh³

1. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
2. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
3. Cellular and Molecular Research Center, Faculty of Advanced Technologies in Medicine, Department of Anatomy, Iran University of Medical sciences, Tehran, Iran

Background and Aim : 3, 4-methylenedioxymethamphetamine (MDMA) leads to apoptosis in the hippocampus. Herein, we assessed the effects of treadmill exercise on apoptosis and oxidative stress in the hippocampi of MDMA-treated rats.

Methods : Adult rats received 10 mg/kg MDMA intraperitoneally and exercised for one month on a treadmill (simultaneously or asynchronously with MDMA). Lipid peroxidation and expression of caspase 3, Bax, and Bcl-2 were examined by the thiobarbituric acid assay (TBA) and Western blot, respectively.

Results : Caspase 3 expression decreased in the exercise group compared to the MDMA group. Although MDMA treatment caused an increase in the Bax/Bcl-2 ratio, the treadmill exercise reduced this ratio. Simultaneous exercise caused a reduction in lipid peroxidation in the hippocampus.

Conclusion : This data suggests that treadmill exercise can be a useful strategy to decrease apoptosis in MDMA users.

Keywords : MDMA, Apoptosis, Exercise, Hippocampus

Count: 689

Abstract ID: 609

subject: Neurorehabilitation and Regeneration: Other

Presentation Type: Poster

The effects of exercise on 3, 4-methylenedioxymethamphetamine-induced memory impairment in the male rat

Submission Author: Sara Soleimani Asl

Sara Soleimani Asl¹, Alireza Gharebaghi², Siamak Shahidi³

1. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
2. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
3. Neurophysiology Research Center, Hamadan University of Medical Sciences, Hamadan, Iran

Background and Aim : Ecstasy or MDMA leads to learning and memory impairment. In this study, we have investigated the effects of treadmill exercise on memory in MDMA-treated rats.

Methods : Male Wistar rats received intraperitoneal injections of MDMA (10 mg/kg) and exercised for one month on a treadmill. We assessed memory function with the Morris water maze (MWM) test.

Results : Our results showed that asynchronous treadmill exercise could significantly improve MDMA-induced memory impairment in the MWM test.

Conclusion : This data suggests that treadmill exercise can be a useful strategy for treating memory impairment in persons with neurodegenerative disease and stimulant drug users.

Keywords : MDMA, Memory, Exercise, Hippocampus

Count: 690

Abstract ID: 491

subject: Social Neuroscience: Developmental approaches

Presentation Type: Poster

Effect of pivotal response treatment on social cognition in children with autism spectrum disorder

Submission Author: Gohar Lotfi

Gohar Lotfi¹, Mohammad Rezaei², Farzad Weisi³

1. Pediatric developmental disorder research center, School of Rehabilitation Sciences, Hamadan University of Medical Sciences, Hamadan, Iran
2. Pediatric developmental disorder research center, School of Rehabilitation Sciences, Hamadan University of Medical Sciences, Hamadan, Iran
3. Department of Speech therapy, School of Rehabilitation Sciences, Iran University of Medical Sciences, Tehran, Iran

Background and Aim : Autism is a neurodevelopmental disorder that impresses on social interaction, verbal and nonverbal communication and stereotyped behavioral patterns. The 'Theory of Mind' (ToM) model suggests that people with autism spectrum disorder (ASD) have a profound difficulty understanding the minds of other people - their emotions, feelings, beliefs, and thoughts. It seems there is a relationship between social and communication skills and TOM. In this study we tried to examine effect pivotal response treatment on social cognition abilities of ASD

Methods : The research method was quasi-experimental with pretest-posttest. According to inclusion and exclusion criteria, 10 autistic participants (10 to 16 years old) selected. Sessions was administered individually, lasting for 60 minutes and 3 days a week for 12 weeks. Participants were tested before and after intervention by reading mind from eyes (RMET)

Results : Findings of study showed (according to c analysis between before and after of intervention in participants) there is significant changes in social cognition ability in children with ASD.

Conclusion : the result of these study indicated effect of pivotal response treatment on social cognition ability in autistic children. Therefore this method recommended for speech and language pathologist.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Autism Spectrum Disorder, Social Cognition, motivation, Pivotal response treatment

Count: 691

Abstract ID: 147

subject: Social Neuroscience: Interpersonal processes

Presentation Type: Poster

The assessment of quantity and quality errors in detection of facial emotion cues in ADHD and ADHD+CD

Submission Author: Soroush Nasri

Soroush Nasri¹, Mohammad Ali Nazari², Hassan Shahrokhi³, Saman Hakimzadeh Abyaneh⁴

1. M.Sc. child and adolescent clinical psychology, University of Tabriz, Tabriz, Iran.
2. Associate Professor, department of Psychology, cognitive neuroscience laboratory, University of Tabriz, Tabriz, Iran.
3. Research center of psychiatry and behavioral science, Tabriz University of medical sciences, Tabriz, Iran
4. M.Sc. Computer science department, University of Tabriz, Tabriz, Iran

Background and Aim : recognition and perception of the emotional facial cues have the important role in interpersonal behavior and socialization process. Findings demonstrated that Both ADHD and conduct disorder is associate with emotion processing deficits. However, this tow groups shown the spectrum of maladaptive social behaviors. Specific misinterpreted in recognition of facial emotion cues can be justify more destructive social performance in persons with conduct disorder. The purpose of present study was to examine quantity and quality of errors in facial emotion recognition between tow group of children with ADHD with and without conduct disorder.

Methods : 43 male children with symptom of ADHD by using a structured diagnostic interview with the parent and Children Symptom Inventory-4 (CSI-4) divided into 23 children with ADHD only and 20 children with ADHD+CD. Participants performed facial emotion recognition task including unfamiliar faces which contain four basic emotions «anger, happiness, sadness, fear and neutral faces» for assessing ability to recognize facial emotion. The quantity and quality of errors in recognition of each emotional cues in groups was analyzed by MANOVA.

Results : Based on the results of this study there is no difference between groups in quantity of errors in detection of facial emotions. But the comparison of quality errors showed that ADHD+CD children, often confused sadness face as a distress cue with neutral face on the one hand, and neutral face with anger on the other hand.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : These findings would suggest that, children with ADHD and ADHD+CD have the same impairment in recognition of facial emotional cues, mostly due to ADHD symptoms such as attention deficit, executive function and failure to emotion regulation processing. Nevertheless, children with ADHD who have conduct symptoms have a specified pattern in interpreting of some emotion cues. In fact, ADHD+CD group perform in an exaggerated or reductionist manner in the processing of some facial expressions, which lead to perceptual distortion. Actually, when ADHD+CD group exposure with sad faces prefer to choice no affect face, versus they choose anger face when confront with no affect faces. This finding can be explanation with violence inhibition mechanism (VIM) by Blair and March (2002). Based on this model persons with psychopathic tendency have the same impairments in recognition of emotional cues.

Keywords : attention deficit/ hyperactivity disorder, conduct disorder, facial emotion recognition

Count: 692

Abstract ID: 607

subject: Social Neuroscience: Other

Presentation Type: Poster

The type of social interaction of ordinary people compared to video game gamers

Submission Author: Hamed Aliyari

Zahra Dehghani mohammad abadi¹, Hamed Aliyari², Masoomeh Kazemi³, Hedayat Sahraei⁴, Behrouz Minaei Bidgoli⁵, Mohammad Reza Daliri⁶

1. Department of statistics, Faculty of Mathematical sciences, Alzahra University, Tehran, Iran.
2. Department of Electrical Engineering, Faculty of Electrical Engineering, Qazvin Branch, Islamic Azad University, Qazvin, Iran.
3. Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.
4. Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.
5. School of Computer Engineering, Iran University of Science and Technology, Tehran, Iran
6. Department of Biomedical Engineering, Faculty of Electrical Engineering, Iran University of Science and Technology, Tehran, Iran

Background and Aim : video games are an ordinary and influential cultural issue in all Nationalities. The increasing spread of video game audiences, and the impact of that on family lifestyle, because of that, this field have been important for researchers. The purpose of this study was to analyses the type of social interaction of ordinary people compared to video game gamers

Methods : 250 participants with an average age of 31-31 participated in the neurgame group's Involvement Competition Call. At the beginning of the project, the participants completed a personal profile including general and specialized information (video games). In this research, the participants based on Self-reported were divided into two groups of gamers and ordinary people (150 gamers and 100 normal) It is worth noting that the average age of gamer was 20 years and the average age of ordinary people was 23 years.

Results : 81% of the gamer tend to accompany their family in video games, while 63% of ordinary people are willing to accompany the family. Half of ordinary people at the time of buying computer games check the coincidence of their age, but only 19% of the gamer check their match when buying the game. The percentage of ordinary people using the mobile to play games is 56%, but

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

only 16% of the gamer use the mobile to play the game. The percentage of players gaming with gaming consoles is 44%, 4 times more likely than ordinary gamers to use game consoles (the percentage of ordinary gamers using gaming consoles) It is equal to 11%.) Players spend 11 hours a week on their computer games, while ordinary people play only 4 hours of their time.

Conclusion : This study showed that the players compared to ordinary people: More likely to have family support Most do not check the match of the game with their age, They use much less than the mobile platform for playing video game and prefer the use of game consoles, They are almost 3 times more likely than ordinary people play video gamers

Keywords : video game gamers; ordinary people; social interaction

Count: 693

Abstract ID: 477

subject: Social Neuroscience: Other

Presentation Type: Poster

Evaluating the impact of the transcranial direct current stimulation (tDCS) on internet addicts

Submission Author: Fatemeh Asadollahzadeh shamkhal

Fatemeh Asadollahzadeh shamkhal¹, Mohammad-R. Akbarzadeh-T², HamidReza Kobravi³, Seyed Ataollah Aghilian⁴

1. Department of Electrical Engineering, Faculty of Engineering, Ferdowsi University Of Mashhad, Iran
2. Department of Electrical Engineering, Center of Excellence on Soft Computing and Intelligent Information Processing (SCIIP), Ferdowsi University of Mashhad, Mashhad, Iran
3. Research Center of Biomedical Engineering, Mashhad Branch, Islamic Azad University, Mashhad, Iran
4. Aren Center, MD, Mashhad, Iran

Background and Aim : Internet addiction (IA) refers to the excessive and uncontrollable use of the Internet. It leads to serious psychological, social, educational, occupational and economic problems for individuals. Some of the current journal articles demonstrate that IA's mechanism is similar to that of drug and behavioral addiction and cause dysfunction of inhibitory control (IC) in brain. Prior research has shown that transcranial Direct Current Stimulation (tDCS) can improve the IC in brain, treatment of drug addiction, and behavioral disorders. Accordingly, we study here the impact of tDCS as a noninvasive brain electrical stimulation on internet addiction.

Methods : In the first step, for selecting the subjects, the Young's Internet addiction test (IAT), the Beck anxiety, and the Beck depression inventories were used. According to the scores of questionnaires, 22 subjects were selected, who were referred to psychiatrist for medical history and further elaboration (Young's IAT score was more than 50). The subjects were also examined for evaluation of their degree of depression and anxiety, as well as the evaluation of interventional factors such as drug and alcohol abuse, smoking and taking psychiatric drugs. They were also examined about absence of epileptic seizure, history of head injury and etc. Finally, 15 men and women aged between 19-32 years were selected. Subsequently, all subjects performed Go/No-Go task through the Pebl 2 software during two 4-minute parts. Then, the left anodal/right cathodal active tDCS stimulation of dorsolatera prefrontal cortex (DLPFC) were performed by two equal sized electrodes with an approximate area of 20 cm² (anodal electrode over EEG 10/20 electrode

site at F3 and cathodal electrode at F4) within 10 sessions. The tDCS was applied at 2 mA for 20 minutes for each session. A week later of the last session of brain stimulation, Go/No-Go task was performed again with the same initial conditions. The Young's Internet addiction test (IAT), the Beck anxiety, and the Beck depression inventories were completed by subjects again.

Results : According to the results, the average value of the obtained scores relating to internet addiction before tolerating tDCS was 67.73 and after tolerating tDCS reached 23.86. Also, the obtained average value of scores relating to depression and anxiety before tolerating the tDCS was 23.4 and 20.93 respectively, while after tolerating tDCS reached 8.6 and 8.06 respectively. In addition, the average value of the mean accuracy of performing the Go/No-Go task also increased from 95.72% to 97.06% and the average value of task performing error decayed from 4.27% to 2.93%.

Conclusion : According to the obtained scores of the questionnaires, it can be concluded that the proposed intervention not only changes the pattern of internet usages, but also reduces the depression and anxiety in all of the 15 subjects after tolerating the tDCS. Such observations can be attributed to the impact of the tDCS on the dynamics of neural interactions in the frontal area of the brain.

Keywords : internet addiction, brain inhibitory control; tDCS; Go/No-Go task

Count: 694

Abstract ID: 66

subject: Social Neuroscience: Other

Presentation Type: Poster

Assessment of improvement in oxidative stress indices with re-socialization in memory retrieval in Y-maze in male rats

Submission Author: Hamidreza Famitafreshi

Hamidreza Famitafreshi¹, Morteza Karimian²

1. Physiology departement, Tehran University of Medical Sciences
2. Physiology departement, Tehran University of Medical Sciences

Background and Aim : Memory deficit is an important issue in some psychiatric disease either as a primary symptom or as co-morbid symptoms. Factors that determine the decline or improvement of memory is an important subject for reducing the severity of diseases.

Methods : In this study thirty-two (32) male Sprague-Dawley rats were randomly were divided into four experimental groups: social (control), isolation, re-socialization for 3days and re-socialization for 7days. Isolation occurred for 14 days. After that in re-socialization groups, rats re-socialized for 3 and 7 days. In a social group, no intervention just socializing was occurred and in isolation group, rats just were isolated. In all four groups after performing Y-maze, brains 'rats were removed for assessing oxidative stress status in hippocampus and prefrontal cortex.

Results : Y-maze performance improved after 3 and 7 days of re-socialization. However,oxidative stress status for malondialdehyde (MDA), glutathione and nitrite/nitrate were normalized except two experiments after 7 days of re-socialization. Also as mentioned in two experiments just glutathione in prefrontal cortex and nitrite/nitrate in hippocampus after 3 days of re-socialization improved.

Conclusion : Improvement in all types of antioxidant markers with re-socialization is not the only factor for improving memory deficit as the result of isolation.In this regard, re-socialization may activate other regulatory mechanisms besides antioxidant defense.

Keywords : Re-socialization, isolation, malondialdehyde (MDA), glutathione and nitrite/nitrate

Count: 695

Abstract ID: 248

subject: Social Neuroscience: Other

Presentation Type: Poster

Investigating the effect of image blurring on facial emotion recognition

Submission Author: Vahideh Karbasi

Vahideh Karbasi¹, Mehdi Tehrani-Doost², Farnaz Ghassemi³

1. Institute for Cognitive Science Studies, Tehran, Iran
2. Tehran University of Medical Sciences, Roozbeh Hospital, Research Center for Cognitive and Behavioral Studies
3. Department of Biomedical Engineering, Amirkabir University of Technology (AUT), Tehran, Iran.

Background and Aim : Facial emotion recognition plays an important role in social interactions. Impairment in this area causes a deficit in individuals' social competency. The main objective of this study is to evaluate the accuracy and speed of facial emotion recognition at different levels of image blurring in healthy participants.

Methods : All participants were viewed images of faces displaying different emotions including happiness, sadness and angry along with neutral expression in different levels of blurring. They were instructed to detect the emotions accurately as soon as possible.

Results : The results show that the accuracy of recognition of happiness was significantly higher than that was for negative emotions such as anger and sadness. The neutral expression was recognized worse than happiness and better than negative emotions. Sadness was less quickly and more accurately than anger. The more the image blurred, the more the recognition accuracy and speed was reduced.

Conclusion : The accuracy and speed recognition of different emotions diminish due to the increased level of image blurring. Happiness, when is displayed in blurred images, is always recognized with greater accuracy and speed than negative emotions (sadness and anger) along with neutral expression.

Keywords : facial emotion recognition; emotion recognition accuracy; emotion recognition speed; blurred images

Count: 696

Abstract ID: 304

subject: Social Neuroscience: Other

Presentation Type: Poster

Effects of Vitamin C on prefrontal cortex in rats ageing models

Submission Author: Pegah Soltani

Pegah Soltani¹, Ensieh Sajadi², Yousef Sadeghi³, Mohammad_amin Abdollahifar⁴

1. Medical School, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
4. Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background and Aim : The brain is highly susceptible to oxidative stress, which increases during aging. With aging, the brain undergoes neuronal loss in many areas. The vitamin C is an important antioxidant that primarily protects cells from damage associated with oxidative stress caused by free radicals. Due to its antioxidant properties, the ability of vitamin C to prevent or delay and decrease in both ageing and neurodegeneration

Methods : The rats were divided into four groups, each including six animals, and underwent the following intervention: group I: control (12 week); group II: vitamin C (12 week): group I: control (33 week); group II: vitamin C (33 week). After the end of study (12 weeks and 33 weeks) the prefrontal cortex of animals were removed. Total number of neurons and glial cells were estimated using stereological methods

Results : According to the findings of the current study, the total number of neurons and glial cells was significantly reduced in the control groups (12 and 33 weeks) in comparison to the vitamin C groups (12 week and 33 week).

Conclusion : In conclusion, our result indicated that treatment of rats with vitamin C prevented the reduction of the number of neurons and glial cells of the PFC in the rats of aging models.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : Vitamin C, Aging, Prefrontal cortex

Count: 697

Abstract ID: 288

subject: Social Neuroscience: Other

Presentation Type: Oral

Studying the effect of tDCS in VMPFC on theory of mind and facial emotion perception in healthy adults

Submission Author: Sajjad Tavassoli

Sajjad Tavassoli¹, Ali Ghanaei Chamanabad², Mohammad Taghi Saeedi³

1. M.Sc. In Clinical Psychology, Department Of Psychology, Ferdowsi University Of Mashhad
2. Associate Professor, Department of Education, Faculty of Education and Psychology, Ferdowsi University Of Mashhad
3. PhD student of Cognitive Neuroscience Department of Psychology, Cognitive Neuroscience Lab, University of Tabriz

Background and Aim : Ventromedial prefrontal cortex plays important role in human social cognition. Imaging studies show this area is responsible in theory of mind processes. The main purpose of this study was to assess the effect of inhibition of this cortex on theory of mind an ability emotional intelligence reaction time in healthy subjects.

Methods : This is a single-blind crossover trial. 16 subjects were selected from Ferdowsi university of Mashhad's students using purposive sampling. Each participant has received four stimulation session (cathodal and sham). Theory of mind and facial emotion perception reaction times were recorded after each session.

Results : Repeated measure ANOVA showed cathodal stimulation has increased the reaction time in emotional perception tasks. Gaze direction judgment reaction time was also higher in cathodal conditions compare to sham conditions. No significant effect of stimulation on mind reading task was observed.

Conclusion : Finding revealed inhibition of ventromedial prefrontal cortex impairs facial emotion perception and gaze direction judgment. These findings indicate the important role of VMPFC in social cognition.

Keywords : tDCS, VMPFC, theory of mind, facial emotion perception

Count: 698

Abstract ID: 774

subject: Special topics: Converging Technologies (NBIC: Nano-Biotech-Information-Cognitive), euroscience and Nanotechnology, Neuroscience and Biotechnology, Neural Tissue Engineering

Presentation Type: Poster

An inquiry into the main considerations in integrating nanotechnology with natural pharmaceuticals according to the basic concepts of drug delivery and therapy rules in Persian Medicine

Submission Author: Majid Anushiravani

Majid Anushiravani¹, Fahimeh Bafandeh²

1. Department of Persian Medicine, School of Persian and Complementary Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Department of medical engineering, Mshhad Branch, Islamic Azad University

Background and Aim : Nano carriers, Nano pharmaceuticals, and polymeric nanoparticles, etc. can be used in integrative medical systems using bioactive substances to enhance the targeted delivery, bioavailability, pharmacokinetics and therapeutic index of plant-origin and natural products. The new conceptual approaches especially converging technologies like NBIC can use the potential benefits of natural substances and medicinal herbs in order to improve diagnostic methods and enhance preventive and therapeutic approaches in the field of cognitive sciences and neurosciences.

Methods : In this review, the manuscripts of Persian Medicine and the current literature of medical nanotechnology were assessed in order to explore the theoretical considerations in order to promote brain health and treating its disorders through new converging technologies.

Results : In the literature of Persian Medicine (PM), several methods has been described to adjust the quantity, quality, purity, action, delivery, and safety of some herbal and mineral drugs by several methods including decreasing their particle size through modified processes of heating, hitting, extremely pulverizing and so on. On the other hand many of these methods were specifically applied for the drugs used for neurological and psychological disorders. Such a historical root provides an apt background to integrate nanotechnology with the ancient wisdom. At the first steps of this integration it is required to recognize the potential benefits of

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

nanotechnology usages in health promotion and therapeutic aims, concerning the basic teachings on healthy life style and treatment rules specified in the PM literature which can be supported by scientific evidences.

Conclusion : Based on the PM literature, there are many considerations in preferring a special form of any natural drug including the involved organ, various aspects of the disease, the condition of chief organs (Heart, brain, and liver) and all main forces and transferring agents involved in the kinetics of bioactive factors in the body, and various properties of the crude drug itself regarding both its substantial and para-substantial characteristics. Since Nano-form drugs behave in so different patterns from any other form of routine natural drugs, it is essential to improve the theoretical attitude toward their finest usage in accordance to polygonal understanding of the brain function, its disorders, and therapeutic considerations in PM. Regarding the multidirectional interaction between brain and other organs like gut, heart, and liver it seems that biosafety and bioactivity of nano-form drugs should be investigated more precisely and systematically.

Keywords : Persian medicine; nanotechnology; NBIC; Brain

Count: 699

Abstract ID: 777

subject: Special topics: Converging Technologies (NBIC: Nano-Biotech-Information-Cognitive), euroscience and Nanotechnology, Neuroscience and Biotechnology, Neural Tissue Engineering

Presentation Type: Poster

A novel protocol for neural Differentiation of human Bone Marrow-Derived Mesenchymal Stem Cells

Submission Author: Saleheh Ebadirad

Saleheh Ebadirad¹, Zahra Hajebrahimi², Majid Sadeghizadeh³, Ali Salimi*⁴

1. Department of Molecular and Cellular Sciences, Faculty of Advanced Sciences and Technology, Pharmaceutical Sciences Branch, Islamic Azad University (IAUPS), Tehran, Iran.
2. Aerospace Research Institute, Ministry of Science Research and Technology, Tehran, Iran, P.O.Box: 14665-834, hajebrahimi@ari.ac.ir
3. Department of Genetics, Faculty of Biological Sciences, Tarbiat Modares University, Tehran, Iran, 14115-175, sadeghma@modares.ac.ir
4. Nanobiotechnology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran, salimiali@bmsu.ac.ir

Background and Aim : Adult bone marrow-derived mesenchymal stem cells (BMSCs) can differentiate into osteocytes, chondrocytes, and adipocytes. As well, it is shown that these cells are able to produce different kinds of neurons based on experimental cell culture conditions. Not only they don't have as many ethical challenges as embryonic stem cells have, but also it is possible to use them for autologous transplantations in order to prevent unfavorable immune responses. Therefore BMSCs can be considered as promising stem cell sources to repair damaged neural tissues for future clinical trials.

Methods : In this study, two groups of human BMSCs were cultured for 7 to 14 days. IBMX, Indomethacin, RA, EGF, and bFGF were used to induce their differentiation into neurons.

Results : The results obtained by inverted microscope showed obvious changes in cells morphology, and the effects of the induction media on the rate of neural markers expression, ? tubulin III and ? enolase (NSE), studied via Immunocytochemistry (ICC) assay demonstrated that

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

this induction media leads to neural differentiation up to 65% positive α -tubulin III and 85% NSE expression.

Conclusion : In conclusion, BMSCs have significant potential to be used in neural tissue engineering via this protocol.

Keywords : neural differentiation; BMSC; protocol

Count: 700

Abstract ID: 395

subject: Special topics: Converging Technologies (NBIC: Nano-Biotech-Information-Cognitive), neuroscience and Nanotechnology, Neuroscience and Biotechnology, Neural Tissue Engineering

Presentation Type: Poster

Feature Selection from Brain Stroke CT Images based on Particle Swarm Optimization

Submission Author: Haneih Karimi

Haneih Karimi¹, Hanieh karimi², homeira kabudvand³

1. -
2. medical student at tehran university of medical sciences
3. master of computer science

Background and Aim : Suddenly losing function of nerves more than twenty four hours , that causes interruption in blood flow to brain is called brain stroke .[2] Reasons of brain stroke are different, totally there are two types , first may be caused by a blocked artery (Ischemic stroke) or the lacking or bursting of a blood vessel (Hemorrhagic stroke).CT is a method that is usually used. Advantages of using it are 1.Velocity 2.price, 3 availability .[3] thus we use CT more than MRI .in images , a hemorrhage appears as a bright region (hyper _intense),an Ischemic stroke appears as a dark region (hypo _intense).finding a subset of features from a big set is a challenging problem. In fact those features are chosen that have maximum power in predicting output .until now many methods for selecting feature have been studied. We use Particle Swarm Optimization based Binary, like most evolutionary algorithms it begins with population, searching is done in a parallel form. Finally classification is tested by SVM.Then we discuss about experimental results

Methods : Our methods are based on three stages: 1- Preprocessing 2- features extraction 3- finding features by binary Particle Swarm Optimization, 4- classification by SVM.

Results : We use a data set including 98 images. Size of images is 256×256 and they are in jpeg format (images are related to brain stroke) in this paper we have used cohesive rate, probability, Six feature GLCM. In preprocessing stage, images are converted to gray images. 8 dimensions of features are extracted from each image; (totally 92 features) and for classifying images we use

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

SVM (linear kernel model) [17]. 70% of data is for training (68images) and 30% of data is for testing (30 images).

Conclusion : Our model was tested with success on the proposed dynamic optimization problems. We present a method by NBPSO and obtain area of brain stroke; the extracted features are so useful and the optimal parameters are chosen for classification .The recognition results of this paper prove that the method we use, combined with SVM classifier can result well. And results of experiments are presented. The accuracy was 91%, result of our work is the accuracy was 92% . we will change CT images to MRI , FMRI images and will verify another methods for example ant colony , neural network , type methods classification and will compare which is better

Keywords : feature extraction; classification; Particle Swam Optimization

Count: 701

Abstract ID: 317

subject: Special topics: Converging Technologies (NBIC: Nano-Biotech-Information-Cognitive), euroscience and Nanotechnology, Neuroscience and Biotechnology, Neural Tissue Engineering

Presentation Type: Poster

CNS drug delivery: Potential therapeutic role of carbohydrate-based nanoparticles

Submission Author: Seyed Mahdi Sadati

Seyed Mahdi Sadati¹, Ramin Ansari², Amir Azadi³

1. Pharmaceutical Sciences Research Center, Shiraz University of Medical Science, Shiraz, Iran
2. Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
3. Department of Pharmaceutics, School of Pharmacy, Shiraz University of Medical Science, Shiraz, Iran

Background and Aim : Brain delivery of drug faces some limitations evermore, such as low permeation due to the physiological and physical barriers for instance tight junctions of blood brain barrier (BBB). If novel treatments fail to emerge, the number of patients with CNS disorders will rise from 1.5 to 1.9 billion by 2020 worldwide. One of the strategies to overcome this problem is the usage of nanotechnology in pharmaceutical application. Carbohydrate polymer-based Nano particles(NPs), as a matrix material for drug delivery are more considered recently. The goal of the present study is to explore the application of these NPs in drug delivery for CNS-Related Disorders.

Methods : By searching through different databases, relevant literatures were detected. The applications of carbohydrate polymers such as: alginate, cellulose derivatives, chitosan, cyclodextrins, dextran, heparin and hyaluronic acid, in drug delivery for the treatment of depression, Alzheimer's disease, Parkinson's disease, spinal cord injuries, brain tumors and other CNS related disorders were studied.

Results : Results of this study showed that there is a significant difference in the brain concentration of drugs, brain targeting, safety, duration of drug release and in sum therapeutic effects, between carbohydrate polymer-based formulations and free form of the drugs. Consequently, the efficacy of carbohydrate polymer-based formulations confirm based on various previous studies.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Biocompatibility, bioavailability, nontoxicity, cheapness, time-controlled and site-specific release are some of the preponderances of these nanoparticles, thus it can conclude that by more research on these formulations, they may enter the market soon.

Keywords : Carbohydrates; CNS disorders; Drug delivery; Nanoparticle

Count: 702

Abstract ID: 786

subject: Special topics: Neuro-aesthetics, Art and Creativity

Presentation Type: Poster

The Mona Lisa in π : The experience of mathematical beauty, Neuro-aesthetic and some theoretical considerations

Submission Author: Gooya Bozorgi

Gooya Bozorgi¹

1. Lecturer in computer graphic design, Iran Technical & Vocational Training Organization

Background and Aim : Neuroaesthetics is an emerging discipline within the empirical aesthetic that is the study of understanding the aesthetic experiences at the neurological level. The experience of mathematical beauty, due to the mythical edges around mathematics, seemed to be a unique beauty experience. However, a relatively new study showed the experience of mathematical beauty, which is derived from a highly cognitive source, correlates with activity in the same part of the brain as the experience of musical and visual beauty, which are derived from other sensory sources. The purpose of this paper is a critical look at the mathematics used in such study, also tries to elaborate that the role of "The Beauty of Theory", should be considered in the study the experience of mathematical beauty.

Methods : This paper follows a case study design, with in-depth analysis of the role of theory in the experience of mathematical beauty. For this purpose, the case study selected on a "theory", which naturally is outside the often stereotyped usual cases based on the equations.

Results : The results show that the mathematics used in neuroaesthetics studies is often inadequate because it ignores some complexity of the experience of mathematical beauty.

Conclusion : The present discussion highlights the importance of the position of theory in aesthetics of the experience of mathematical beauty. Finally, we suggest a different approach to the development of mathematics used in the neuroscience of mathematical beauty.

Keywords : mathematics; neuroaesthetics; theorem; equation; theory; beauty.

Count: 703

Abstract ID: 720

subject: Special topics: Neuro-aesthetics, Art and Creativity

Presentation Type: Oral

Neuro-aesthetic : Affect and Pure Perception of Art

Submission Author: Ehsan Nematollahi

Ehsan Nematollahi¹

1. Young Researcher and Elite Club , Arsanjan Branch , Iran ; Islamic Azad University , Arsanjan Branch , Iran.

Background and Aim : Neuro-aesthetic is an expression that was invented by Zaki (1999) and refers to the study of the nerve bases of aesthetic art. This approach to art, at first, was designed to understand this vision of how visual the brain works. The Neuro-Aesthetics term, broadly addresses the characteristics of the brain in terms of aesthetics, and argued that artistic production and perception must follow the principles of the neural organization. The main idea of Neuro - Philosophy is that to understand the nature of the mind, we need to understand the nature of the brain, and this involves the rejection of all forms of dualism. To this end, by moving from a common sense, instead of representing the proposition, the points and vectors in vector space were used as an expression of synaptic events. In this way, both artificial and biological networks can be modeled as vector-vector transformers.

Methods : The input vector contains values that reflect the activity patterns of the network's acons and the output vector contains values that reflect the activity patterns of the neurons that output outside the network. The main question of this research is, first, how these networks, by changing the synaptic weight and creating the flexibility, make the artwork independent of their original model, and secondly, how the arts, after becoming independent From your creator, you create your own independence from self-reliance that they keep in themselves ??? By defining the work of art as a set of sensations, which include percepts instead of percevoir and effects, rather than sentiment; the scope of art goes beyond the scope of experience; to the point where accords can be made Also, it's a kind of an affair. The method described here changes with the change in the originator, so that by leaving out of perceptions, a network of memory can be obtained that only reminds, as a preserving factor of the present, in Considers. The proliferation of sensations can be used for this purpose: Oscillation, Continuity, Division.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Results : Oscillation is a kind of simple sensation that is larger than the brain, it's nervous. Consistency results in two resonances of sensation in each other, which results in the synthesis of absolute energy. Dividing, with the separation of sensations, forms a complex of vectors, without intermediate and preserving. It can be recognized that with the aesthetic look of the neurons, the artist is the representative, inventor and creator of affects, within the scope of the visions that the artist , mentioned for us.

Conclusion : Under such conditions, we can study more broadly about the role of neurons in the formation of anatomical circuits, perception, memory, emotional disturbances, associative learning, identification of the nature of feeling and desire, and etc.

Keywords : Neuro-Aesthetic ; Sensations ; Self-Reliance ; Oscillation ; Continuity ; Division ;

Count: 704

Abstract ID: 140

subject: Special topics: Neuro-aesthetics, Art and Creativity

Presentation Type: Oral

Interaction Between Two Worlds: What are the Cognitive Sources of Creativity and Creative Processes?

Submission Author: Mohammad taghi Saeedi

Mohammad taghi Saeedi¹, Morteza Pourmohamadi²

1. PhD candidate of Cognitive Neuroscience, Division of Cognitive Neuroscience University of Tabriz
2. Assistant Professor in Industrial Design, Tabriz Islamic Art University

Background and Aim : In recent years, there have been an increasing number of scientific investigations into art, exploring what actually happens in the brain during the creative process. These studies have yielded important new information that relates to a very basic fact of human biology: all behavior, even that as complex as creativity, can be linked to brain functions. Creative behavioral patterns are likely to be a critical component for developing the neurological capacity for innovation. Hence, the globe to explore this rapidly-evolving field of the neurobiology of creativity and to create a collaborative terra firma to identify and address emerging issues at the creative intersection of the two fields. With new methods and techniques, science might be able to provide crucial evidence for the value of the arts, but there is considerable distance to cover. What do we see when we look at the brain? Can science measure the innovative values or observe the process of creation? What defines creativity? Are there valuable products? What will come of us trying? In this paper, we will attempt to examine these questions based on new findings in this area.

Methods : The study explores the issues and methods of studying creativity. In this regard, viewpoint and method of 58 researchers toward creativity, creative processes and innovation is collected and discussed.

Results : Results show creativity is stemmed from neurons and networks activity in the brain. Also in this field, concepts like new circuit formation, information sharing in brain, genetic capacity and plasticity is emphasized, which are reviewed here.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : There may be traditional ways of thinking and perennial circles of power, but creativity is seeing not just one pathway, but rather multiple possible solutions.

Keywords : Neuroscience, Art, Creativity, neurobiology

Count: 705

Abstract ID: 794

subject: Special topics: Neurophilosophy

Presentation Type: Oral

The Adverse Effects Of Successful Alzheimer's Disease Treatment

Submission Author: Alireza Khazaeli

Alireza Khazaeli¹

1. Department of Clinical Pharmacy, Faculty of Pharmacy, Islamic Azad University, Tehran, Iran

Background and Aim : Alzheimer's Disease is the leading cause of dementia in the senile population. Recently, interest is rising for a possible treatment of dementia using stem cells. Although recent studies show that cognition deficiency and memory impairments are successfully reversed, prevented, or inhibited, the fact remains that the past memories do not return with successful treatment which leads to patient's recognizing that a part of their lives are lost and may not be recited properly. This issue renders to patient to be prone to mental disorders including depression and alienation which leads to mental disability which leads to loss of function; nullifying the basis of the treatment which is restoring the functionality of the patient and hereby referred to as a type of psychological trauma. We contemplate the different outcomes of a patient relieved from Alzheimers disease by a successful stem cell treatment, and provide possible solutions in order to be prepared for the consequences of the eventual definitive treatment which we believe is stem cells.

Methods : We evaluate the possible outcomes of treatment by examining the deficiencies and impairments that are healed with the treatment of Alzheimer's disease. The possible outcomes may be depression, hyperactivity of the neuronal system, and anxiety. We also evaluate the psychological issues a patient may face when treated; including social anxiety due to being partial isolation, behavioral issues, lack of trust-issues, and inability to recall the people. These may lead to eventual suicidal behavior and destructive actions if not managed properly. We provide a solution for each of these post-treatment symptoms.

Results : After the successful treatment of alzheimers and restoration of the daily functionality of the patient, follow-up psychological consoling, proper preventive medicine, and family support is highly required in order to justify the efficacy of the treatment process.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : Alzheimer's is a form of dementia that has a high potential of being eradicated using a stem cell based approach. Once we achieve this goal in the near future, by predicting the outcomes of successful treatment, we can safely design a routine for treating most Alzheimer's patients with little to no adverse psychological effects and ensuring the reversal of the post-traumatic symptoms in order to restore the functionality.

Keywords : Alzheimers Disease; Psychology; stem cells; depression;

Count: 706

Abstract ID: 402

subject: Special topics: Public Awareness

Presentation Type: Poster

Cytotoxicity of temozolomide on human glioblastoma cells is enhanced by the concomitant exposure to an extremely low-frequency electromagnetic field (100 Hz, 100 G)

Submission Author: Zeinab Akbarnejad

Zeinab Akbarnejad¹

1. Neuroscience Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, 76175-113 Kerman, Iran

Background and Aim : Glioblastoma multiforme (GBM) is the most malignant brain cancer that causes high mortality in humans. It responds poorly to the most common cancer treatments, such as surgery, chemo- and radiation therapy. Temozolomide (TMZ) is an alkylating agent that has been widely used to treat GBM; resistance to this drug is often found. One unexplored possibility for overcoming this resistance is a treatment based on concomitant exposure to electromagnetic fields (EMF) and TMZ. Indeed, many evidences show that EMF affects cancer cells and drug performance. In this study, we evaluated the potential synergistic effect of 100 mM TMZ and EMF (100 Hz, 100 G) on two human glioma cells line, i.e., U87 and T98G above single treatments, TMZ or EMF

Methods : In this study, we evaluated the potential synergistic effect of 100 mM TMZ and EMF (100 Hz, 100 G) on two human glioma cells line, i.e., U87 and T98G above single treatments, TMZ or EMF.

Results : Co-treatment synergistically enhanced apoptosis in U87 and T98G cells, by increasing the expression of P53, Bax, and Caspase-3 and decreasing that of Bcl-2 and Cyclin-D1. We also observed an increase in reactive oxygen species (ROS) production and the overexpression of the heme oxygenase-1 (HO-1) gene in comparison to controls

Conclusion : In conclusion, since EMF enhanced the apoptotic effect of TMZ, possibly through a redox regulation mechanism, the TMZ/EMF combination may be effective for glioma cancer

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

treating. Further studies are needed to reveal the action mechanism of this possible novel therapeutic approach

Keywords : Glioblastoma multiforme (GBM) Human glioblastoma cells (U87 and T98G) Temozolomide (TMZ) Extremely low frequency-electromagnetic field (ELF-EMF) Apoptosis Necrosis

Count: 707

Abstract ID: 785

subject: Special topics: Public Awareness

Presentation Type: Poster

A neuro-awareness intervention: Knowledge and attitude of pharmacy students regarding Alzheimer's disease and depression

Submission Author: Marjan Gholghasemi

Marjan Gholghasemi¹, Paria Oskuyi², Fateme Jalali³

1. pharmaceutical sciences research center, pharmaceutical sciences branch, islamic azad university, tehran, Iran
2. faculty of pharmacy, pharmaceutical sciences branch, islamic azad university, tehran, Iran
3. faculty of pharmacy, pharmaceutical sciences branch, islamic azad university, tehran, Iran

Background and Aim : For an effective treatment of neurological disorders, a deep comprehension by health system providers are needed. in order to assess the knowledge and attitude of doctor of pharmacy students regarding the most prevalent diseases, an intervention was carried out.

Methods : A quantitative, cross-sectional study based on a structured questionnaire used during 2016 and 2017. The sample comprised 1000 individuals as the doctor of pharmacy students in Tehran, Iran. The questionnaire constituted 25 questions about the knowledge, attitude, and practice regarding the depression and Alzheimer's disease, in total. The Likert method was used as the options ranging from totally agree to disagree. They had to respond to the questionnaire before and after the intervention program. The results were analyzed using the SPSS version 20 and the Chi-square method was used for evaluation of the results.

Results : most students had no deep comprehension regarding the early symptoms and pathophysiology of these disorders. most of the individuals had a great fear of Alzheimer's disease, therefore neglecting its symptoms and possibility among their family members. The overall knowledge was accompanied by misconception and depression was not understood well enough to be intervened by the students. the danger and the burden were not clear enough for the future pharmacists, therefore no significant action was taken by these students. the knowledge gap was unavoidable among students regarding their pharmacotherapy.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Conclusion : The proper comprehension of health sector providers can lead to optimum health care and innovation in therapeutics and early intervention using the program implemented in this study.

Keywords : Alzheimer's disease, depression, attitude, knowledge, intervention

Count: 708

Abstract ID: 121

subject: Special topics: Public Awareness

Presentation Type: Oral

How to make a brain bank? The most valuable experiences to run Iran Brain Bank

Submission Author: Fariba Karimzadeh

Fariba Karimzadeh¹

1. Cellular and Molecular Research Center, Iran University Medical Sciences, Tehran, Iran

Background and Aim : A brain bank is a scientific facility that receives donated brains, carries out neuropathological examinations to obtain a definite diagnosis, and stores samples of the donated tissue to distribute to researchers in order to further research into neurological disorders. There are several brain banks in the Europe, Asia and United States of America. However, the brain banks do work collaboratively, especially where rare disorders are concerned. In our country, Iran, there was not any brain bank just to 2013. The Iran Brain Bank was organized in Iran University of Medical Sciences. This article was aimed to present the procedures as well as the most valuable experiences to run the brain bank.

Methods : The instruments to run a brain bank were divided into two parts: storage and processing segments. To storage you need just freezers in -80 centigrade of temperature. In the processing segment, you need the instruments that are needed for preparing of paraffin embedded sections.

Results : Result: Donation: First step for donation is people motivation. The second is filling the forms of donation. Sampling: After death, the family or hospital inform the brain bank to transfer the dead body to the exposition hall. Removing of brain should be done as soon as possible after death. Storage: the brain is divided into the two hemispheres. One of them was inserted into fixative solution to preparing paraffin embedded sections and the other was kept in to -80 °C freezers.

Conclusion : Conclusion: Well team work and coordination are necessary to gather the brain samples. To run brain banks in our country, all of medical universities and hospitals should be motivated and learn the special protocols of running a brain bank.

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

Keywords : brain bank, death, hospital

Count: 709

Abstract ID: 376

subject: Special topics: Public Awareness

Presentation Type: Oral

Association of Adherence to Dietary approaches to stop hypertension (DASH) diet on headache severity among women with Migraine

Submission Author: Atieh Mirzababae

Atieh Mirzababae¹, Atieh Mirzababaei², Faezeh Khorsha³, Mansoureh Togha⁴, Khadijeh Mirzaei⁵, Ali asghar Okhovat⁶, Mir Saeed Yekaninejad^{7, 8}

1. -
2. Department of Community Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences (TUMS), Tehran, Iran
3. Department of Community Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences (TUMS), Tehran, Iran
4. Department of Neurology, Sina Hospital, Tehran University of Medical Sciences, Tehran, Iran; Headache Department, Iranian Center of Neurological Research, Neuroscience Institute
5. Department of Community Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences (TUMS), Tehran, Iran
6. Headache Department, Iranian Center of Neurological Research, Neuroscience Institute, Tehran University of Medical Sciences, Tehran, Iran
7. Department of Epidemiology and Biostatistics, School of Public Health, Tehran University of Medical Sciences (TUMS), Tehran, Iran
- 8.

Background and Aim : Migraine is a common disorder causing attacks of neurological dysfunction and pain (1). Treatment ranges from pharmacological to lifestyle changes to improve both frequency and severity of attacks. Focus on lifestyle changes, especially diet, is often discussed during clinical visits in the care of migraine patients(2). The onset mechanism of headaches is unknown but some assumptions highlight the role played by Neurovascular mechanism in the outbreak of migraine(3). Many food-related factors, as well as nutritional status, play a role in inducing migraine attacks. However, certain other nutritional factors are involved in reducing the severity and frequency of migraine attacks, and also in preventing it(4, 5). Available data support a direct association between blood pressure and the occurrence of migraine (6). This study aimed to assess effect adherence Dietary approaches to stop hypertension (DASH) diet on headache severity among migraine patients.

Methods : This cross-sectional study was carried out on 266 women aged 18-45 who were referred to a headache clinic for the first time, and they were not following any specific diet. Dietary intake was assessed daily using a semi-quantitative food frequency questionnaire (FFQ), which included a list of 147 food items. We assessed the anthropometric measurements of all cases and Visual Analog Scale (VAS) was used to measure the pain severity (7) . A VAS is a linear scale from zero to ten. The following cut-off points have been recommended: mild pain (1-3), moderate pain (4-7), and severe pain (8-10)(7). All of the statistical analyses were performed using the SPSS version 15 software. Multinomial logistic regression was used to investigate the effects of DASH diet on the severity of headaches.

Results : The mean age, weight, height and BMI of the study participants was 34.32 (SD 7.86) years, 69.41 (13.02) kg, 161 (0.05) cm and 26.50 (4.88) kg/m² respectively. The percentages of mild, moderate and severe headache were 13.9%, 43.2% and 42.9% respectively, among patients. Result of multinomial logistic regression analysis in crude model showed a reverse association between greatest adherence to the DASH diet and severe headache. Individuals with the greatest adherence to the DASH diet, had a 30% more reduction in severe headache compared with those with the lowest adherence (OR=0.70, 95%CI=0.49-0.99,P<0.05) , After controlling for potential confounders, subjects in the highest tertial of DASH diet 50% less likely had severe headache and also, 36% had reduction in moderate headache than those in the bottom tertial (OR=0.54,95%CI=0.35-0.83,P<0.005 and OR=0.64,95%CI=0.44-0.95,P<0.005) respectively

Conclusion : According to the previous studies, diet rich in fruits , vegetables and potassium and low sodium may decrease the frequency or even prevent headaches (8). This study showed that the DASH diet can play an important role in reducing headache severity in migraine patients.

Keywords : (Dietary approaches to stop hypertension (DASH)), (Migraine headache), (Visual analog scale (VAS))

Count: 710

Abstract ID: 139

subject: Special topics: Neuro-Marketing, Neuro-economics

Presentation Type: Poster

What is beautiful, is good: decision making based on primary and deep influence of attraction in economic context

Submission Author: Mohammad taghi Saeedi

Mohammad taghi Saeedi¹, Mohammad Ali Nazary²

1. PhD candidate of Cognitive Neuroscience Division of Cognitive Neuroscience, University of Tabriz
2. Associate Professor of Neuroscience Division of Cognitive Neuroscience, University of Tabriz

Background and Aim : Neuroeconomic in a recent and fast-developing field in cognitive neuroscience, which investigates brain mechanisms involved in economic decision making. Meanwhile, behavioral economic is a one of the neuroeconomic research subfields investigating how psychological, social, cognitive and affective factors influence individuals' economic decisions and its consequences. Attractiveness (physical, vision, observable features) which is mostly produced through perception of visual stimuli (lower level visual features), is a quality that causes instant and immediate interest, desire and tendency toward someone or something. Attractiveness and aesthetic, with an initial affective and perceptive dominance, has a significant effect on individual decision-making processes.

Methods : The aim of this review was to discuss early theories of attractiveness and aesthetic developed since 1972 until 2000, and to consider studies on attraction in neuroeconomic during 2015 to 2017. For this, articles were searched and collected from ScienceDirect, PubMed and Google Scholar.

Results : Results from reviewing articles show in neuroeconomic and decision-making studies, the stereotype "what is beautiful, is good" is considered as a cognitive error in decision-making process with evolutionary origins. This is while, with ignorance and prohibition of convincing information, dominance of aesthetic can cause individual insist on his ultimate decision to prefer someone or something.

Conclusion : At the end, in this review, neural, cognitive and psychological bases of attraction and its influence on decision-making in economic context is discussed, and we will see how

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

attractiveness as a key factor in neuroeconomic and decision-making, and even beyond that in behavioral policymaking, plays a role.

Keywords : Neuroeconomic, Attractiveness, Aesthetic, Decision-making

P38 but not JNK and ERK participates in the neuroinflammation induced insulin resistance and spatial memory impairment; effects of insulin treatment

Parisa Iloun¹, Zahra Abbasnejad¹, Mahyar Janahmadi^{1,2}, Abolhassan Ahmadiani², Rasoul Ghasemi^{*1,3}

¹⁻ *Department of Physiology, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran*

²⁻ *Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran*

³⁻ *Neurophysiology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran*

* Corresponding author: Rasoul Ghasemi

Department of Physiology and Neurophysiology Research Center, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Chamran highway, Velenjak, Tehran, Iran

Abstract:

However it is now a consensus that neuroinflammation and insulin resistance (IR) are two hallmarks of Alzheimer disease (AD) but the molecular mechanisms responsible for development of IR still remained uncharacterized. MAPKs are signalling molecules which are involved in pathology of AD and have role in IR development. Given that inflammatory mediators are shown to interfere with insulin Signalling pathway in different cell types, present work was aimed to investigate if neuroinflammation induced memory loss is associated with hippocampal IR and insulin treatment protects against this IR? Next we examined possible roles of MAPKs in this situations. Male wistar rats were cannulated and LPS (15µg at day0) and insulin (3mU) or its vehicle (during days 1-6) were administered intracerebroventricularly. Spatial memory performance was assessed during days 7-10 by Morris water maze test. After then, the amount of hippocampal phosphorylated forms of P38, JNK, ERK, IRS1(ser307) and Akt were analyzed by western blot. The results showed that while LPS induced memory loss and hippocampal IR (shown by elevated IRS1 and decreased Akt phosphorylation), insulin treatment nullified these effects. Molecular results also showed that LPS mediated IR and memory loss associated with P38 but not JNK and ERK activation, this P38 activation was reversed by insulin treatment. These observations implied that one way by which neuroinflammation participates in AD is through induction of IR. It seems that this IR is mediated by P38 but not JNK and ERK. Therefore, P38 could be considered as a molecular target for preventing IR development.

Keywords: Insulin; Alzheimer disease; Insulin receptor substrate-1; Insulin resistance; neuroinflammation; MAPK, P38; ERK; JNK.

The negative effects of untreated maternal diabetes on development of hippocampus in the offspring

Reza Sardar¹, Javad Hami^{2,3}, Zahra Zandieh¹, Fariba Karim Zadeh⁴, Mansoureh Soleimani⁴, Mohammadtaghi Joghataei^{1,4}, Reza Shirazi¹

- ¹ Department of Anatomy, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran
- ² Cellular and Molecular Research Center, Birjand University of Medical Sciences, Birjand, Iran
- ³ Department of Anatomical Sciences, School of Medicine, Birjand University of Medical Sciences, Birjand, Iran
- ⁴ Cellular and Molecular Research Center, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran

Background and Aim: Diabetes is one of the most common metabolic disorders during the gestational period. Maternal diabetes in pregnancy increases the fetal and infant mortality and impairs fetal development. The hippocampus is one of the most vulnerable areas in the brain to damage due to changes in blood glucose level. Hippocampus plays a pivotal role in memory formation, emotional, adaptive, reproductive behaviors. Children of diabetic mothers have a lower intelligence score and less intellectual ability than children who have healthy mothers or mothers who have controlled their blood glucose levels. Additionally, these children showed disorders in sensation and behavior, hyperactivity, attention deficit disorder and delayed speech, and the level of learning and information recall in these children is lower than that of normal children. By controlling the level of mothers' blood glucose, proper diet, exercise and Appropriate lifestyle, the effects of maternal diabetes on children can be reduced.

Results: The negative effects of maternal diabetes on the neonate's hippocampus including the neuronal density especially in the CA3, decreased volume, improve neuronal apoptosis, synaptogenesis, and decreased hippocampal astrocyte have been demonstrated. Nevertheless, the exact mechanisms by which the maternal diabetes can induce these impacts remain to be clarified. However, the higher blood glucose during the developmental stages seems to be one of them.

Conclusion: Many lines of evidence also indicate that diabetes mellitus during pregnancy increases the risk of neurofunctional, neurodevelopmental, neurocognitive and neurobehavioral disorders in the offspring.

Keywords: negative effects; untreated maternal diabetes; hippocampus

Study the effect of electrical low-frequency stimulation during the Epileptogenesis bydorsal hippocampal kindling on balance and locomotor activity in adult male rats

Reza Moghaddasi¹, Moazedi Ahmadali², Ghotbeddin Zohreh³, Mohammadreza Akhond⁴

1-PhD student of physiology, Department of Biology, Faculty of science, Shahid Chamran University of Ahvaz, Ahvaz, Iran.

2- Professor of physiology , Department of Biology, Faculty of science, Shahid Chamran University of Ahvaz, Ahvaz, Iran.

3- Assistant professor of physiology, Department of Basic Sciences, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran.

4- Associate professor of epidemiology, Department of Food Hygiene, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran.

Abstract that afflicts

Background and aim: Epilepsy is the third major neurological disorder and more than 70 million people suffering from that in the world. Epileptic focus cause motor impairment by sending projections to different area of the brain such as area which are related to control movement and balance. So, apply direct electrical stimulation to epileptic focus in the form of low frequency stimulation (LFS) can be a proper therapeutic option for suppressing these projections and controlling motor activity. Therefore, in this research, the effect of electrical low-frequency stimulation during the epileptogenesis by dorsal hippocampal kindling on balance and locomotor activity in adult male rats was investigated.

Material and Methods: In this study, 50 rats were randomly divided into 5 groups: Sham, control, LFS, Kindled and KLFS group. Animals in the Kindled group stimulate were rapidly kindled by daily stimulation of dorsal hippocampus (12 stimulation per day, 1 ms pulse duration at 50Hz for 3 seconds). While animals in the Sham and control groups did not receive any stimulation. In the KLFS group, four LFS package at a frequency of 1 Hz were applied daily after the termination of kindle stimulation. At the end of stimulation open field and rotarod tests were used to assessment the balance and motor activity.

Results: Results of open field test showed a significant increase in the number of rearing frequencies and grooming in the Kindled group compared to the sham group

Basic and Clinical
**6th NEUROSCIENCE
Congress 2017**

December, 20-22 2017 Razi Hall, Tehran, Iran



Oral & Poster Presentations

respectively by ($p < 0.05$) and ($p < 0.01$). Balance in the Kindled group was significantly decreased compared to sham group ($p < 0.001$). But, LFS induction during hippocampal kindling did not show any significant difference with sham group in any of the mentioned parameters.

Conclusions: It seems that applying low-frequency electrical stimulation during hippocampal kindling can reduce the amount of motor activity and improve balance.

Keywords: Hippocampal Kindling, Low Frequency Electrical Stimulation, Balance, Motor Activity, Rotarod Test, Open field Test, Rat.