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01 – 04 November 2018

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COVER

MEK1/2 inhibition significantly increased the number of Ki67+ cells in ischaemic area at day 14 after tMCAO. NeuN is visualized in green, Ki67 is visualized in red, and blue dots are nuclei stained by DAPI.

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Scientific Program

01 November 2018 Thursday

12.00-15.30	Registration
15.00-17.00	Workshop: Selma Arzu Vardar & Oktay Kaya “Teaching Physiology: Electives Making Use of Active Learning Methods”
17.30-20.30	Reception & Dinner

02 November 2018 Friday

08.45 – 09.00	Congress Opening Program
09.00 – 10.00	Conference 1: Denis Noble “From Pacing the Heart to the Pace of Evolution” Chair: Prof. Dr. Bayram Yılmaz
10.00 – 10.30	Coffee Break
10.30 – 12.30	Oral Presentations (A) OC01-OC06 Chairs: Prof. Dr. Kasım Özlük & Prof. Dr. K. Gonca Akbulut
10.30 – 12.30	Oral Presentations (B) OC07-OC012 Chairs: Prof. Dr. Nevzat Kahveci & Prof. Dr. Özlem Alkan
10.30 – 12.30	Oral Presentations (C) OC13- OC18 Chairs: Prof. Dr. Cahit Bağcı & Prof. Dr. Narin Derin
12.30 – 14.00	Poster Presentations (PC001 – PC064) & Lunch
14.00 – 15.30	Symposium 1 (A) “Exercise Induced Skeletal Muscle Satellite and Non-Satellite Stem Cell Responses” S.1.1 Melek Bor Küçükataş: Exercise Induced Skeletal Muscle Satellite and Non-Satellite Stem Cell Responses S.1.2 Gülçin Abban Mete: Histological Determination of the Effect of Acute and Chronic Swimming Exercise on Skeletal Muscle Tissue Damage and Regeneration S.1.3 Özgen Kılıç Erkek: Identification of the Pathways That Play Role in Muscle Regeneration in Response to Swimming Exercise of Various Durations Chairs: Prof. Dr. Şeref Erdoğan & Prof. Dr. Nuran Aladağ-Ekerbiçer
	Symposium 2 (B) “Sleep Physiology and Irisin” S.2.1 Levent Öztürk: Sleep Physiology and Disorders S.2.2 Mustafa Saygın: Obstructive Sleep Apnea Syndrome (OSAS) and Irisin S.2.3 Rahime Aslankoç: Sleep Breathing Disorders Chairs: Prof. Dr. Ersin Koylu & Prof. Dr. Güldal Süyen
15.30 – 16.00	Coffee Break
16.00 – 17.00	Conference 2: Ömer Küçük “Phytochemicals in Integrative Oncology” Chair: Prof. Dr. Numan Ermutlu
17.05 – 18.35	Panel 1: Erdal Açar, İnci Alican, Güler Öztürk, Numan Ermutlu, Vural Küçükataş, İlknur Kozanoğlu, Selim Kutlu and Bayram Yılmaz “Physiology Book in Turkish” Chairs: Prof. Dr. Erdal Açar & Prof. İnci Alican

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03 November 2018 Saturday

08.30 – 09.00	Respect to Masters
09.00 – 09.30	Prof. Dr. Naci Bor Memorial Program Chairs: Prof. Dr. Erdal Ađar & Prof. Dr. Vural K����katay
09.30 – 10.30	Conference 3: Karl Obrietan “The ERK/MAPK pathway: a multifaceted regulator of circadian clock timing and entrainment in the suprachiasmatic nucleus” Chair: Prof. Dr. Ertuđrul Kılı�
10.30 – 11.00	Coffee Break
11.00 – 12.30	Oral Presentations (A) OC19-OC24 Chairs: Prof. Dr. Aysel Ađar & Prof. Dr. Ayhan Bozkurt
11.00 – 12.30	Oral Presentations (B) OC25-OC30 Chairs: Prof. Dr. Sibel Din�er & Prof. Dr. Fahri Bayırođlu
11.00 – 12.30	Oral Presentations (C) OC31-OC36 Chairs: Prof. Dr. V. Nimet Uysal & Prof. Dr. Cemil T�mer
12.30 – 14.00	Poster Presentations (PC065 – PC133) & Lunch
14.00 – 15.30	Panel 2 (A) Ethics in Scientific Research Panel 2.1 N�ket B�ken: Biomedical Research Ethics Panel 2.2 M. Murat Civaner: Ethics in the Context of Publishing Academic Studies Chairs: Prof. Dr. Ay�e Dođan & Prof. Dr. Selim Kutlu
14.00 – 15.30	Symposium 3 (B) “Genetic Pathways, Neurophysiological Changes, and Exercise and Oxidative Stress in Alzheimer’s Disease” S3.1 Ay�eg�l Topal Sarıkaya: Genetic Pathways in Alzheimer’s Disease S3.2 Asiye Nurten: Neurophysiological Changes in Alzheimer’s Disease S3.3 �zg�r Kasımay �akır: Alzheimer and Oxidative Stress S3.4 Mehmet �nal: Exercise for Alzheimer Patients Chairs: Prof. Dr. L�tfiye Kanıt & Prof. Dr. S�leyman Sandal
15.30 – 16.00	Coffee Break
16.00 – 17.00	Conference 4: Rebecca Reynolds “Maternal Obesity in Pregnancy” Chairs: Prof. Dr. G�ler �zt�rk & Prof. Dr. Melek Bor K����katay
17.05 – 17.35	Pontus Persson (Acta Physiologica, Editor-in-Chief) “Publishing in Acta Physiologica, an Inside View” Chair: Prof. Dr. Ahmet Ayar
17.40 – 18.40	Annual General Meeting of the Turkish Society of Physiological Sciences
20.00 – 23.30	Gala Dinner

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04 November 2018 Sunday

09.00 – 10.00	Conference 5: Zsolt Radak “The Effects of Exercise Training on Brain Function” Chair: Prof. Dr. Gülderen Şahin
10.00 – 10.15	Coffee Break
10.15 – 11.15	Conference 6: Pontus Persson “Pathophysiology of Acute Kidney Injury” Chair: Prof. Dr. Neyhan Ergene
11.15 – 11.30	Coffee Break
11.30 – 13.00	Oral Presentations (A) OC37-OC42 Chairs: Prof. Dr. Filiz Basralı & Prof. Dr. İsmail Meral
11.30 – 13.00	Oral Presentations (B) OC43-OC48 Chairs: Prof. Dr. Asuman Gölgeci & Prof. Dr. Fadıl Özyener
11.30 – 13.00	Oral Presentations (C) OC49-OC54 Chairs: Prof. Dr. Nurettin Aydoğdu & Prof. Dr. Mustafa Gül
13.00 – 14.00	Lunch
14.00 – 15.30	Panel 3 (A) “Measurement and Evaluation of Human Functions” Sadi Kurdak, Nuray Yazıhan, Numan Ermutlu, Selim Kutlu, Ahmet Ayar, İlknur Kozanoğlu Chairs: Prof. Dr. Gürkan Öztürk & Prof. Dr. İlknur Kozanoğlu
14.00 – 15.30	Sempozyum 4 (B) “Use of Confocal Laser Microscopy and Patch Clamp Techniques in Neurodegenerative Diseases” S.4.1 Mustafa Nazıroğlu: Investigation of TRP Channel on Etiology of Neurodegenerative Diseases in Hippocampus of Rat by Using Confocal Laser Microscopy S.4.2 Ömer Çelik: Patch-Clamp Technique in Neuroscience S.4.3 Betül Yazgan: Investigation of the Role of TRP Cation Channels in Neurodegenerative Diseases S.4.4 Bilal Çiğ: Using Calcium Signaling and Fluorescent Indicators on TRPM2 and TRPV1 Channel Activity in Hippocampus and Dorsal Root Ganglion Chairs: Prof. Dr. Mustafa Ayyıldız & Prof. Dr. Tülin Alkan
15.30 – 16.00	Presentation of Awards and Closing Session

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All abstracts have been reviewed by the following list of referees.

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Prof. Dr. Sacit Karamürsel	Prof. Dr. Berrak Yeđen
Prof. Dr. Haluk Keleřtimur	Prof. Dr. Bayram Yılmaz
Prof. Dr. Ersin Koylu	

Conferences

Conference 1: From Pacing the Heart to the Pace of Evolution

Denis Noble

Oxford University, Medical School, Department of Physiology, Oxford, UK

Multi-mechanism interpretations of cardiac pacemaker function reveal the extent to which many physiological functions are buffered against genomic change. Contrary to Schrödinger's claim in *What is Life?* (1944), which led to the Central Dogma of Molecular Biology (Crick 1970), biological functions at higher levels harness stochasticity at lower levels. This harnessing of stochasticity is a pre-requisite for the processes by which the pace of evolution can be accelerated through guided control of mutation rates and of buffering by regulatory networks in organisms.

1. Schrödinger E. 1944 *What is life?* Cambridge, UK: Cambridge University Press.
2. Crick FHC. 1970 Central dogma of molecular biology. *Nature* 227, 561 – 563.
3. Noble D. 2016 *Dance to the Tune of Life*. Biological Relativity. Cambridge University Press.
4. Noble D. 2017 Evolution viewed from physics, physiology and medicine. *Interface Focus* 2017, 7, 20160159.
5. Noble D. 2018 Central Dogma or Central Debate? *Physiology*, 33, 246-249
6. Noble R & Noble D. 2017 Was the Watchmaker Blind? Or was she One-eyed? *Biology*, 6, 47.
7. Noble R & Noble D. 2018 Harnessing Stochasticity. How do organisms make choices? *Chaos* 28, 106309; <https://doi.org/10.1063/1.5039668>

Conference 2: Phytochemicals in Integrative Oncology

Ömer Küçük

Emory University, Winship Cancer Institute, Atlanta, Georgia, USA.

Botanical compounds have been found to modulate genetic and epigenetic pathways of cancer development and progression. We have studied nutritional interventions, with emphasis on soy isoflavones and lycopene. Preclinical and clinical translational research have been conducted investigating the potential use of natural compounds, particularly lycopene and soy isoflavones, in the prevention and treatment of cancer. Clinical trials with lycopene and soy isoflavones in prostate cancer patients have shown that they are potent anti-cancer agents that may be useful in preventing and slowing the progression of prostate cancer. Soy isoflavones and lycopene could also prevent chemotherapy and radiation therapy toxicities. Furthermore, soy isoflavones may enhance the efficacy of chemotherapy and radiation therapy in patients with prostate cancer. Soy food intake has been associated with a low risk of several cancers. In addition, soy food consumption during cancer treatment may result in better outcomes and longer survival. These observations led to in vitro and in vivo mechanistic studies to elucidate the biological actions of various compounds in soybeans. Soy isoflavones have been found to have profound biological effects and modulate many of

the pathways involved in cancer development and progression. In addition to their selective estrogen receptor modulatory effects, these compounds have anti-oxidant, anti-inflammatory and epigenetic effects, which may explain their potential role in cancer prevention and treatment. Soy foods and soy isoflavones can be easily taken together with conventional cancer treatments such as surgery, radiation, chemotherapy, hormone therapy, targeted agents and immunotherapeutic agents. They may enhance the efficacy and reduce the toxicities of radiation therapy, chemotherapy, hormone therapy and other conventional cancer treatments. Natural products such as soy isoflavones could be used to improve treatment effects and quality of life of patients. Soy isoflavones should be investigated in symptom control, quality of life, palliative care and survivorship research.

Conference 3: The ERK/MAPK Pathway: a Multifaceted Regulator of Circadian Clock Timing and Entrainment in the Suprachiasmatic Nucleus

Karl Obrietan

Department of Neuroscience, Ohio State University, Columbus Ohio, USA

Within the suprachiasmatic nucleus (SCN) of the hypothalamus resides an endogenous oscillator that functions as the master circadian (24 hr) clock. The inherent rhythm generating capacity of the SCN confers a time-stamp on a wide array of physiological and behavioral processes, and the dysregulation of clock timing is a contributing factor to a number of clinical ailments. At the core of the SCN clock timing process is a set of auto-regulatory transcriptional and post-translational feedback circuits. Both the phasing and amplitude of these feedback circuits are modulated by changes in clock- and light-controlled kinase signaling pathways. One key signaling pathway by which these cues are communicated to the molecular clock is the ERK/MAPK (MAPK) pathway. In this presentation I will highlight some of our recent findings regarding the roles of the MAPK pathway as a regulator of clock timing and entrainment. I will present data indicating that MAPK signaling is essential for light entrainment of the clock. I will also characterize downstream effector kinases, and how these pathways alter clock timing at a transcriptional and translational level. Finally, I will discuss studies using transgenic- and knock-in-based technologies to examine the roles of the CREB/CRE transcriptional pathway (a target of the MAPK pathway) in clock timing and entrainment. Together, these data will provide an integrated overview of the MAPK cascade as an effector of circadian clock physiology.

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Conference 4: Maternal Obesity in Pregnancy: Implications for Health of the Child and Underlying Mechanisms

Rebecca Reynolds

Professor of Metabolic Medicine, University of Edinburgh, Scotland, UK

Maternal obesity is the most common metabolic disturbance in pregnancy affecting more than 1 in 5 women in some regions. Obesity has short term risks during pregnancy for both mother and child, with increasing evidence demonstrating that there are also longer term risks of these exposures in pregnancy impacting on health of the offspring across the lifespan. Consistent and increasing evidence demonstrates a range of adverse health outcomes for offspring born to mothers who are obese in pregnancy. This includes increased risk of obesity, metabolic syndrome, cardiovascular risk factors in childhood and death from cardiovascular disease in adulthood, as well as neurodevelopmental and neuro-psychiatric outcomes in childhood. Potential mechanisms will be discussed including the role of glucose/insulin resistance and dysregulation of the hypothalamic-pituitary-adrenal axis. Evidence from the literature reporting links between maternal obesity and diabetes and offspring outcomes will be reviewed including from data-linkage studies, experimental studies and mechanistic studies as well as our own data from follow up of children born to severely obese women (BMI>40) who were characterised in detail in pregnancy. Data from follow-up studies of offspring born to mothers who participated in intervention trials in pregnancy (diet/lifestyle, pharmacological and bariatric surgery) will also be presented. Disentangling the 'in utero' exposure from the 'postnatal' environment is challenging in human studies and further studies are needed to understand underlying mechanisms. With limited evidence that intervention trials in pregnancy lead to improved outcomes for the child, consideration needs to be given to pre-conception interventions. Ensuring women are healthy prior to pregnancy offers a major opportunity to optimise the health of the next and future generations.

Conference 5: The Effects of Exercise Training on Brain Function

Zsolt Radak

University of Physical Education, Research Institute of Sport Science, Budapest, Hungary

Regular exercise has systemic beneficial effects, including the promotion of brain function. The adaptive response to regular exercise involves the up-regulation of the enzymatic antioxidant system and modulation of oxidative damage. Reactive oxygen species (ROS) are important regulators of cell signaling. Exercise, via intensity- dependent modulation of metabolism and/or directly activated ROS generating enzymes, modulates the cellular redox state of the brain. ROS are also involved in the self-renewal and differentiation of neuronal stem cells and the exercise-mediated neurogenesis could be partly associated with ROS production. Regular physical exercise and nutritional intervention decrease both the incidence and symptom intensity of Alzheimer's Disease (AD) and modulate microbiome. When APP/PS1 mice were subjected to exercise and probiotics they significantly outperformed controls, whereas exercise, prebiotics alone and the two together resulted in decreases in beta-amyloid plaques, and increased microglia numbers around the plaques.

Moreover, data also showed that exercise training increased the levels of anti-inflammatory microorganisms, such as bacteria that are involved in butyrogenesis. Overall, it is clear that physical exercise neuroprotective effects on brain via complex mechanisms.

Conference 6: Pathophysiology of Acute Kidney Injury

Pontus B. Persson

Institute of Vegetative Physiology, Charité-Universitätsmedizin Berlin, Charitéplatz 1, 10117 Berlin, Germany

Two million per year is the estimated death toll of acute kidney injury (AKI). From over 500,000 observations worldwide, there is now epidemiological evidence showing that even mild and reversible AKI can bring about devastating clinical consequences, such as increased mortality.

The several causes for AKI seem to share common pathways to renal damage. Disturbed vascular function together with reduced renal perfusion is a key for the development of AKI. The high oxygen demand of thick ascending limbs of the Henle's loop, combined with low oxygen pressure, makes the inner part of the outer medulla an area at risk for hypoxic damage. We hypothesize that critical renal vessel dysfunction, such as in vasa afferentia or vasa recta is of paramount importance for the reduced medullary perfusion in AKI. With the development of magnetic resonance (MR) imaging, functional renal MR imaging has rapidly grown and could be used to evaluate renal morphology and function noninvasively and simultaneously. These approaches can provide information on intrarenal oxygenation, perfusion, and diffusion on a microstructural level, which may not only allow the noninvasive detection of the presence and severity of renal abnormalities associated with AKI in preclinical setting, but also demonstrate the pathophysiology and progress of AKI. Here we bring together imaging technology with gold standard physiological assessment of renal hemodynamics to shed light onto the early phase of AKI. Moreover, the local responses of renal microvessels during AKI are presented to provide new potential routes of alleviating AKI. Supported by the German Research Foundation: PE 388/22-1

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Pontus B. Persson (Acta Physiologica, Editor-in-Chief)

Symposia

Symposium 1:

S.1.1 Exercise Induced Skeletal Muscle Satellite and Non-Satellite Stem Cell Responses

Melek Bor-Küçükataç

Pamukkale University, Faculty of Medicine, Department of Physiology, Denizli, Turkey

Preservation of skeletal muscle mass has a critical role in maintaining quality of life. Satellite, non-satellite stem cells (MSCs) are stem cells of skeletal muscles. Side population (SP) cells, pericytes are members of non-satellite stem cell family. Exercise induced skeletal muscle regeneration is predominantly attributed to satellite cells. Satellite cells play an effective role in tissue regeneration by activating and proliferating in response to damaging stimulus. There is conflicting information about the role of MSCs in muscle regeneration. Current data indicate the importance of satellite cell activation in response to non-satellite cell stimulation via a number of paracrine/growth factors in post-exercise myogenesis. Activation of nuclear factor kappa B (NF- κ B) pathway has also been demonstrated in response to exercise. Our laboratory carried out experiments exploring the pathways in early (3 hours) and late (24 hours) skeletal stem cell activities in response to acute (30 min), long-term (30 min/day, 5 days/week, 6 weeks) swimming. Gastrocnemius-soleus muscle complex damage and regeneration following exercise have also been examined histologically. Revealing the pathways involved in exercise-induced new muscle fiber synthesis, may contribute to the development of MSC, cytokine-based treatment strategies to improve the speed and effectiveness of skeletal muscle healing and to prevent age-related muscle loss.

S.1.2 Histological Determination of the Effect of Acute and Chronic Swimming Exercise on Skeletal Muscle Tissue Damage and Regeneration

Gülçin Abban-Mete

Pamukkale University, Faculty of Medicine, Department of Histology and Embryology, Denizli, Turkey

Early (3 hours) and late (24 hours) effects of acute (30 min) and long-term (30 min/day, 5 day/week, 6 week) swimming exercise were determined. 8-12 week old mice were divided into two as; control, swimming groups. Exercise groups were further divided into two as acute (3 hours) and chronic (24 hours) exercise. At the end of the experiment, mice were sacrificed and gastrocnemius-soleus muscles were immediately removed to be fixed in 10% formaldehyde for 24 hours. Following routine light microscopy examinations, 10 μ m thick sections were embedded into paraffin blocks and were stained with hematoxyline-eosin. Necrotic muscle cells and polynuclear, mononuclear cell infiltrations were not observed in the control group. Tissue integrity was not observed in the experimental group; fibers were separated from each other. Some muscle fibers were destroyed and marked polynuclear, mononuclear cell infiltrations were observed. Although acute 3, 24 hour and chronic 3 hour groups were similar, chronic 24 hour group had less degenerative appearance. Decrement of muscle fibers was noted in the acute 3 hour group. Centralized muscle fibers showing muscle regeneration were rarely observed. Long time swimming seems

to protect muscles from degeneration. However, immunohistochemical analyzes may be necessary for more detailed information on muscle regeneration.

S.1.3 Identification of the Pathways That Play Role in Muscle Regeneration in Response to Swimming Exercise of Various Durations

Özgen Kilic-Erkek

Pamukkale University, School of Medicine, Department of Physiology, Denizli, Turkey

Current literature includes contradictory data about the role of NF- κ B activity in post-exercise myogenesis. The possible role of any other pathway in muscle regeneration in response to exercise wasn't investigated. Total RNA samples were isolated from gastrocnemius-soleus complexes following 3, 24 hours of acute (30 minutes) and chronic (6 weeks, 5 days/week, 30 minutes/day) swimming mice. Gene expression profiles were determined using whole-transcript array (GeneChip Mouse Gene 2.0 ST Array, Affymetrix, Inc.). Verification of microarray analysis by real-time PCR (LightCycler 2.0, Roche Diagn.) was aimed for the selected genes. Muscle damage was mostly observed in 3 hour acute swimming group, *skeletal muscle actin alpha 1 (Acta1)* (34 fold, $p = 0.04$), *creatin kinase (Ckm)* (17 fold, $p = 0.03$), *troponin I (Tnni2)* (15 fold, $p = 0.04$) were upregulated in this group compared to chronic swimming 3 hour. In acute swimming 24 hour group, *cytochrome c (Cycs)* (6 fold, $p = 0.04$) was upregulated compared to chronic swimming 24 hour and acute swimming 3 hour (6 fold, $p = 0.01$) groups. *Creatine kinase* and *troponin I* are markers of muscle damage and *troponin I* is specific to skeletal muscle. Additionally, *troponin I* was also proposed as a marker of myogenesis in muscles.

Symposium 2:

S.2.1 Sleep Physiology and Disorders

Levent Öztürk

Trakya University Faculty of Medicine, Department of Physiology, Edirne, Türkiye

The micro-structure and architecture of sleep is examined by dividing into stages and physiological sleep architecture is important to have a healthy body and to maintain the memory. What we know about sleep has been risen in recent years, but "sleep" still constitutes a branch of science with full of obscurities. The onset, the maintenance and the terminating of the sleep includes complex brain process. Therefore, the physiological systems were investigated and should be examined with detail in which sleep disorders. Classification of sleep disorders The first time in 1979, four major groups were identified. In 1991, the first International Classification of Sleep Disorders (ICSD-1) was identified as ICSD-2 in 8 categories and 85 diseases in 2005. In 2014 ICSD-3 was published as 6 groups and 85 diseases. The most common group of sleep disorders are sleep-disordered breathing.

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S.2.2 Obstructive Sleep Apnea Syndrome (OSAS) and Irisin

Mustafa Saygın

Süleyman Demirel University Faculty of Medicine, Department of Physiology, Isparta, Turkey

Obstructive sleep apnea syndrome (OSAS) has a wide prevalence among sleep disorders in the community. In our study, we investigated the relationship between the disease and the level of the disease and the level of irisin hormone, which is a myokine released from muscular tissue to show the change in treatment and hormone levels in the OSAS. One night polysomnography examination was applied to patients with snoring, probable apnea, daytime sleepiness complaints and Epworth score ≥ 10 in the sleep polyclinic. OSAS patients according to sleep apnea/hypopnea index (AHI); 3 groups were divided; mild OSAS $AHI \geq 5$ and < 15 , middle OSAS $AHI \geq 15$ and < 30 and severe OSAS $AHI \geq 30$ /h. There was a significant difference between the levels of irisin compared to the severity of OSAS in 180 patients diagnosed with OSAS ($p < 0.001$) and while the level of OSAS increases, the level of irisin decreases. The level of irisin was measured in 26 patients with OSAS diagnosis and in 7 patients with single night CPAP treatment. Irisin levels were significantly lower in CPAP-treated OSAS patients than in non-treated OSAS patients ($p < 0.001$). As a result, it was concluded that the irisin hormone could be used as a sensitive and specific differential biomarker in the patients of OSAS and that the reduction of irisin levels with treatment was important for the prognosis of the disease.

S.2.3 Sleep breathing disorders

Rahime Aslankoc

Süleyman Demirel University, Medical School, Department of Physiology, Isparta, Turkey

Sleep-disordered breathing, which develops as a result of pathological changes in respiration during sleep; clinical tables leading to increased morbidity and mortality in these patients. Sleep-disordered breathing consists of 5 subtitles which is ranked second in the category of recent sleep disorders classified as ICSD-3 by the American Academy of Sleep Medicine (AASM) in 2014. These are obstructive sleep apnea syndrome (OSAS), central sleep apnea syndrome, sleep related hypoventilation disorders, sleep related hypoxemia disorder, isolated symptoms and normal variants. The most common form of sleep-disordered breathing is obstructive sleep apnea syndrome. OSAS; characterized by episodes of upper respiratory tract obstruction that cause recurrent hypoxemia and sleep divisions during sleep. The major symptoms of OSAS are snoring, testicular apnea and daytime sleepiness. Today, the increasing morbidity and mortality of sleep-disordered breathing (SDB) requires that sleep-disordered breathing be under the light of a new classification.

Symposium 3:

S.3.1 Genetic Pathways in Alzheimer's Disease

Ayşegül Topal Sarıkaya

İstanbul Yeni Yüzyıl University Faculty of Medicine
Department of Medical Biology and Genetics, İstanbul Turkey

Alzheimer disease (AD) is a genetically complex, multifactorial disease that leads to neurodegenerative dementia. The amyloid precursor protein (APP), presenilin 1 (PSEN1) and presenilin 2 (PSEN2) genes were identified as disease genes in AD. Pathogenic mutations of these genes may cause to appear early onset form of AD (EOAD). While a pathogenic mutation in APP, PSEN1 and PSEN2 is infrequently identified in late onset AD (LOAD) patients, LOAD is considered multifactorial, with a strong polygenic component and estimated heritability of up to 80%. The most well known genetic risk factor for AD is the APOE ϵ 4 allele, explaining 25% of the heritability. Common pathways associated with AD revealed from analysing of genome wide variant data are immune response, lipid metabolism, endocytosis and cell adhesion molecule (CAM) pathways.

S.3.2 Neurophysiological Changes in Alzheimer's Disease

Asiye Nurten

İstanbul Yeni Yüzyıl University, Medical Faculty, Department of Physiology, İstanbul, Turkey

World population is getting older every other day. It is important to live long and have better quality of life during ageing. While most of the elder people can continue their life without any disruption to their intellectual functions, some very old people can face minimal changes at their memorial and cognitive functions and some can survive with dementia. Alzheimer, being a subtype of dementia, is a disease with disturbance at memory, language and orientation and can show behavioral changes. While several different factors can cause Alzheimer's disease, the most important risk factor for the disease is ageing. The main reasons of Alzheimer are; destroy at synaptic functions and break in neuronal circuit communications which plays an important role in memory and other cognitive functions. Since EEG signals can reflect functional changes in the cerebral cortex, long time before the real tissue damage, neuronal degeneration and functional disorder can be captured with EEG. Amplitude changes observed in EEG can help to diagnose Alzheimer's disease. EEG power spectrum can change specific to Alzheimer's disease. It is also defined that power level of alpha3/alpha2 in EEG is increasing during the prodromal level of Alzheimer's disease. All these observations suggest that EEG can be used as highly sensitive and specific tool for the diagnoses of Alzheimer's disease. The information gained through the researches with EEG and neurophysiologic investigations, suggests there may be relevant methods that can be used in early diagnose and therapy of Alzheimer's disease.

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S.3.3 Alzheimer and Oxidative Stress

Özgür Kasımay Çakır

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The disruption of balance between reactive oxygen (ROS) and nitrogen series and antioxidant system leads to oxidative stress that is known to be related with neurodegenerative diseases such as Alzheimer's Disease (AD). Nitric oxide (NO) is shown to have a role in the pathogenesis, and especially vascular NO was raised to have a function before overexpression of nitric oxide synthase isoforms. NO is known to be a component of neuro-inflammation regarding its free radical properties, is produced by neurons and vascular endothelial cells in the brain, and stimulates vasorelaxation when produced via endothelia, and has a neurotransmitter role when secreted by neurons (like in AD). ONOO⁻, is formed when NO reacts with superoxide, is a potent oxidant and is the main component of nitro-oxidative stress. Furthermore, oxidative stress and reactive oxygen series (H₂O₂, O₂⁻, OH[•]) cause cellular changes that are seen in the early phase. Augmented ROS production stimulates apoptosis or necrosis and neuronal damage that is related with neurodegeneration and neuronal death. Free radical induced macromolecular injury, such as increased lipid peroxidation, amplified glycation and glyco-oxidation, and risen A β protein deposition are some of the changes in this process. Eventually, oxidative stress is an important factor in the pathogenesis of AD.

S.3.4 Exercise for Alzheimer Patients

Mehmet Ünal

İstanbul Yeni Yüzyıl University Department of Physical
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The increase in longevity has resulted in an increase of the geriatric population. Thus, more Alzheimer patients demand our medical care every day. Statistical show that the risk for Alzheimer's disease is between %5-11 over 65 years of age, whereas it increases up to %50 in patients over 85 years of age. Alzheimer's is associated with deteriorated high functions of the cerebral cortex inhibiting the regular activities of daily living, and is progressive, chronic and a fatal disease. Once the loss of personal abilities is added to the diminished cognitive abilities, the problem becomes less and less favorable. Over time, these patients may not remember the names of their own children, even they may forget that they had children. They may also forget to carry out the routine daily activities such as alimentation, drinking and toilet requirements. As the patient gets older, the musculoskeletal system gets more involved, and the risk of muscle atrophy, loss of strength and elasticity and osteoporosis rise significantly. Although all other systems might function properly, the decrease in function of the musculoskeletal system affects the quality of life quite unfavorable and precludes the skills to be self-sufficient. Regular exercises performed by Alzheimer's patients increase the muscle power and endurance significantly. Moreover, it has been shown that regular exercises also partially reverse the common problems such as depression and behavioral disorders in Alzheimer's disease, and improve memory and social interaction capabilities. Additionally, it has been reported that regular exercises activate neurogenesis resulting in generation of new neurons. It is extremely important

that the content of the exercise program is appropriate to the phase of the disease. Therefore, it is of paramount importance to consult a physician for the composition of the custom-made exercise program for Alzheimer patients.

Symposium 4:

S.4.1 Investigation of TRP Channel on Etiology of Neurodegenerative Diseases in Hippocampus of Rat by Using Confocal Laser Microscopy

Mustafa Nazıroğlu

Neuroscience Research Center, Suleyman Demirel University,
Isparta, Turkey

Disturbances in intracellular Ca²⁺ concentration play an important role in the pathophysiology of neurodegenerative diseases such as spinal cord injury (SCI), sciatic nerve injury (SNI) and traumatic brain injury (TBI) (1). Ca²⁺ passes cell membrane via several channels including transient receptor potential (TRP) family. Two members of the TRP superfamily are TRP melastatin 2 (TRPM2) and vanilloid 1 (TRPV1) can be gated by ADP-ribose and capsaicin, respectively. They are also activated by oxidative stress. The channels are potential target on neurodegenerative diseases for new drug discovery (2). The confocal laser microscopy (CLM) applications have made it possible to image fixed or living tissues labeled with one or more fluorescent markers as uttermost detailed in high resolution (3). Results of recent studies indicated increased levels of intracellular Ca²⁺ concentration in hippocampus of TBI, SNI and SCI-induced rats (4,5). The studies also reported increased levels of intracellular mitochondrial oxidative stress and apoptosis levels in the neuron by the capsaicin, ADP-ribose and oxidative stress stimulations. However, their levels were decreased by inhibition of TRPM2 and TRPV1 channel blockers. In conclusion, CLM technique is a best technique on oxidative stress-dependent activation of TRP channels in hippocampus for investigation of the neurodegenerative diseases.

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S.4.2 Patch-Clamp Technique in Neuroscience

Ömer Çelik

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One of the most important factors that enable the cell to maintain its viability is the dynamic structure of the cell membrane. Protein-based channels that are embedded in the cell membrane and allow for ion transport are the most important components of this dynamic structure. Ion channels are responsible for the maintenance of many physiological activities such as processing of information, transmission of outputs to peripheral, contraction, secretion, gene expression, cell division and regulation of osmotic pressure in both excitable and non-excitable cells. In recent years a big number of evidences showed that channelopathies may underlie in the basis of neurodegenerative disorders such as Epilepsy, Alzheimer's and Parkinson's diseases (1). The Patch-Clamp technique which was developed by Erwin Neher and Bert Sakmann at first time in 1976 is the most actual and common molecular method which allows to study on electrophysiological properties of ion channels. In this method, it is possible to measure ionic currents from a small membrane patch that is tightly captured by a borosilicate glass micropipette with a 1-2 μm tip opening diameter. Where the resistance is about between 1-10 G Ω the tightly clamping between the cell membrane and tip of the micropipette is called as 'Gigaseal' or 'Gigaohm'. (2). The basic components and requirements for a patch-clamp set up are Faraday cage, Anti-vibration table, inverted-microscope, micromanipulator, amplifiers, computer (hardware and software), pipet holder, perfusion system, peristaltic pump, pipet puller and borosilicate glass tubes. Four different patch-clamp configurations Cell-attached, Whole Cell, Inside-Out and Outside-Out are available (2).

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S.4.3 Investigation of the Role of TRP Cation Channels in Neurodegenerative Diseases

Betül Yazgan

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Neurodegenerative disorders are diseases in which pathophysiological changes occur in neurons in specific regions of the nervous system resulting in irreversible and progressive loss (1). Investigating role of transient receptor potential (TRP) channels in the molecular basis of these diseases and the development of new therapeutic approaches on these pathways is an early stage. Moreover, there is no clear conclusion about the effectiveness of the substances that activate or block these channels (2). Disturbances in calcium homeostasis due to transient receptor potential TRP and/or store-operated calcium channels can play a key role in a large number of neurodegenerative disorders. Some of these channels are predicted to be potential drug development targets for neurodegenerative diseases (3). Recent studies have shown that the TRP Canonical (TRPC) subfamily is associated with

neuronal development and basic synaptic mechanisms (4). There is a reduction in the number of dopaminergic neurons in the substantia nigra in TRPC1^{-/-} mice and therefore TRPC1 may be a possible target for Parkinson's treatment (5). Both TRPM2 and TRPM7 are directly implicated in neuronal cell death pathways by sensing oxidative stress (TRPM2) and being crucial for cell viability in neurodegenerative diseases (2). The neuroanatomical distribution of TRP channels, and the search for activators and inhibitors of these channels, appears to be important for recommended as a therapeutic target in neurodegenerative disorders. In this symposium presentation, the role of TRP channels in neurodegenerative diseases will be evaluated in the evidence of current literature.

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S.4.4 Using Calcium Signaling and Fluorescent Indicators on TRPM2 and TRPV1 Channel Activity in Hippocampus and Dorsal Root Ganglion

Bilal Çiğ

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Intracellular calcium ion (Ca^{2+}) is a secondary messenger that controls many cellular physiological processes including synaptic transmission and neuronal signaling (1,2). Mechanisms of Ca^{2+} signaling include localized ion channels such as transient receptor potential melastatin 2 (TRPM2) and vanilloid 1 (TRPV1) in the plasma membrane (3). Abnormalities such as hippocampal and dorsal root ganglion (DRG) injury in the calcium signal mediated by these ion channels are a hallmark of severe pathological conditions. Current therapies are inadequate for the permanent resolution of these pathological conditions. However, the understanding of the underlying mechanisms of Ca^{2+} signals that occur at any given moment in all cellular processes is accelerated by the development of fluorescent calcium indicators (4). In this presentation, we discussed the most important chemical indicators that widely used in the intracellular Ca^{2+} signal by their different properties. These are dyes such as Fura-2, Fluo-3, Fluo-4. These Ca^{2+} indicator dyes are designed with AM (Acetoxy methyl) esters. AM dyes can pass through membrane-associated cellular esterases (5). These Ca^{2+} indicators can be classified as single-wavelength or ratiometric. Specific lasers, filters based on spectral properties are required for the dyes in both classes. Both types of indicators also have advantages and disadvantages.

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Panels

Panel 1: Physiology Textbook in Turkish

Erdal Ađar, İnci Alican, Bayram Yılmaz, Vural Küçükataı, Selim Kutlu, Numan Ermutlu, Güler Öztürk and İlknur Kozanođlu
 The Society of Turkish Physiological Sciences, www.tfbd.org.tr

Human Physiology is the most important and an ever-changing discipline of medicine. So far, the most of the physiology books in Turkish are translated from foreign languages, especially from English. The main goal of this panel is to make preparations for writing a physiology book in Turkish, as The Society of Turkish Physiological Sciences. Editors, authors and publishers of the book will need to check sources believed to be reliable and decide other details of book at the beginning. Authors will be invited from various universities within Turkey. Each unit editor is responsible to make text of chapter as accurate as possible. Each author will describe what he/she believes to be most likely mechanism responsible for the phenomenon in physiology. When chapters are ready to publish, we plan to take suggestions and critiques from physiologists and students. The first edition of the book will adopt a comparative approach to clearer understanding the principles of human physiology. We believe that this will be the first step for incoming several physiology books in Turkish language. The next step could be free translation of the book to other foreign languages.

Panel 2:

P.2.1 Biomedical Research Ethics

Nüket Büken
 Hacettepe University School of Medicine, Dept. of History of Medicine and Medical Ethics, Ankara, Turkey

It is a reality that the ethical problems existing in scientific research, particularly in biomedical research, can reach considerable limits. In order to be acceptable at an international level, the related ethical principles as well as the harmonisation of methodology and semantics, must be specified in scientific research activities. In various countries in which the production of scientific knowledge has become possible, the existence of different cultural characteristics can be observed. Nevertheless, to whatever extent their culture and the level of their social and economic development may differ from each other, there should be “universal ethical principles” which would be binding for scientists living in different geographies. In medical research activities, accordingly, the concept of “universality” has come to the fore in recent times. And there is a need now for a consensus about the fundamental values which govern these activities. Only in such a way would it be possible to have common ethical principles in terms of research carried out in different countries. Comprising the darkest and brightest periods in the history of biomedical research, these process continue to serve as positive and negative standards forevaluating research ethics and regulation. Concerning ethics, episodes in the history of research with human subjects serve as cases, as heuristic devices, for thinking about the nature and function of ethics as applied to research.

P.2.2 Ethics in the Context of Publishing Academic Studies

M. Murat Civaner
 Uludađ University School of Medicine, Dept. of History of Medicine and Medical Ethics, Bursa, Turkey

Sharing the end results of academic studies with society and academy is only possible to publish them on various media. Including the disciplines besides scientific studies such as Philosophy and Arts, the academicians share her own study via journals, audio-visual media and internet. Although sharing the studies is one of the most important moral responsibilities of an academicians, emergence of various kinds of ethical problems is highly probable. The degree and quality of contribution to earn the authorship, making quotations from another source, or determining “the least publishable unit” from a certain database while avoiding salamization are the examples of possible problem sources. The rules regarding publication ethics are meant to provide guidance on these kind of problematic areas, but they might be insufficient, and they might also be misunderstood widely. This presentation focuses on the ethical problems emerging during the preparation and publication phases of scientific studies, and related regulations in Turkey are mentioned.

Panel 3: Measurement and Evaluation of Human Functions

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In general, health status can be defined as normal (physiological) function of the system and organs in the human body. The objective measurement of the human body and its functions is the subject of medicine mainly physiology. Cardiovascular, respiratory parameters, neuro-muscular tests, metabolic measurements are among the most widely used physiological tests. In addition, sensory tests (hearing, vision, odor, etc.), hematological tests, functional analysis of the gastrointestinal system are frequently used in clinical diagnosis and follow-up. In order to define the state of disease, diagnosis, prognosis and morbidity, the measurements must be done in appropriate optimized conditions by validated methods and systems. Geographical location, climate, race, life and eating habits could affect the body structure and “normal” could differ in different conditions. It is important to know the norms of these tests for the population living in our country. This situation shows that correct, standard and repeatable measurement and evaluation concepts should be put into practice. Optimization of standards must define in each country in addition to global values. Measurement and data collection related to health should be carried out using standard and reliable methods and devices. Personnel using these devices and methods should have a good level of knowledge and experience about physiological concepts by receiving accredited certification training. In this panel, the usage of general and special physiological measurement methods in our country and the personnel and technical infrastructure situation related to the subject will be discussed and short, medium and long-term targets and solutions will be discussed.

Oral Communications

OC01

Methanandamide Ameliorates Mast Cell-Mediated Neurogenic Inflammation.

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²Istanbul Medeniyet University, Faculty of Medicine, Department of Physiology, Istanbul, Turkey

Aim: Mast cell (MC) degranulation play key role in migraine pathophysiology by inducing dural neurogenic inflammation. It was reported that endocannabinoids could prevent neurogenic inflammation but related mechanisms have not yet been clarified. We aimed to investigate effects of methanandamide and cannabinoid receptors on mast cell degranulation mediated-neurogenic inflammation induced by MC secretagogue compound-48/80.

Methods: In-vivo and ex-vivo rat groups (n=7) were intraperitoneally and topically administered saline, compound-48/80 (2 mg/kg), methanandamide (20 mg/kg), cromolyn (50 mg/kg) + compound-48/80, methanandamide + compound-48/80, rimonabant (2 mg/kg) + methanandamide + compound-48/80, capsazepine (10 mg/kg) + methanandamide + compound-48/80. Neurogenic inflammation markers including calcitonin gene-related peptide (CGRP) and substance-P(SP) levels in plasma, brainstem and brain samples were measured using ELISA. Ex-vivo dural MC numbers and degranulations were determined. Data were analyzed with One-Way ANOVA.

Results: Compound-48/80 increased CGRP and SP levels in plasma, brainstem and brain (p<0.05), these increasements were prevented by cromolyn and methanandamide (p<0.05). Rimobabant blocked effect of methanandamide (p<0.05) but capsazepine had no effect. Methanandamide decreased MC degranulation induced by compound-48/80 in ex-vivo group (p<0.05).

Conclusions: MC degranulation causes neurogenic inflammation by inducing CGRP and SP release in plasma, brainstem and brain. Methanandamide ameliorates neurogenic inflammation by stabilizing dural MCs, as well as by attenuating CGRP and SP release through cannabinoid-1 receptors in brainstem and brain. Endocannabinoids and their receptors may be new targets for migraine treatment. Grant-number: 2016.08.02.1095 (AIBU-BAP).

OC02

Astaxanthin's Free-Radical Scavenging Activity in an Experimental Cerulein-Induced Acute Pancreatitis Dilek Özbeyli¹, Esra Bihter Gürler², Hülya Buzcu³, Özlem Tuğçe Çilingir-Kaya⁴, Muhammet Emin Çam⁵, Meral Yüksel¹, Özgür Kasımay Çakır³, Berrak Çağlayan Yeğen³

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Aim: We investigated astaxanthin (ATX)'s thereupatic effects and underlying antiinflammatory mechanisms in a cerulein-induced acute pancreatitis rat model.

Methods: After ethical approval (76.2017mar), female Wistar rats (n=18) were injected twice with cerulein (50 µg/kg/hr intraperitoneally), with an hour in between (Acute pancreatitis; AP); while control group had vehicle injections (n=6). AP rats were treated with saline, astaxanthin (ATX; 20 mg/kg), astaxanthin + Peroxisome proliferator-activated receptor (PPAR)-alpha antagonist GW6471 (ATX+GW;1 mg/kg). Vehicle, astaxanthin or astaxanthin+GW6471 (ATX+GW) were injected after the first cerulein injection. At the 7th h following the last injection, rats were sacrificed with cardiac puncture under anesthesia. The pancreas was removed and samples were stored for the determination of malondialdehyde (MDA), glutathione (GSH), superoxide dismutase (SOD) and catalase levels, myeloperoxidase activity, luminol-lucigenin chemiluminescence levels. One-Way ANOVA and post-hoc Tukey was performed to analyze data in Graphpad Prism v.7.

Results: In all AP groups GSH was reduced, MDA, MPO and luminol CL were increased (p<0.01). ATX reversed these changes (p<0.01). In contrast to ATX group, elevations in the ATX+GW were not significant. While luminol was decreased in ATX group, lucigenin, SOD, catalase remained unchanged in all groups.

Conclusions: Astaxanthin, probably due to its free-radical scavenging activity, protected pancreatic tissue.

OC03

Effects of Bmal1 on Akt Signal Pathway After Oxygen Glucose Deprivation

Mustafa Çağlar Beker

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Aim: Circadian rhythm plays an important role in pathophysiological processes. Bmal1 which is involved in the regulator of biological rhythm, is an important contributor to the formation of neuronal damage after brain injury. In this study, we aimed to examine the effects of Bmal1 on cellular damage mechanisms after in-vitro oxygen-glucose deprivation (OGD).

Methods: Cell survival were investigated using OGD in lentivirus mediated Bmal1 overexpression or Bmal1 silencing in N2A cells. Both groups were treated with 1µM melatonin or vehicle at the beginning of reperfusion. To determine effect of Bmal1 on intracellular signalling, targeted proteomics (IP-MS) and pathscan analysis were performed. In addition, the effects of Bmal1 on Akt signalling pathway were demonstrated using in-vitro OGD and in-vivo cerebral ischemia model.

Results: Cell survival were increased in Bmal1 overexpressing cells, while it was decreased in Bmal1 knockdown cells. It was demonstrated that Bmal1 enhanced the level of Akt, Erk-1/-2 and Bad proteins. In addition, it has been shown that Bmal1 effects on Akt signal pathway following in-vitro and in-vivo ischemia.

Conclusions: Results showed that Bmal1 increased cellular survival after ischemic injury via the Akt signal pathway. These results may contribute to the determination of new target molecules for pharmacological therapy.

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OC04

Effects of Homocysteine and Memantine on Oxidative Stress Related TRP Cation Channels in In-vitro Model of Alzheimer's Disease

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Aim: Calcium permeable, ROS-activated TRPA1, TRPM2 and TRPV1 channels are expressed in the hippocampus. The present study was designed to evaluate the possible activation and expression levels of oxidative stress-sensitive TRPA1, TRPM2 and TRPV1 channels in Alzheimer's Disease model.

Methods: Eighty healthy both genders 10-12 months old Swiss mice were sacrificed by cervical dislocation and freshly isolated hippocampal neurons divided into eight groups; Control, A β (20 μ M, 24 h), Hcy (250 μ M, 30 min), MEM (10 μ M, 24 h), A β +Hcy, A β +Hcy+MEM, A β +MEM, Hcy+MEM. Specific agonists and antagonists for TRPA1, TRPM2 and TRPV1 channels are used to determine the channel activation level. Süleyman Demirel University Local Experimental Animal Ethical Committee Protocol Number: 2016-3/2).

Results: Data were analyzed using one-way ANOVA test. The [Ca²⁺]_i concentration, apoptosis, caspase -3 and -9 activations, mitochondrial membrane depolarization and ROS production values in the neurons were higher in A β (p<0.001) and Hcy (p<0.001) groups than in the control however they were lower in the MEM (p<0.05). The values were further decreased by MEM+AP-18, MEM+CPZ and MEM+ACA treatments as compared to MEM-only (p<0.05).

Conclusions:TRPA1, TRPM2 and TRPV1 channels are involved in A β and Hcy-induced neuronal death, and modulation of these channels by MEM treatment may account for their neuroprotective activity against apoptosis, excessive ROS production, and cytosolic Ca²⁺ overload.

OC05

Effects of Calorie Restriction on miRNA Profile in Breast Cancer Mouse Model

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Aim: Calorie Restriction (CR) decreases risk of age related diseases including breast cancer. However, underlying mechanisms is not clear. The aim of this study was to determine the effects of CR on Mammary Tumor (MT) incidence rates and microRNA profile.

Methods: Total of 201 MMTV-TGF α breast cancer model female mice were enrolled into the three different groups; Ad libitum(AL), Chronic CR(CCR) and Intermittent CR(ICR). Mice were sacrificed at week 10, 49/50 and 81/82, and tissue samples were collected. Afymetrix microarray method was used to

analyze microRNA expression. Chi-square test was used to analyze MT incidence rates and grades. For miRNA data analysis ANOVA was used.

Results: Although 21.4% (12/56) and 20.4% (18/88) of AL and ICR groups, respectively developed MT, only 8.7% (5/57) of CCR group of mice developed MT. For each sample total of 3,195 miRNA was analyzed (ebayes ANOVA, n=3). Total of 13 miRNAs including miR-485-5p, miR-150-5p, and miR-709 predicted to target adiponectin and/or leptin or their receptors were significantly and differentially expressed among the dietary groups either at week 49/50 or 81/82 (>2 fold change, p<0.05).

Conclusions: These results indicate that 13 detected miRNAs especially miR-485-5p and miR-150-5p may play important roles in the preventive effects of CR in MT development.

OC06

Effects of Leptin on the Viability of MCF-7 And T47D At Different Glucose Concentrations

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Aim: Leptin is an important factor in energy homeostasis, involved in obesity and overexpressed in breast cancer with its receptor. Moreover, high glucose induces proliferation and invasion of breast cancer cells. However, effects of Leptin in glucose homeostasis not known sufficiently in breast cancer. The aim of this study was to investigate the effect of leptin on the viability of breast cancer cells cultured in different glucose concentrations.

Methods: MCF-7 and T47D breast cancer cells incubated in different glucose concentrations for 72 hours were treated with/without leptin for 1 hour and 24 hours. Apoptotic, necrotic and alive cells were analyzed by flow cytometry.

Results: 72-hour glucose incubation significantly decreased apoptosis and necrosis, while increasing viability in both cell lines in a dose-dependent manner. 1-hour leptin incubation significantly decreased viability, increased apoptosis but did not effect necrosis significantly in T47D cells incubated with 2.5mM glucose. In MCF-7 cells, 1-hour leptin incubation significantly increased necrosis but did not affect apoptosis and viability significantly. Kruskal Wallis test (P<0.0001) with Dunns multiple comparison was used for statistical analyses.

Conclusions: Leptin is more effective in low glucose levels and 1-hour incubation. Leptin induces cell death by different mechanisms in T47D and MCF-7 cells.

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OC07

Investigation of the Effects of Intermittent and Continuous Exercise Methods on Cognitive Functions, Risk Taking, Working Memory and Attention

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Aim: Regular physical activity type for healthy life and brain has become important with increased sedentary life style. We aimed to find the effects of continuous and intermittent exercise methods on cognitive functions under anaerobic threshold.

Methods: Eight(8) hightrained sportsmen performed continuous (20minutes constant power output=90% respiratory anaerobic threshold load) and intermittent (4sets/5minutes at same power load-2minutes of 50-watt loaded rest) exercise. Stroop, PASAT, BART tests were performed for cognitive functions before-after each session. Cortical levels of blood and saliva were measured for the effect of stress. Variance analysis was performed for repeated measures and the differences and interaction between the exercises were examined. Study was approved by the Ege University Clinical Research Ethics Committee.

Results: Level of difficulty perceived in continuous exercise was higher than intermittent exercise ($p<0.05$). BART results was seen that the risk taking tendency increased after continuous exercise ($p<0.05$). There was no difference between the exercises in PASAT ($p>0.05$). Stroop interference was increased after continuous exercise ($p<0.05$), but there was no significant difference after intermittent exercise compared to before.

Conclusions: In continuous exercise, deterioration of cognitive functions and increased risk tendency were observed. With these findings intermittent exercise was thought to be a more efficient method in terms of cognitive functions. This study was conducted within the scope of Ege University Scientific Research Project No. 18-TIP-039

OC08

Effects of High Intensity Interval versus Continuous Moderate Intensity Training on Post Traumatic Stress Disorder Induced Cognitive Impairment in Rats

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Aim: To compare the effects of high intensity interval training (HIIT) and moderate intensity continuous training (MICT) in PTSD- induced rats.

Methods: Following ethical approval, female Wistar Albino rats (n=44) were divided into six groups: Sedentary (SED),

MICT, HIIT and PTSD-induced SED, MICT, and HIIT. Exercise groups were trained on treadmill for 5 days/week, 6 weeks. On the fifth week, PTSD was induced. Cognitive functions were evaluated by object recognition, anxiety levels by hole-board and elevated plus maze, and fear conditioning by passive avoidance tests. Following decapitation, brain malondialdehyde, glutathione, myeloperoxidase, and catalase, luminol and lucigenin chemiluminescence, neuronal damage was evaluated. The data was analyzed by one-way ANOVA.

Results: Increased anxiety levels in SED+PTSD were decreased in CMT+PTSD and HIIT+PTSD ($p<0.05-0.001$). Cognitive decline was alleviated in both PTSD-induced exercise groups ($p<0.05-0.01$). Luminol, lucigenin, myeloperoxidase, malondialdehyde levels and neuronal damage were increased in SED+PTSD, while the scores reversed in PTSD-induced exercise groups ($p<0.05-0.001$). The decreased glutathione and catalase were increased in both PTSD-induced exercise groups ($p<0.05-0.001$). The latency decreased in SED+PTSD ($p<0.05$). Neuronal damage was alleviated in both exercise groups.

Conclusions: PTSD-induced memory impairment was improved by both exercise protocols but mainly by HIIT via decreasing oxidative stress and anxiety levels.

OC09

The Effect of Citalopram and Thymoquinone on Reserpine-Induced Depression-Like Behaviors in Rats

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Aim: Depression; emotional, mental, behavioral, and somatic symptoms. The effects of citalopram and thymoquinone on depression-like behaviors in the study were investigated.

Methods: After approval of the Ethics Committee, Wistar-Albino rats were divided into 6 groups (n=6). Control1 (C1), Control2 (C2), Reserpine (R), Reserpine+Citalopram (R+C), Reserpine + Thymoquinone (R+T), Reserpine + Citalopram + Thymoquinone (R+C+T). Depression was done with ip 0.2 mg/kg/day Reserpine. For antidepressant effects, 10 mg/kg Thymoquinone and/or 10 mg/kg citalopram was given 30 minutes before Reserpine. Depressive/antidepressive effects were investigated by challenging swimming, tail suspension, nutrition and sucrose preference tests. Hippocampal dopamine, noradrenaline and serotonin levels were examined. Malondialdehyde, glutathione/total sulfhydryl groups (RSH), total nitric oxide (NOx), total antioxidant capacity (TAS) and total oxidant capacity (TOS) were measured in brain cortex and plasma. The results were compared to One Way Anova Tukey test. $p<0.05$ was considered significant.

Results: R+C, R+T and R+C+T groups showed antidepressant effects on behavioral test according to R group. Reserpine; increased malondialdehyde, NOx and TOS levels in brain tissue and plasma, and decreased glutathione/RSH and TAS levels ($p<0.05$). Citalopram and Thymoquinone brought these distorted values closer to control. Dopamine, noradrenaline and serotonin levels were the lowest in Reserpine and the highest in R+C+T, R+C and R+T groups, respectively ($p<0.05$).

Conclusions: Depression findings returned to normal with citalopram and thymoquinone therapy. The efficacy was determined as Citalopram+Thymoquinone, Citalopram and Thymoquinone, respectively.

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OC10

Spexin Distracts Fasted Myoelectric Activity Through Galanin-2 Receptors in Conscious Rats

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Aim: Spexin is an endogenous peptide hormone identified in submucosal layer of mouse stomach and esophagus in 2007. Although its expression in many central/peripheral tissues, there are very few studies associated with its physiological effects. The known effect of spexin in gastrointestinal tract is to increase fed motility. Aim of our study is to investigate possible role of galanin-2 and 5-HT3 receptors in effects of spexin on fasted motility.

Methods: Eighteen male Sprague-Dawley rats (250-300 g) were anesthetized with ketamine (100 mg/kg ip). Bipolar electrodes were implanted in jejunum of rats for migrating myoelectric complex (MMC) recording that formed source of motility pattern in the small intestine in fasting state, and catheter was inserted to left jugular vein. Spexin (320 µg/kg) was intravenously infused (1 ml/hour) following recording of baseline myoelectric activity for 60 minutes. Galanin-2 receptor antagonist M871 (0.5 mg/kg) or 5-HT3 receptor antagonist ondansetron (0.5 mg/kg) was administered intravenously 5 minutes before spexin infusion. For statistical analysis, one-way analysis of variance (ANOVA) was performed and Tukey-Kramer post-hoc test was used for multiple comparisons between groups. Our study was carried out with permission of OMÜ HADYK 2014/48.

Results: Induction of irregular spike activity of spexin was prevented by M871 ($p < 0.05$) but not ondansetron.

Conclusions: Our findings suggest that spexin changes jejunal myoelectric activity from fasted pattern to fed pattern through the galanin-2 receptors.

OC11

The Effect of Steroid Hormones on Cognitive Functions and Psychological Status in Healthy Women

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Aim: In this study, it is aimed to investigate the physiological and psychological effects of estrogen, progesterone and testosterone in women.

Methods: Following ethical commissioning, 22 healthy female volunteers aged 18-35 years were divided into three groups of follicular, ovulation and luteal according to menstrual cycles. Estrogen, progesterone and testosterone levels were determined in blood samples taken from volunteers. Depression (BECK), state anxiety (STAI1) and trait anxiety (STAI2) scales were administered to the volunteer as indicators of their psychological

status. The Selective Attention (SIGNAL), Continuous Attention (COG) and Binary Processing Skills (ICT) tests in the Vienna System were applied to determine the cognitive functions of the volunteers. Statistical analysis was calculated using the SPSS version 15.0 (SPSS Inc, USA).

Results: While estrogen was positively associated with SIGNAL, it was negatively associated with COG and IIB, estrogen was mildly depressed and positive with STAI2 but negative with STAI1. There is a negative correlation between progesterone and cognitive functions. Mild depression with progesterone and STAI1 positivity was negatively associated with STAI2. Testosterone was negative with SIGNAL and COG and positively correlated with IOP. Testosterone is negatively associated with depression and STAI1 and positive STAI2.

Conclusions: When all the data were evaluated, it was observed that sex hormones were effective on cognitive functions and emotional state.

OC12

Effects of Sleep Deprivation on Proprioception in Healthy Young Adults

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Aim: Sleep deprivation (SD) is a common condition. The effects of SD have been investigated. In this study, research of the effects of 24-hour SD on proprioception was aimed.

Methods: The approval is taken from Trakya University Ethics Committee. 21 healthy adolescent volunteers (M/F, 10/11; Mean age \pm SD, 22.0 \pm 1.9 year) were examined physically. They have no chronic illnesses and medications. They have healthy sleep according to Pittsburg Sleep Quality Index. Volunteers were subjected to 24-hour SD under sedentary conditions. Proprioception measurements were performed with angle reproduction and joint position matching tests on knee, elbow and shoulder joints at 0 hour (before SD), 24 hour (after SD) and 48 hour (after recovery sleep). The measurements of pre and post-SD were compared.

Results: On knee and elbow flexion-extension and shoulder internal rotation, proprioceptive impairment is seen after SD but improvement is seen after recovery sleep. For instance, angle reproduction test of knee at baseline and at the end of SD were 2.95 \pm 2.63° versus 5.43 \pm 3.18° ($p < 0.001$) which returned normal values after recovery sleep (2.71 \pm 1.82°, $p < 0.01$).

Conclusions: These findings show that 24-hour SD impaired proprioception in knee, elbow and shoulder joints as recovery sleep improved these impaired. The effects of SD on proprioception is first seen in this study.

OC13

Treatment of Experimental Rat Parkinson Model with Central Neuropeptide-S: Neuroprotective and Alleviative Features

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Aim: The present study was designed to test the alleviative and protective effects of central neuropeptide-S (NPS) treatment in rat experimental Parkinson's disease (PD) model.

Methods: In male Wistar rats, acute (alleviate; 10 nmol, icv, n=10) or chronic (protective; 1 nmol, icv for 7 days, n=10) NPS treatment was performed following central injection of 6-OHDA (n=10). Locomotor tests and nigral microdialysis for dopamine recovery were performed before and 7 days after 6-OHDA injection. The immunoreactivities for tyrosine hydroxylase (TH), NPS receptor (NPSR), 4-hydroxynonenal (4-HNE) and c-Fos were detected by immunohistochemistry in substantia nigra (SN) sections. Data were analyzed with ANOVA followed by Tukey posthoc test. Protocols were approved by the Animal Ethical Committee of Akdeniz University (B.30.2.AKD.0.05.07.00/103).

Results: The 6-OHDA-induced impairment in locomotor tests and decreased nigral dopamine release were improved ($p<0.05$), while the reduced number of TH-positive cells in SN was increased ($p<0.05$) only by chronic NPS treatment. Following chronic, but not acute NPS treatment, the increased immunoreactivity for 4-HNE was attenuated ($p<0.05$) in SN in which c-Fos expression was detected following NPS administration.

Conclusions: The present findings suggest the NPSR as a novel target for clinical treatment of PD.

OC14

Neuroprotective Effect of Thymoquinone through miR-204-3p in 6-Hydroxydopamine-Induced Parkinson Model

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Aim: Parkinson's disease (PD) is a common neurodegenerative disease characterized by the loss of dopaminergic neurons in the substantia nigra, corpus striatum. MicroRNAs (miRNAs) regulate post-transcriptional expression of mRNAs. miRNAs have important role in neurological diseases. In this study, we

investigated neuroprotective effect of Thymoquinone (TQ) expression profiles of miRNA in the 6-hydroxydopamine-induced Parkinson model (6-OHDA).

Methods: Male adult Wistar albino rats (200-230g, n=36) were used. The rats were randomly assigned into six groups: Groups consist of Sham, TQ (10mg/kg.p.o.), 6-OHDA, TQ (10mg/kg)+6-OHDA, TQ(20mg/kg) + 6-OHDA and TQ (50mg/kg) + 6-OHDA group. In 6-OHDA group: 4 µl 6-OHDA (5 µg/ml 6-OHDA %0,1 ascorbic acid, i.c.v) was injected bilaterally into the striatum (from Bregma AP=0 mm; ML±3.0 mm; DV=-5.0 mm). Open field and elevated plus maze tests were performed to evaluate the behaviour changes. Under anesthetized from rats striatum was removed. miRNAs analysis was performed by miRNA microarray and confirmed by real-time PCR. Rat striatums were stained with hematoxylin-eosin to determine the impact of dopaminergic lesion. One Way Anova followed by Bonferroni's post-hoc comparisons tests were used in statistical analyses ($p<0.05$).

Results: miR-204-3p upregulated in the 6-OHDA group while downregulated in the TQ (50 mg/kg)+6-OHDA group.

Conclusions: Neuroprotective effect of TQ (50 mg/kg) performs by downregulating miR-204-3p.

OC15

Depotentiation of Long-Term Potentiation is Associated With Epitope Specific Tau Hyper/Hypo Phosphorylation in the Hippocampus of Adult Rats

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Aim: It is well known that kinases and phosphatases which are involved in the induction of synaptic plasticity modulate tau phosphorylation. How depression of potentiated synaptic-strength contributes to tau phosphorylation is unclear because of the lack of experiments in which depotentiation of long-term potentiation (LTP).

Methods: In the study, field-excitatory postsynaptic potential (fEPSP) and population spike(PS) were recorded from the dentate gyrus in response to the perforant-pathway stimulation. To induce LTP, high-frequency stimulation (HFS) consisting of four trains of 100 pulses, 100-Hz (tetanization) was used, for depotentiation of LTP, low-frequency stimulation (900 pulses, 1-Hz) was applied after tetanization. In some experiments, neutral protocol (0,033Hz) was applied without induction.

Results: 1-Hz protocol was decreased fEPSP slope which was previously increased by HFS, whereas no significant change in fEPSP slope and PS amplitude was observed in neutral protocol experiments. Western-blot indicated that tau protein was hyperphosphorylated at ser416 epitope but rather hypophosphorylated at thr231 epitope in the hippocampus upon depotentiation of LTP. These changes occurred with increase in the levels of total-Tau and phosphorylated of the ERK1/2.

Conclusions: These findings indicate that forms of long-term plasticity might be related with epitope-specific tau phosphorylation and ERK1/2 activation in hippocampus. We emphasize that tau may be crucial for physiological learning.

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OC16

The Effect of Chia (*Salvia hispanica* L.) Seed in an Experimental Alzheimer's Disease Model

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Aim: Alzheimer's disease (AD) is a progressive and irreversible neurodegenerative disorder. Chia seeds have high nutritive values. The potential benefits of chia seeds in an aluminum chloride-induced experimental AD was investigated in this study. **Methods:** Intraperitoneal aluminum chloride+D-galactose (10 and 150 mg/kg/day) was administered for 21 days in Alzheimer, Pretreatment, and Treatment groups (each n=10) while saline in Control group (n=8). Chia seed [36.2% (w/w)] was blended in the chow of Pretreatment and Treatment groups, respectively during and after the disease induction. Animals were subjected to Morris' maze, open-field, elevated-plus maze, and forced-swim tests to evaluate learning&memory, depression- and anxiety-like behaviors (ethically approved #2017/4-1).

Results: AD disturbed learning&memory (p=0.01) and caused depression- (p<0.01) and anxiety-like (p=0.04) behaviors. Learning&memory was not affected in animals that consumed chia after the disease induction (p>0.05) but worsened in those that consumed during the induction (p=0.04). Chia was ineffective against anxiety-like behaviors (p>0.05). AD-related depressive behavior was improved with both pretreatment (p=0.03) and treatment (p=0.01).

Conclusions: Chia is a functional food with effects such as anti-inflammation, cardioprotection alongside its high nutritional value. Interestingly, this study demonstrated that chia may exacerbate the prognosis in AD. These results recommend careful and cautious consumption of chia in AD patients.

OC17

Effects of Chronic Modulation of Kiss1 Neurons on Catecholamine Levels in Experimental Alzheimer Disease's Model

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Aim: Kisspeptin is expressed in the brain (especially in the hypothalamus) and reported to have neuroprotective effects. We have investigated effects of kisspeptin on hippocampal catecholamine levels in experimental Alzheimer's Disease (AD) model.

Methods: AD model was induced by injection of Aβ1-42 into the Dentate Gyrus area in the female Kiss1-CreGFP mice. For pharmacogenetic manipulation of kisspeptin neurons, CRE-attached virus (AAV-Flex-hM3D (Gq) -mCherry / -hM3D (Gq)

-mCherry) was stereotactically injected into the hypothalamic arcuate nucleus. Morris Water Maze was used to evaluate AD model behavior. Clozapine-N-oxide (CNO) was injected to test animals for one month to induce chronic activation / inactivation of kisspeptin neurons. Brain microdialysis probe was used to collect cerebrospinal fluid from lateral ventricle. Seven samples were collected at 20 min intervals. Noradrenaline, dihydroxyphenylglycol, dopamine and dihydroxyphenyl acetic acid levels were determined by HPLC-ECD. Experimental procedure was approved by ethics committee.

Results: Latency to find the platform in the Aβ1-42 infused groups was significantly increased compared to the controls (p<0.05, One-way ANOVA). There was no significant change in catecholamine concentrations among groups.

Conclusions: A decrease and increase in dopamine levels were observed in the kisspeptin activation and inhibition groups, respectively, following CNO injection. Examination of kisspeptin on catecholaminergic neurotransmission in the AD model with increased numbers of mice is ongoing. This study was supported by TÜBİTAK (Project # 115S327)

OC18

Cytochrome C Oxidase Deficiency in Drosophila Dopaminergic Neurons Does Not Impair Locomotion

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Aim: Mitochondrial diseases are among the most common inherited disorders, and present with locomotion disabilities. Previously, pan-neuronal cytochrome c oxidase (COX) deficiency severely impaired locomotion abilities of adult fruit flies (*Drosophila melanogaster*). As dopaminergic neurons are affected in many locomotion disorders such as Parkinson's disease, in this study we rigorously tested whether COX deficiency in dopaminergic neurons alone affected locomotion.

Methods: We downregulated COX7a expression by expressing RNAi and Dcr-2 in targeted neurons using Gal4/UAS system. COX was downregulated in all (n=5), dopaminergic (n=28), serotonergic (n=28), or both dopaminergic and serotonergic (n=28) neurons. Dcr-2 alone was expressed in negative controls. All genotypes were subjected to negative geotaxis and lifespan assays. Statistical analyses were performed using SPSS 12 software.

Results: COX deficiency in dopaminergic, serotonergic, or dopaminergic and serotonergic neurons did not affect flies' locomotion abilities.

Conclusions: Our results show that dopaminergic and serotonergic neurons in *Drosophila* are not sensitive to COX deficiency with respect to their functions in locomotion. Further investigations are needed for understanding the basis of locomotion deficit in pan-neuronal COX deficiency.

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OC19

The Effect of Serotonin Receptor Antagonist NAN-190 on Penicillin-Induced Epileptiform Activity

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Aim: NAN-190 is a potent serotonin (5-HT_{1A}) receptor antagonist. The aim of the study is to investigate the effects of NAN-190 on the penicillin-induced epileptiform activity. **Methods:** In this study, 24 adult male Wistar rats weighing 210±30 g were used. Epileptiform activity was induced by injecting 500 IU Penicillin-G potassium (intracortically). NAN-190, at doses of 1, 5 and 10 mg/kg, (intraperitoneally) were applied 30 min after penicillin. Present study was approved by the local Ethical Committee (OMU HADYEK) and supported by OMU Project Office (PYO.TIP. 1904.17.018). One-way ANOVA and the post-hoc Tukey tests of SPSS were used for statistical analyzes.

Results: NAN-190, at the dose of 5 mg/kg, significantly increased the mean frequency of epileptiform activity between 120-180th min compared to control group (p<0.05) while other doses of NAN-190 did not affect it. NAN-190, at doses of 1, 5 and 10 mg/kg did not change the amplitude of the epileptiform activity.

Conclusion: In this study, intermediate dose of NAN-190 enhanced the frequency of penicillin induced epileptiform activity. Further studies are needed to elucidate the proconvulsant effect of NAN 190 on epileptic activity.

OC20

The Role of CRH2 Receptor Antagonist Astressin 2B in the Anticonvulsant Effect of Nesfatin-1 on Epileptiform Activity

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Aim: Astresin 2B is a CRH2 receptor antagonist that antagonizes the role of Nesfatin-1 in nutrient uptake. This study aimed to investigate the role of Astressin 2B in the anticonvulsant effect of Nesfatin-1 on epileptiform activity.

Methods: Total of 28 adult male Wistar rats were used in the study. Rats were anesthetized with urethane (1.25g / kg) and epileptic seizure was created with the injection of penicillin-G (500 IU, i.c.). Nesfatin-1 (i.c.v.) was administered at 50 pmol 30 minutes after a penicillin-G administration. CRH2 receptor antagonist Astressin 2B (30 µg, i.c.v.) was administered after 10 minutes was administration Nesfatin-1 (50 pmol, i.c.v.). **Results:** Nesfatin-1, significantly reduced the frequency of epileptic activity from the administrations of 50 pmol at 20 min and showed anticonvulsant activity (p<0.05). Astressin 2B alone had no effect on epileptic activity. Astressin 2B was decreased the frequency after 100 min without affecting the amplitude of epileptic activity after was administration Nesfatin-1 (p<0.05).

Conclusions: The anticonvulsant effect of Nesfatin-1 appears to be independent by Astressin 2B, unlike its role in nutrient uptake. To elucidate the precise mechanism of Nesfatin-1 in the epileptic activity, more advanced electrophysiologic and neurochemical studies are required. This study was supported by TUBITAK (315S173).

OC21

The Effects of Neonatal Caffeine Administration on Absence Epilepsy and Brain Tissue Membranes on Adult Wistar - Albino -Glaxo Rijswijk (Wag/ Rij) Rats

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Aim: There is evidence that neonatal caffeine treatment alters adenosinergic neuromodulation that may persists till adulthood. Few studies demonstrated that seizure susceptibility could be modified as a consequence of early caffeine treatment. In our study, we planned to investigate the effects of early caffeine administration on absence epilepsy and on the molecular profiles of cortical structures in WAG/Rij rats.

Methods: Caffeine treatment at a daily dose of 10 and/or 20 mg/kg were performed during postnatal day 7-11. Control rat pups received saline (1 mg/kg). In adulthood, electroencephalogram (EEG) recordings were made four hours. Then, the number and duration of SWDs (EEG seizure activity) were analyzed. In addition, structure and content of the neuronal membranes of prefrontal cortex were investigated by FTIR spectroscopy.

Results: Caffeine treatment resulted in less SWD than observed in control rats, while the mean duration of SWD increased compared to control rats. Declines in content of lipids and proteins in prefrontal cortical neuron membranes of caffeine-injected rat brain were observed.

Conclusion: From the our results, we conclude that neonatal caffeine administration is able to influence to the frequency of absence seizures in adulthood. The molecular organization of membrane lipids and proteins of cortical neurons was also affected.

OC22

The Effects of Neonatal Tactile Stimulation and Deep Touch Pressure on Absence Epilepsy and Comorbid Depression Like Behaviors in Adult Wistar-Albino-Glaxo Rijswijk (Wag/Rij) Rats

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Aim: The aim of our study was to investigate the effects of given tactile stimulation (TS) and deep touch pressure (DTP) during the critical period of development (as mimics maternal care) on depression like behaviors and EEG seizure activity in adult WAG/Rij rats.

Methods: Our study was approved by ethical committee of Kocaeli University (KOU HAYDEK 6 / 5-2016). WAG/Rij strain pups were randomly assigned to groups of TS(n=10), DTP(n=10), maternal separation(MS) (n=10) and control group(n=10). At postnatal 5 months, WAG/Rij rats in experimental and control groups were submitted to sucrose consumption test (SCT) and forced swimming test (FST) to evaluate depression-like symptoms. Number and duration of spike-wave discharges (SWDs) recorded with EEG. Results were evaluated by ANOVA and and post hoc Tukey test was applied.

Results: Neonatal TS and DTP significantly decreased the frequency and duration of SWDs in adult WAG/Rij rats (p<0,05). In the SCT, number of approaches were significantly higher in TS and DTP group (p<0,05). In the FST the immobility latency of TS and DTP group was significantly higher (p<0,05) and TS group showed significantly decreased immobility (p<0,05).

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Conclusions: Our results showed that given TS and DTP in early life are positive experiences to prevent absence epilepsy and comorbid depression in WAG/Rij rats.

OC23

The Effect of P2X7 Receptor Antagonist A-438079 On Absence Epilepsy Model of WAG/Rij Rats

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Aim: Absence epilepsy is non-convulsive epilepsy. ATP-sensitive P2X7 receptors are non-selective cation channels in the nervous system. A-438079 is a selective P2X7 receptor antagonist. In the present study, the effect of A-438079 on epileptic activity was investigated in absence epilepsy model of WAG/Rij rats.

Methods: 6-8 months aged, 21 male WAG/Rij rats were used in this study. Tripolar electrodes were placed on the animal's skulls. Basal electrocorticography (ECoG) recordings were taken, then the solvent (i.c.v.); 20 µg (i.c.v.) A-438079; 40 µg (i.c.v.) A-438079 were injected and ECoG recordings continued. The obtained data were evaluated using the Mann Withney U test followed by Bonferroni correction in SPSS15.0. The study was carried out with permission of OMU Animal Experiments Local Ethics Committee 2015/56.

Results: A-438079, at doses of 20 µg and 40 µg didn't affect the number and duration of seizures, spikes and amplitude compared to baseline ECoG recordings and solvent group ($p>0.05$).

Conclusions: Although A-438079 has anticonvulsive effect in acute epilepsy models, A-438079 was ineffective in absence epilepsy model. However, certain P2X7 antagonists were ineffective when administered alone but they showed anticonvulsive effect with other anticonvulsants such as carbamazepine in various epilepsy models. This work is supported by OMU BAP (PMO.TIP.1905.15.002).

OC24

Hypothalamic Apelin Regulates Autonomic Outflow through Inducing Cholecystokinin Release from Paraventricular Nucleus

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Aim: The aims of the present work were to test whether (i) the release of cholecystokinin (CCK) from hypothalamic paraventricular nucleus (PVN) is increased by centrally-administered or (ii) stress-induced upregulated apelin and (iii) apelin-induced hypothalamic CCK alters central autonomic signaling.

Methods: Using microdialysis, the release of CCK-8 from PVN was monitored in male Wistar rats received acute restraint stress (ARS) or intra-PVN administration of apelin-13 (30 nmol, $n=8$). Intra-PVN application of APJ receptor antagonist F13A (10 nmol, $n=8$) was performed to eliminate the apelin-induced effects. Central pretreatment of vehicle or CCK1 receptor

antagonist lorglumide (10 µg, icv, $n=4$) was performed in rats subsequently received chemical stimulation of PVN or ARS loading simultaneously with heart rate variability (HRV) recording. Protocols were approved by the Animal Ethical Committee of Akdeniz University (B.30.2.AKD.0.05.07.00/101).

Results: CCK-8 levels were increased significantly both by intra-PVN apelin-13 ($p<0.01$) and ARS loading ($p<0.05$). The ARS-induced elevation in CCK was reversed by intra-PVN preadministration of F13A. Both ARS and chemical stimulation of PVN resulted an increase in sympatho/vagal balance (LF:HF) which was attenuated by preadministration of lorglumide.

Conclusions: These data suggest that the interaction between apelin and CCK in hypothalamus contributes to the autonomic alterations of stress response.

OC25

Adult-Onset Hypothyroidism Promotes Metaplastic Inhibition of Long-term Potentiation in a Frequency-Specific Manner

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Aim: Metaplasticity, a higher-level form of synaptic plasticity, is a process that plays an important role in preserving the balance between LTP and LTD processes, and there is no study in literature on the change in metaplasticity responses in hypothyroidism. In this study, it was aimed to show changes in metaplastic responses in hypothyroid rats.

Methods: Two-months old Wistar albino male rats were used in study; control-group ($n=20$) and hypothyroid-group ($n=20$). Hypothyroidism was induced by administration of 0.05% 6-n-propyl-2-thiouracil (PTU) in drinking water for 21 days. Metaplastic responses were recorded under urethane anesthesia from dentate gyrus of rats in response to stimulation of perforant pathway. Two different low-frequency stimulation protocols (1-Hz, 900s and 5-Hz, 180s) were used before high-frequency stimulation (HFS:100-Hz, 4 times, 5 min intervals) to investigate the metaplasticity. Akt levels were analyzed by western-blot.

Results: Free-T4 levels were significantly reduced in hypothyroid rats (0.11 ± 0.05 ng/dL vs. 2.02 ± 0.23 ng/dL; $P<0.001$). Hypothyroidism caused metaplastic-LTP inhibition following 5-Hz LFS ($P<0.001$) but not 1-Hz compared with control rats ($P>0.05$). Hippocampal p-Akt levels were significantly decreased in hypothyroid group-using 5-Hz LFS compared to control-group ($P=0.039$).

Conclusions: This study demonstrates that hypothyroidism impairs metaplasticity and the reduction in p-Akt phosphorylation may mediate this disorder. This study was supported by Erciyes University Research Fund (TCD-2017-7696).

OC26

Examination of the Effects of Chronic Agomelatine Use on Pregnancy Time in Pre-pregnancy or in Different Periods of Pregnancy

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Aim: Agomelatine is an antidepressant with melatonergic receptor agonist and receptor 5-HT_{2C} antagonist effects. Agomelatine is in category B in pregnancy. We aimed to examine the changes of the pregnancy time in rats using agomelatine in different stages of pregnancy.

Methods: Wistar Albino female rats were used in each group. Pregnant rats; Pregnant rats with chronic agomelatine before pregnancy; Pregnant rats with chronic agomelatine before pregnancy and during pregnancy; Pregnant rats with chronic agomelatine before pregnancy and during the first 2 trimesters of pregnancy; Pregnant rats with agomelatine during the whole pregnancy from the beginning; Pregnant rats with agomelatine during the first 2 trimesters of pregnancy from the beginning.

Results: When all groups were compared with the first group, it was determined that the duration of pregnancy in the third group was significantly longer ($p<0.05$); and in the other groups it was prolonged but it was not significant. According to ELISA results, estrogen, progesterone and prostoglandin-E₂ levels in the third group decreased significantly ($p<0.05$); and oxytocin level in third group decreased but it was not significant.

Conclusions: Usage of agomelatine before and during pregnancy prolongs the duration of pregnancy in rats and decreases estrogen, progesterone, prostaglandin E₂ and oxytocin levels.

OC27

Examination of the Effect of Pregnancy on Serum Apelin Level, Breed, Gender and Body Condition Score

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Aim: The Apelin hormone secreted from adipose tissue has an important role in many physiological processes such as energy balance, immune and reproductive system, cardiovascular functions. In this study, gender, body condition score (VK) on serum apelin level in sheep was aimed to investigate the effect of pregnancy.

Methods: Following the approval of the Ethics Committee (02.07.2018-2018/6), the scope of the study was selected as the

pregnant and non-pregnant sheep, male sheep belonging to the races of Akkaraman Kangal and Morkaraman with VK 2, 3, 4 score. SPSS, repeated measures tests were used in statistical evaluation of the data.

Results: The average serum apelin levels belonging to the Morkaraman race were measured in VK2, VK3, VK4 respectively in pg/ml, 0422, 0231, 0349, and in the same race, 0342, 0471, 0336 and 0.432, 0.460, 0233 respectively. The average serum apelin levels in Kangal Akkaraman race are in pg/ml, VK2, VK3, VK4 respectively 0.192, 0.162, 0180; In the pregnant sheep, 0326, 0414, 0423 and male sheep, 0432, 0460, 0233 pg/mL has been identified as.

Conclusions: Serum Apelin level differs depending on race, VK, gestational conditions and this is statistically significant ($P\leq 0.05$), while the serum apelin level between Morkaraman male sheep is not observed when it is examined for gender. Statistically significant difference was found in the race of Akkaraman Kangal ($p<0.05$).

OC28

Can Rheumatoid Arthritis Generated in Rats Be Cured By Using Leptin Receptor Antibody (Obr-Ab)?

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Aim: Rheumatoid arthritis is a systemic, autoimmune disease. Leptin has similar effects with proinflammatory cytokines. Its increase is related with arthritis severity. However, impact of removing leptin effect to the disease is not known. In this study, we examined whether blocking the leptin receptors caused a therapeutic effect and if did not, how the progress of the disease would be affected.

Methods: Study was conducted on groups of mice. To generate arthritis, collagen antibody was used. Obr-Ab (4 µg/kg) was applied everyday until the end of study, from the day arthritis was stimulated to one group and from the day arthritis symptoms were observed to another group. Severity of arthritis was observed visually and histopathologically. Levels of plasma leptin and proinflammatory cytokines were measured. Findings: Blocking the leptin receptors by Obr-Ab didn't cause a significant change in visual and histopathological scoring and didn't make significant changes in plasma leptin and proinflammatory cytokines. However, a remarkable improvement in clinical scoring was observed.

Results & Conclusions: According to study, Obr-Ab didn't prevent progress of disease. However, data were acquired that it can decrease arthritis severity. This study was conducted with ethical board approval and was supported by TÜBİTAK (114S114).

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OC29

Investigation of the Effects of L-Carnitine on Age Related Learning Changes and the Regulation of Glutamate Levels by Behavioral and Molecular Methods

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Aim: The positive effects of L-carnitine (LCAR) on age-related learning and memory changes have been reported but the role of glutamate in this effect has not been totally clarified. The aim was to investigate the effect of L-carnitine on learning and memory changes in a physiologically aged rat model and the relationship between this effect and the regulation of glutamate level in the hippocampus.

Methods: 10-month-old 40 male Wistar rats were divided into two groups: Distilled water was administered to control group (K) and LCAR (50 mg/kg/day) was given to the other group for 7 months. Rats were subjected to active avoidance and object recognition tests. Levels of glutamate transporter proteins were evaluated by Western blotting. The data was analyzed with T-test.

Results: In both active avoidance and object recognition tests, "LCAR" group had higher learning and memory performance at a statistically significant level than "K" group ($p \leq 0.05$). Hippocampal levels of EAAT1, EAAT2, EAAT3 and VGLUT2 in "LCAR" group were significantly higher than "K" group ($p \leq 0.001$). There was no significant difference at the hippocampal level of VGLUT1 between the groups.

Conclusions: L-carnitine has positive effect on aging-associated cognitive disorders and this effect is related to hippocampal levels of glutamate (Project Number: TSA-2017-2884).

OC30

Investigation of Relation Between DNA Damage and Corneal and Retinal Parameters in Patients with Type 2 Diabetes Mellitus

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Aim: Data about DNA damage in Type 2 Diabetes Mellitus (DM) are inconsistent. While some studies demonstrated increased DNA damage, others reported no change. Present study aims to investigate relationship between DNA damage and corneal and retinal parameters in Type 2 DM.

Methods: 27 patients with Type 2 DM, 20 age-sex matched controls were included. DNA damage was analyzed by comet assay from venous blood. Corneal endothelium was assessed by

specular microscopy (SM). Optical coherence tomography (OCT) was used for retinal measurements. SM parameters as CD (cell count), CV (coefficient variation), HEX (hexagonality ratio), CT (corneal thickness); OCT parameters including macular volume (MV), central thickness (CeT), central volume (CeV), nasal (NT), temporal (TT), superior (ST), inferior (IT) foveal thicknesses were assessed. Mann-Whitney U and Spearman tests were performed. Ethics Committee approval was obtained (30/01/2018, 03).

Results: In diabetes group, DNA damage parameters as tail length (TL, 52.7 ± 14.2 vs. 42.7 ± 12.3 , $p=0.017$), tail intensity (TI, 18 ± 7.9 vs. 13.1 ± 10 , $p=0.034$), tail moment (TM, 5.8 ± 3.4 vs. 3.4 ± 3.7 , $p=0.007$) were higher than controls. Moderate-high negative correlations were found between TI vs. CeT and CeV, and TM vs. CeV.

Conclusions: Genotoxicity observed in Type 2 DM may yield retinal neurodegeneration. DNA damage did not affect corneal parameters.

OC31

Gastric Mucosal Damage Induced By Ethanol Can Be Improved By Caffeic Acid

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Aim: Antioxidant and anti-inflammatory properties of caffeic acid (CA) have been reported recently. In the study, anti-ulcerative effects of CA and the pathways involved in these effects were investigated.

Methods: Protocols were approved by local ethic committee. 60min before ulcer induction with intragastric ethanol, rats were treated with either vehicle or CA (100, 250, 500 mg/kg, per oral). To elucidate the action mechanism of CA 10 mg/kg L-NAME or 1 mg/kg atropine was administered 30min before most efficient dose (250 mg/kg) CA. Rats were decapitated 60min after ethanol administration. Stomach samples were scored macroscopically and analyzed for myeloperoxidase, malondialdehyde, and glutathione levels. ANOVA test was used.

Results: Macroscopic damage scores, malondialdehyde and myeloperoxidase levels were increased while glutathione levels decreased ($p < 0.01-0.001$) with ethanol administration. Treatment with 250 mg/kg-CA reduced macroscopic scores ($p < 0.05$) and malondialdehyde levels ($p < 0.05$). Both 250 and 500 mg/kg-CA decreased myeloperoxidase activity replenished the glutathione ($p < 0.05$, $p < 0.01$, respectively). Atropine ($p < 0.05$) and L-NAME ($p < 0.001$) injections increased macroscopic scores. Atropine elevated the reduced malondialdehyde levels ($p < 0.05$) with CA treatment and L-NAME increased myeloperoxidase ($p < 0.05$) and depleted glutathione ($p < 0.05$).

Conclusions: Results show that CA ameliorates the ethanol-induced gastric mucosal damage and CA may display these effects via NO and/or cholinergic pathway.

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OC32

Ferulic Acid Has Ameliorative Effects on Inflammation and Tissue Damage Induced by Acute Pancreatitis

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Aim: Acute pancreatitis is characterized by the hyperactivation of digestion enzymes and releasing of the proinflammatory cytokines. Ferulic acid (FA) is an antioxidant hydroxycinnamic acid derivative. The antiinflammatory effects of FA was investigated on pancreatico-biliary duct ligation (PBDL) induced pancreatitis.

Methods: Wistar albino rats were used. In a group sham operation is performed and in other group PBDL is administered. Some of the PBDL group was given intragastric saline or 250 mg/kg FA or 500 mg/kg FA 30 minutes before operation and along 3 consecutive days. Blood samples are obtained at 24th, 48th, 72nd hours. At 72nd hour all rats were decapitated. Collected pancreas, lung and liver samples were scored microscopically and analyzed for myeloperoxidase activity, malondialdehyde and glutathione levels, serum tumor necrosis factor (TNF)- α , liver and pancreatic enzymes. ANOVA with were used for statistical analysis.

Results: FA treatment reduced myeloperoxidase activity and prevented the depletion of glutathione in all tissues. Malondialdehyde levels were reduced in liver and serum TNF- α , amylase, lipase, alkaline phosphatase, alanine aminotransferase, aspartate aminotransferase, and total bilirubin levels decreased with both FA treatments. Additionally, FA ameliorated microscopic damage in pancreas and liver significantly.

Conclusions: Our results showed that FA has anti-inflammatory effects in acute pancreatitis.

OC33

Protective and Ameliorative Effects of Gilaburu (*Viburnum opulus* L.) Fruit Extract on Acetic Acid-Induced Colitis in Rats

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Aim: This study aimed to investigate the effects of gilaburu (*Viburnum opulus* L.,GB) fruit extract in a rat model of acetic acid (AA)-induced ulcerative colitis.

Methods: Forty Sprague-Dawley rats of both sexes were used in this study. Starting immediately after or 1 week before the colitis induction, the rats were treated with GB (100 mg/kg/d;p.o.) for 3 days following the colitis induction. The control and AA groups received saline (1ml;p.o.), whereas another group received sulfasalazine (positive control, 100 mg/kg/d;p.o.) for 3 days.

Colonic samples were taken for the biochemical assessments on the 3rd day.

Results: High damage score, elevated tissue wet weight, tissue myeloperoxidase activity, malondialdehyde, 8-hydroxy-2'-deoxyguanosine (8-OHdG), caspase-3, cytokine (tumor necrosis factor-alpha, interleukin (IL)-1beta, IL-6,-8), transforming growth factor-beta1, smad-3, matrix metalloproteinase (MMP)-9 levels and chemiluminescence values, and a pronounced decrease in antioxidant glutathione levels of the AA group were all reversed by GB treatments (p<0.05-0.001). 8-OHdG, IL-8 and MMP-9 levels were not changed by sulfasalazine treatment.

Conclusions: Gilaburu exerts both the antioxidant and anti-inflammatory effects against AA-induced colonic inflammation by suppressing neutrophil accumulation, inhibiting reactive oxidant generation and apoptosis, preserving endogenous glutathione, improving oxidative DNA damage and regulating inflammatory mediators, suggesting a future potential role in the treatment and prevention of ulcerative colitis. This work was supported by Marmara University Research Fund (SAG-C-YLP-200318-0099).

OC34

The Role of Cholecystokinin in the Gastroprotective Effect of Apelin Against to Ischemia/Reperfusion-Induced Injury

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Aim: Apelin is a peptide that known to increase secretion of cholecystokinin (CCK) that shows gastroprotective effects by stimulating CCKA-receptor on sensory nerves. The aim of the study was to demonstrate role of CCK in gastroprotective effect of apelin on ischemia/reperfusion (I/R)-injury.

Methods: Experimental groups (n=12 in each one) formed with adult male Wistar rats (Ethics Committee of Akdeniz University for Animal Care and Use-Protocol No:2014.12.08): 1)Control; 2)I/R; 3)Apelin+I/R; 4)Capsaicin+Apelin+I/R and 5)Lorglumide+Apelin+I/R. The injury was induced by clamping celiac artery for ischemia (30min) and removing of clamp for reperfusion (3h). Apelin-13 (2 mg/kg) and CCKA-receptor antagonist lorglumide (5 mg/kg) were administered before I/R. Capsaicin (125 mg/kg) was administrated for ablation of sensory nerves. In statistical evaluations, Kruskal-Wallis and Mann-Whitney U tests were used.

Results: In the I/R group, mucosal blood flow (p<0.01), PGE2 (p<0.05) and CGRP (p<0.05) were decreased; lesion index (p<0.001), MPO (p<0.05), lipid peroxidation (p<0.01) and plasma CCK (p<0.001) were increased. Apelin prevented I/R-injury and it increased CCK (p<0.05) and cfos (p<0.05) in dorsal motor nucleus and nucleus tractus solitarius. Capsaicin or lorglumide abolished the apelin's effects.

Conclusions: Capsaicin-sensitive sensory fibers activation via CCK may play role in gastroprotective effect of apelin (Akdeniz University, Scientific Research Project No:TDK-2015-593).

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OC35

Comparison of Three Common Stress Models Used in Rodents: Distinct Effects on Sympatho-Vagal Balance and Gastric Motor Functions

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Aim: Using three common stress models, this study was designed to elucidate stress-induced changes in sympatho-vagal balance and their consequences on gastric motor function.

Methods: Apart from the non-stressed (NS, n=6) group, solid gastric emptying (GE) was measured in male Wistar rats loaded with restraint stress (RS, n=6), cold-restraint stress (CRS, n=6) or water avoidance stress (WAS, n=6). Gastric motility and heart rate variability (HRV) were analyzed before and after each stressor. The ratio between low and high frequency components (LF:HF) of HRV was used assessed for sympatho-vagal balance. Data were analyzed with Kruskal Wallis followed by Mann Whitney-U test. Protocols were approved by the Animal Ethical Committee of Akdeniz University (B.30.2.AKD.0.05.07.00/88).

Results: Compared to NS rats, GE and gastric motor pattern were disturbed in all stress groups, while it was observed more prominent ($p<0.01$) in RS-loaded rats. RS and CRS loading resulted 3- and 2-fold increases in LF:HF, respectively, whereas WAS was found to be effective to a lesser degree.

Conclusions: The present data reveal that all three stressors alter sympatho-vagal balance which in turn resulted in gastric dysmotility, however, RS appears to be more suitable for the rodent studies focused on gastrointestinal motor dysfunction.

OC36

Evaluation of JAM-A (rs790056) and LFA-1 (rs8058823) Variants in Colorectal Cancer

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Aim: The aim of the present study was to evaluate the effects of junctional adhesion molecule-A (JAM-A) and an integrin group protein leukocyte function associated antigen-1 (LFA-1) containing the JAM-A binding region variants on the formation of colorectal cancer and metastasis.

Methods: 82 colorectal cancer and 67 control cases were included in the study (Ethics Committee No: 2016/675). DNA was isolated from blood samples and quantitative analyzes were performed. JAM-A and LFA-1 genotypes were determined using the Polymerase chain reaction (PCR)-Restriction fragment length polymorphism (RFLP) method. Genotypes were evaluated by Chi-square test and $p < 0.05$ was considered statistically significant.

Results: No significant difference was found in control and patient groups in the LFA-1 rs8058823 A/G variation ($p>0.05$). JAM-A rs790056 mutant CC genotype and mutant C allele in

colorectal cancer group were found higher than the control group ($p<0.05$). The risk of colorectal cancer increased about 3-fold with CC genotype ($p = 0.029$, OR:3.125, 95% CI: 1.1-8.86). The JAM-A and LFA-1 genotypes of 31 metastatic colorectal cancer patients were compared with 51 non-metastatic colorectal cancer patients and the control group and no significant difference was found ($p>0.05$).

Conclusions: JAM-A rs790056 variation might be effective in the formation of colorectal cancer.

OC37

Effect of Angiotensin II Protein Kinase C in Diabetic Rat Vascular Smooth Muscle Cells

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Aim: Protein Kinase C (PKC) is an enzyme involved in signal transduction that regulates vascular function and is reported to cause proliferation, migration and angiogenesis in vascular smooth muscle cell (VSMC). The effects of angiotensinII (AngII) and angiotensinII type1 receptor (ATR1) antagonist (olmesartan) on proliferation and PKC in healthy and diabetic rat VSMC were investigated.

Methods: This study was conducted in accordance with the decision of Cukurova University Animal Experiments Local Ethics Committee and was supported by BAP Fund. Wistar albino male rats were used. Diabetes was induced with streptozotocin in rats. Primary VSMC was cultured from thoracic aorta of healthy and diabetic rats. AngII 0.1 μ M and olmesartan 1 μ M were administered to VSMC and proliferation was assessed by MTT. PKC level was measured by ELISA from cell lysate. Data were analyzed by one-way ANOVA.

Results: AngII 0.1 μ M increased proliferation significantly in normal and diabetic VSMC($p=0.000$). There was a tendency to decrease proliferation by AngII+olmesartan treatment in diabetic VSMC ($p=0.000$), while it decreased AngII+olmesartan proliferation in normal VSMC by AngII($p=0.081$), ($n=6-12$). Comparing normal and diabetic groups, PKC level in diabetic group was lower than control group($n=4$).

Conclusions: According to our study, it can be argued that role of AngII in proliferating PKC pathway in diabetic VSMC. Olmesartan may also be thought to be protective against vascular injury due to its tendency to reduce proliferation in diabetic VSMC and PKC levels.

OC38

The Role of Serum Estradiol and Myocardial Estrogen Receptors and Antioxidant System on Ischemia Reperfusion Induced Arrhythmia Due to Ageing in Female Rats

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Aim: There is contradictory information in the literature about the factors responsible for increasing the risk of acute myocardial infarctions in women after menopause. Therefore, it was aimed to research the role of estrogen and antioxidant enzymes on the ischemia-reperfusion-induced arrhythmias.

Methods: Myocardial ischemia and reperfusion were produced in 37 female rats at different ages. The arrhythmias and blood pressure during ischemia and reperfusion were recorded. Blood and ventricular myocardium tissue samples were taken from 19 female rats and used in the biochemical analysis. In myocardial tissue extracts, estradiol alpha (E α) and estradiol beta (E β) receptors, catalase and superoxide dismutase and in serum samples, 17 β estradiol level was measured by ELISA. The results were compared by using one-way analysis of variances (ANOVA).

Results: The incidence and duration of ventricular arrhythmia increased in increasing age (P<0,05). The level of serum 17 β estradiol was not affected by aging. The levels of myocardial E α and E β receptors significantly decreased in the oldest group. The activities of antioxidant enzymes were also decreased in the oldest group.

Conclusions: The results of this study indicate that decreased E α and E β receptors and antioxidant enzyme activities might be responsible for increasing arrhythmias in old age.

OC39

Does Fluoxetine Reduce Positive Inotropic Effect of Heart?

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Aim: Fluoxetine is an SSRI(selective serotonin reuptake inhibitor) antidepressant agent, often used to treat major depression, postoperative depression, sometimes obsessive compulsive disorder, bulimia. Fluoxetine helps many people recover from depression, it is known to have fewer unwanted effects than older antidepressants. The aim of present study is to investigate effect of fluoxetine on human atrium contraction.

Methods: Human atrium tissues (n=17) were taken from patients who underwent coronary bypass surgery. The patients' ages were

between 45 to 72. All tissues were placed in organ baths containing Krebs solution, thermoregulated at 37°C, aerated (95% O₂ and 5% CO₂). Changes in isometric tensions were recorded using a four channel force displacement transducer. All tissues washed for 3 hours in order to diminish the effects of anaesthetic agents. Adrenaline(10-1M) was administered in tissue cabs to induce isometric contractions. Contraction with measurements were used as contraction parameters. Cumulative fluoxetine (0.01 mM, 0.1mM, 1mM, 2mM) doses were added in organ baths. The contractions were recorded accordingly. Friedman Kruskal Wallis tests were used for statistical evaluation.

Results & Conclusions: Inhibition of contractions was statistically significant by last two doses of fluoxetine (1mM, 2mM) (p<0.05). Results of study showed fluoxetine may cause negative inotropic effects at certain high doses on atrium muscle. Further studies are needed to clarify mechanism of effect of fluoxetine. These results suggest that fluoxetine may have beneficial effects on treatment of cardiovascular diseases.

OC40

Evaluation of Clinical Data and Analysis of Metabolomics Change between ST Elevation Myocardial Infarction (STEMI) and Non-ST Elevation Myocardial Infarction (NSTEMI)

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Aim: Acute Coronary Syndrome (ACS) is clinical case due to disorder in myocardial blood flow. In ACS, full blockage based ST elevation myocardial infarction (STEMI) and partial blockage based non-ST elevation myocardial infarction (NSTEMI) is developed in coronary artery. In this study, it is aimed to determine the metabolic changes between STEMI and NSTEMI with untargeted metabolomics study.

Methods: Study has been approved by the ethics committee of the medical faculty of Atatürk University. Serum samples of 20 STEMI ve 20 NSTEMI patients who treated in cardiology clinic were collected. Aliquots were extracted by acetonitrile and then analyzed via LC/Q-TOF/MS/MS that have Dual AJSESI ion mode and acetonitrile-water mobile phase mixture. Data acquisition, classification and identification were achieved by METLIN database, MATLAB 2017a-PLS Toolbox7.2 and HMDB, respectively.

Results: 203 m/z ratio were analyzed and 163 m/z ratio were filtered whose fold analysis results were higher than 1.5 (p<0.01). In accordance with the identified metabolites, D,L-valine, glycine, leucine, D,L-isoleucine, L-cysteine, succinic acid, urea ve creatinine level were observed to be relatively lower in NSTEMI with respect to STEMI.

Conclusions: Identified metabolites could be potential biomarker for separating STEMI and NSTEMI diseases. These are good sign for differences of TCA cycle and amino acid metabolism.

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OC41

Protective Effect of Edaravone on Doxorubicin-Induced Cardiotoxicity in Rats

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Aim: Doxorubicin is an antineoplastic drug that is widely used in chemotherapy but its cardiotoxicity is the most important side effect that limits the clinical use of this drug. We investigated doxorubicin treatment and the effects of edaravone on heart.

Methods: Animal Ethics Committee of Gazi Osman Paşa University (2018-HADYEK-08) approved all procedures. 28 adult male Wistar-Albino rats were randomly separated into four groups; namely control; doxorubicin; edaravone, edaravone+doxorubicin groups. Cardiotoxicity in rats was induced by doxorubicin injection (cumulative dose:18 mg/kg, intraperitoneal-i.p.) at an interval of 24 hours (h) on the 5th, 6th and 7th days. Rats receiving edaravone treatment in the doxorubicin group received edaravone (30 mg/kg/day, i.p.) for 7 days and were injected with doxorubicin(18 mg/kg, i.p.) on 5th, 6th and 7th days. On the 8th day electrocardiography (ECG) and biochemical parameters were assessed.

Results:Multiple comparisons were performed using one-way ANOVA followed by Tukey post hoc test.Doxorubicin induction caused changes in the ECG pattern, increased ST-segment amplitude, R-R interval and and QT interval, decreased P wave, QRS Complex and R wave amplitude ($p<0.05$), increase in the serum levels of cardiac injury markers (creatin kinase, BUN, CardiacTroponin T), ($p<0.05$).Edaravone treatment prevented all the parameters of DOX-induced cardiotoxicity in rats, ($p<0.05$).

Conclusions: Our data demonstrate that edaravone has cardioprotective effects on DOX-induced cardiotoxicity.

OC42

The Effect of 20-HETE on Vascular Tone on Resistance and Conduit Type Arteries of Trained Rats

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Aim: Regular physical activities affect vascular tone through many vasoactive substances at rest condition. Depending on exercise, the effect of vasoconstrictor eicosanoid 20-HETE to changes in vasoreactivity is unknown. We aimed to investigate the effect of 20-HETE on vascular tone and its possible contribution to blood pressure in trained rats.

Methods: Wistar rats were subject to swimming-exercise for 8 weeks. Blood pressure was measured from carotid artery. The direct effect of 20-HETE on vascular tone in thoracic aorta and gastrocnemius resistance arteries and its contribution to the effects of various vasoconstrictors were evaluated in organ-bath and myograph. 20-HETE levels and expression of 20-HETE-producing-enzyme CYP4A were measured in vessels.

Results: As a result of exercise, the contribution of 20-HETE on regulation of blood pressure was reduced ($p<0.01$). 20-HETE's contribution to vascular tone was decreased both directly ($p<0.001$) and caused to decrease responses to various vasoconstrictive agents in gastrocnemius vessels, this effect was

not observed in aorta. CYP4A expression and 20-HETE production were decreased in gastrocnemius vessels ($p<0.05$). **Conclusions:** Depending on exercise, the effect of 20-HETE on regulation of blood pressure and its vasoconstrictive contribution to vascular tone in gastrocnemius vessels are decreased, and these effects are associated with decrease of CYP4A protein. This study was supported by BAP (TDK-2015-311) and TUBITAK (115S001).

OC43

Evaluation of Physical Fitness and Isokinetic Test Parameters of Athletic Individuals with Amputation

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Aim: The functional condition and activities of daily living are negatively affected in the amputation. In this study, we aimed to determine the physiological effects of sports on amputation.

Methods: Our study was approved by the Istanbul University Regional Ethics Committee. 36 amputee football players' (mean age = 29.25 ± 6.3 years) body fat measurement, one-leg balance assessment, isokinetic trunk muscle strength measurement, respiratory function test and metabolic measurements were evaluated.

Results: The body fat percentage was 10.54 ± 4.9 , flexor isokinetic trunk muscle strength at the velocity of $60^\circ/\text{sec}$ is 275.09 ± 58.4 , extensor isokinetic trunk muscle strength at the velocity of $60^\circ/\text{sec}$ is 234.6 ± 51.8 , flexor isokinetic trunk muscle strength at the velocity of $90^\circ/\text{sec}$ is 271.43 ± 54.14 , extensor isokinetic trunk muscle strength at the velocity of $90^\circ/\text{sec}$ is 206.29 ± 56.8 , one-leg balance values overall 0.87 ± 0.28 , anterior-posterior stability index 0.57 ± 0.25 , medial-lateral stability index 0.52 ± 0.21 , FEV1 % 98.2 ± 12.13 , FVC % 92.63 ± 12.13 , FEV1/FVC 108.4 ± 7.2 . Athletes' resting heart rate(HR) $79.37 \pm 15.26/\text{min}$, maximum HR $166.15 \pm 25.3/\text{min}$, recovery HR $107.3 \pm 19.13/\text{min}$, targeted % HR 86 ± 11.86 , VO2max $30.96 \pm 11.05 \text{ ml/kg/min}$.

Conclusions: In this study, amputee football players' body composition, aerobic and anaerobic capacities and muscle power parameters were investigated extensively. There is a need for studies that have a higher number of participants.

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OC44

Physical Activity, Waist / Hip Ratio and Blood Parameters in Patients with Type 2 Diabetes

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Aim: It was observed that blood sugar levels of physically active diabetics were better regulated. It was proposed that there might be a relationship between physical activity and diabetes. The study investigated the effect of physical activity on blood sugar regulation in diabetics.

Methods: The hundred Patients of Ömer Halisdemir Training Hospital, who have been diagnosed with diabetes for one to five years, and do not use insulin, were included in this study, following the ethical approval. Physical activity levels were recorded by face-to-face interviews; their total metabolic equivalents (MET-minutes/week) were determined and fasting blood glucose (FBG) and HbA1c levels were examined. Statistical analyses were performed using Kolmogorov Smirnov, one way variance analysis,

Results: Individuals with sufficient activity had lower FBG and HbA1c values than less active individuals ($p < 0.05$). Based on the waist - hip ratios, the values of FBG and HbA1c of the individuals in the risk group were higher than the values of the individuals in the risk free group ($p < 0.01$).

Conclusions: The patients with higher MET had significantly lower FBG and HbA1c than the others, suggesting that physical activity is important for individuals with type 2 diabetes. The study was supported by Erciyes University (TYL-2017-2441).

OC45

Effect of Moderate to Moderate Lower or Upper Extremity Resistance Exercises on Lung Function and Quality of Life in Asthmatic Patients

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Aim: Symptoms such as shortness of breath, cough, sputum, etc. in asthmatic patients are affecting their daily lives negatively. We aimed to investigate the effects of moderate to moderate lower or upper extremity resistance exercises on pulmonary function and quality life for an average of 15-20 min.

Methods: Total 10 subjects asthma 6 volunteers. Mean age, height, weight and body mass index individuals 50.20 ± 8.69 , 1.64 ± 0.08 , 78.10 ± 19.50 and 28.88 ± 7.04 , respectively. Home exercise program was given for 1-3 sets a day, at least 3 days a week for 3 months. Pre- and post-respiratory function tests and SGRQ was done.

Results: p values before and after exercise showed mean and standard deviation (FEV1: $p = 0.09$, 2.88 ± 0.45 , FVC: $p = 0.10$, 7.16 ± 1.00 MEF: $p = 0.10$, 6.29 ± 0.90 MEF75: $p = 1.00$, 4.14 ± 0.31 MEF50: $p = 0.71$, 1.70 ± 0.16 MEF25-75: $p = 0.06$, 3.49 ± 0.21). Pre-exercise breathing questionnaire score ($p = 0.05$, 36.10 ± 3.78).

Conclusions: Exercises lung functions did not make any significant difference they were found to contribute positively quality life.

OC46

Comparison of Fat Oxidations Determined in Fat Max Intensity in Athletes and Sedentary Individuals

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Aim: Metabolic responses of sedentary individuals and recreational athletes' at highest fat oxidation intensity (Fatmax) was compared

Methods: Eleven sedentary (22.7 ± 0.6 years, BMI 25.6 ± 0.9 kg/m²) and 13 recreational athletes (21.9 ± 0.6 years, BMI 23.7 ± 0.6 kg/m²) participated in this study. Local ethical committee approval was taken. Metabolic responses were measured using indirect calorimetry and incremental exercise tests were performed on the treadmill. Normality of data was checked and independent t-test or Mann-Whitney U tests were used according to data distribution. Data were given as mean \pm SEM.

Results: There were no differences in fat oxidation, heart rate, respiratory coefficient (RQ), oxygen uptake and % fat, % carbohydrate contribution to energy production in the fatmax intensity between groups. Significant differences were found only at peak oxygen uptake ($p < 0.001$) and walking speeds ($p < 0.01$) at which fatmax was obtained.

Conclusions: Although the athletes have higher $\dot{V}O_{2\max}$ values, at higher speeds they have similar fat oxidation levels as the sedentary individuals. Even though it was expected from athletes to oxidize higher levels of fat due to their increased aerobic capacity, the result of athletes might point out insufficient adaptation of one or more steps in fat oxidation pathway.

OC47

A New Human-Machine Interface: Using Hall Effect Sensor to Control Prosthetic Fingers

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Aim: Almost all commercially available mechatronic prostheses are controlled by electromyography signals. However, more robust methods are needed to control the mechatronic hand prosthesis. We propose a new method that has not been tried before to control prosthetic fingers, Hall effect sensor.

Methods: Cylindrical neodymium magnets were placed on the model parts representing the tendon of the muscles controlling the fingers of the model hand made from the wooden according to the anatomical characteristics of the human hand. Hall effect sensors were placed on the layer representing the sensor part of the hand prosthesis we placed on the model hand, on top of the magnets placed on the model tendons on each fingertip. Voltage build up along a conductor in the magnetic field (Hall voltage) is called Hall effect. Hall voltage was used to control 5 separate servo motors that controlled the prosthetic hand fingers after being processed in the Atmega32u4 microcontroller.

Results: The method we proposed provided a perfect link between the model and the prosthesis hand and provided more precise control.

Conclusion: As much as we know, the study we propose is the first study in the literature.

OC48

Predictive Value of CC16 For Respiratory Prognosis in Occupational Gas Exposure

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Aim: Even after the cessation of exposure to chemicals, occupational respiratory disease's symptoms may not improve. Therefore, researches for predictive biomarkers are necessary. CC16 is a respiratory epithelial permeability marker. We aimed to evaluate predictive value of CC16 level for occupational exposure related respiratory diseases.

Methods: Study was conducted in an armed vehicle manufacturing plant. 43 volunteer's (31-60 age, male) respiratory parameters were followed up for two years. CC16, TNF α , hippuric acid and phenol levels determined. By using STAT/Statistic program causative relations were examined by linear regression analysis. Difference between 2016 and 2018 parameters analysed by Wilcoxon signed rank test. Project was approved by Institutional Clinical Researches Ethics Committee of Ankara University.

Results: Volunteers divided into three groups; low, normal and high CC16 level. Within the follow up period while only FEV1 and MEF25-75 (p=0,0001) values were significantly decreased in low and normal CC16 level groups, in high CC16 level group PEF (p=0,019) values decreased too. Our results didn't reveal any causative relation between CC16 levels and chemical exposure.

Conclusions: Main outcome of this study indicates that significant respiratory function changes should be expected in chemical exposed workers. Also, high CC16 levels might predict worsening of respiratory functions.

OC49

Effects of Carvacrol on Erythrocyte Deformability in Lower Extremity Ischemia Reperfusion Induced Rats

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Aim: Carvacrol has anti-oxidant, anti-inflammatory, anti-apoptotic effects. For this reason we desired to research the effects of carvacrol on rats with lower extremity ischemia.

Methods: After approval of the Ethics Committee, 18 Wistar Albino rats were used which weighs 200-250 g. They were randomly divided into 3 groups. (Control, ischemia and reperfusion (IR)), ischemia and reperfusion with 100 mg/kg carvacrol (IR-Car). Aorta was clamped from infrarenal portion in IR groups. 60 minutes of ischemia and 60 minutes of reperfusion applied. Deformability measurements were performed using erythrocyte suspensions with 5 % hematocrit in phosphate buffered saline buffer. A constant flow filtrometer was used to measure erythrocyte deformability and relative resistance was calculated. Kruskal-Wallis test was used in independent groups. Mann-Whitney U test was used when differences occurred.

Results: It was found that IR raises the relative resistance compared to control group (p<0.001). Erythrocyte deformability

index was found dramatically high in IR and IR-Car groups (p<0.001, p=0.02, respectively) Erythrocyte deformability index was significantly low after using carvacrol (p=0.017)

Conclusions: We managed to find that using carvacrol partially repairs the disrupted erythrocyte deformability. We believe that if supported with new researches, carvacrol's protective effects on IR could be shown more detailly and it is usage indications will be expanded.

OC50

Effects of Rho/Rho kinase Inhibition on Erythrocyte eNOS Enzyme Activity

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Aim: Erythrocytes constitutently produce NO(nitric oxide) under basal conditions and contribute to NO pool in the vascular system which has important roles on physiological blood flow regulation. One of the regulator of endothelial NO production is Rho kinase (ROCK) enzyme. It is not known whether this pathway has an impact of NO production in erythrocytes. The aim of this study was to investigate the possible role of Rho/ROCK pathway on NO production in erythrocytes.

Methods: Erythrocyte packed were isolated from healthy volunteers and re-suspended in Hepes solution at a hematocrit of 0.01 l/l Sampling protocols were approved by local ethical committees (24.02.2016/150). Intracellular NO and Ca+2 levels and endothelial nitric oxide synthase(eNOS) activation measured by flow cytometry in response to ROCK inhibitor, fasudil, in the absence and presence of NOS and PI3K/AKT inhibitors. Student-t test was used for evaluating the results. Statistical significance was p<0.05.

Results: Fasudil increased intracellular NO and eNOS inhibition reduced this response (p<0.05;p<0.05). Fasudil also enhanced Ca+2 and phosphorylated eNOS (peNOS) levels (p<0.01; p<0.05). However PI3K inhibitor has no effect on intracellular NO and peNOS.

Conclusions: The result of the study clearly demonstrated that inhibition of Rho/ROCK pathway enhanced NO production in erythrocytes via both intracellular Ca+2 and eNOS phosphorylation increment. This study supported by TUBITAK (project no:116S271)

SS51

Effects of Ascorbic Acid on The Kidney in an Experimental Endotoxemia Model

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Aim: Renin-angiotensin system (RAS) has an important role in physiologic and pathologic conditions. This study investigated the effects of ascorbic acid (AA) on RAS in the experimental endotoxemia model induced by lipopolysaccharide (LPS) administration.

Methods: Twenty-four male Wistar rats were divided into four groups: Control, LPS (2 mg/kg, intravenous (iv)), LPS+AA (100 mg/kg AA, iv, one hour after LPS administration), AA (100

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mg/kg, iv). Mean arterial pressure (MAP) was measured. Renin, angiotensin (Ang)II, connexin (Cx) 40 and Cx43 levels were determined in blood and kidney samples. Statistical significance was calculated by one-way and two-way ANOVA followed by either Tukey's or Bonferroni's tests. This study was approved by I.U. Local Committee on Animal Research Ethics.

Results: MAP decreased in LPS group, but AA administration did not change MAP. In LPS group, renin ($p<0.001$) and AngII ($p<0.001$) increased, but Cx40 and Cx43 were similar to the control. In LPS+AA group, renin ($p<0.001$; $p<0.01$) and AngII ($p<0.001$; $p<0.01$) decreased, but Cx40 and Cx43 did not change in plasma and tissues compared to LPS group.

Conclusions: These results indicated that AA did not affect on MAP decreased with LPS, but has a role on RAS. This work was supported by I.U. Scientific Research Projects Coordination Unit. Project number: 43412.

SS52

Effects of Nootpept on Eye and Kidney in Prepubertal Rats with Streptozotocin-induced Diabetes

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Aim: Chronic complications of diabetes mellitus (DM) include retinopathy and nephropathy. Puberty is risky in DM. Nootpept has been shown to have anti-diabetic properties. We investigated the effects of noopept on eye and kidney in prepubertal DM rats.

Method: With Inonu University DHEK permission; 28 days-old, 60 male Sprague Dawley rats were divided into 6 groups randomly. i) Control, ii) DM Control, iii) Nootpept Control, iv) DM+Nootpept, v) DM+Insulin, vi) DM+Insulin+Nootpept. On postnatal day 28, diabetes was induced by 50 mg/kg streptozotocin. Intraperitoneal 0.5 mg/kg noopept, 1 unit insulin was administered for 14 days in required groups. Eye and kidney tissues were histologically evaluated. Mann-Whitney U test was used in data evaluation, $p<0.0001$ was considered statistically significant.

Results: Retina and cornea of eye were evaluated. Deterioration, increased thickness and vascular congestion in retina, vacuolisation, vascular congestion, edema and deterioration in epithelium of cornea were determined in diabetic groups. Hemorrhage, vacuolysis, cell infiltration, spillage in tubular epithelium, glomerular disorder, tubular casts and necrosis were determined in kidneys of diabetics. Disorders of eye and kidney were reduced in treated groups, particularly in noopept&insulin co-administered group.

Conclusion: Nootpept has preventive effect on diabetic eye and kidney. This study was supported by TÜBİTAK (215S629).

SS53

Teratogenic Effects of Exposure to Radiofrequency-Electromagnetic Field on Histopathological and on Hippocampal Levels of MAPKs on Rats Brain

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Aim: The aim of study was to investigate the effects of 2450MHz radiofrequency-electromagnetic field exposure on histopathological changes of brain tissue in female rats and on hippocampal levels of MAPKs(Mitogen-activated protein kinase) proteins in male rats.

Methods: 12 Wistar Albino female and 4 male rats were used in this study. They were divided into a control and three exposure groups including a male and three female rats. Exposure groups were exposed by 2450MHz EMF. 1st were exposed male but not female rats. 2nd were exposed both male and female rats. 3th were exposed female but not male rat. Exposing time was 12 hours for 30 days. At the end of 30 days all groups were fertilized. The brain of female rats were took 10% formaldehyde for histopathological evaluation. The hippocampal protein levels of male rats were measured using Western Blotting. Non-parametric t-test was used to compare groups. P-value <0.05 was considered significant.

Results: There were significant difference between the control and exposure groups in pERK level ($p<0,05$). Females exposed to EMF had irregular cortex-cellular placement and vascular dilatation in the 1st and 2nd groups compared to the control.

Conclusion: These results demonstrate that increased expression of pERK after exposed EMF may leads to learning and memory deficit. EMF may cause damage to the adult brain. Acknowledgments: ERUBAP Project #: TCD-2017-7275.

OC54

Neuroprotective Effects of Sirt2 Inhibition In Aging

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Aim: The aim of this study was to investigate the effect of sirt2 inhibitor salermide on oxidative stress & apoptosis in aging brain.

Methods: Twenty four male Wistar rats (young: 3 months old, aged: 22 months old) were divided into following groups: Young-Control (n=6), Young-Salermide (n=6), Aged-Control (n=6), Aged-Salermide (n=6). Intraperitoneal injections of control (4% DMSO-PBS) and salermide (1mM salermide; 25 µl/100g bw) groups were maintained for 21 days. Sirt2, FoxO3a, Bcl-2, Bax and Bim expressions in cerebral cortex and hippocampus were tested by Western blotting. Sirt2 and FoxO3a protein levels were measured by a sandwich ELISA method. The ratio of total oxidant status to total antioxidant status, i.e. the oxidative stress index, was also calculated. ANOVA, LSD, Pearson's r were used for statistical analysis ($p<0.05$).

Results: Aging increased sirt2, FoxO3a and oxidative stress index, and decreased Bcl-2, Bcl-2/Bax ratio and antioxidant capacity in cortex and hippocampus. Bim in cortex and Bax in hippocampus increased with aging. Salermide administration in aged rats suppressed FoxO3a, oxidative stress and apoptosis as well as sirt2 ($p<0.05$).

Conclusions: Sirt2 inhibition may protect the aging brain against oxidative damage and neural loss. GÜ-BAP (01/2016-05) and TÜBİTAK (216S258) provided the financial support for this study

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Poster Communications

PC001

Effects of Melatonin on Matrix Metalloproteinases (MMP), Tissue Inhibitors of Matrix Metalloproteinases and Inflammatory Parameters in Sepsis-Induced Rats

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Aim: We investigated the effects of melatonin on Matrix Metalloproteinases (MMP), inhibitors and inflammatory parameters in liver tissue with Lipopolysaccharide (LPS)-induced sepsis.

Methods: The study was approved by Istanbul University Local Ethics Committee for Animal Experiments. Male Wistar albino rats (n=24) were divided into control, LPS, Melatonin, Melatonin + LPS (M + L). Melatonin (10 mg/kg i.p.) was administered 30 min before, 2nd and 4th hours later from LPS (10 mg/kg i.p.). Stained with TNF- α , IL-10, MMP-2, MMP-9, TIMP-1, YKL-40, MPO antibodies of sections were immunohistochemically evaluated. For each, one score was assigned according to the intensity of staining, with negative equal to 1 point; weak, 2 points; moderate, 3 points; and intensely staining, 4 points.

Results: There were no stainings TNF- α , IL-10, MMP-2, MMP-9, TIMP-1, YKL-40, MPO in both of the control and melatonin. In the LPS, there were intensely densities TIMP-1, IL-10, YKL-40 and MPO, but TNF- α , MMP-2 and MMP-9 were weak stained. Moderate densities of TIMP-1, IL-10, MMP-2, MMP-9 were observed in the M + L.

Conclusions: Melatonin was to decrease the destruction and increased anti-inflammatory activity of MMP on septic rats. Acknowledgement: Our study was granted from Istanbul University Research Projects (Projects No: 25047).

PC002

The Effect of Sepsis on the Lung Tissue; the Role of Agomelatin

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Aim: The effect of lipopolysaccharide (LPS)-induced sepsis on the lung tissue and the role of agomelatin (synthetic melatonin extract) were investigated in this study.

Methods: Twenty four female Wistar Albino rats were randomly divided into 3 groups. Groups were designed as a Control, lipopolysaccharide and LPS+Agomelatin (Ago). An equivalent volume saline solution of Ago and LPS were applied to the

control group. A single dose of LPS (5 mg/kg LPS, i.p.) and LPS + Ago group [(5 mg/kg, LPS, i.p.)+(20 mg/kg Agomelatin, oral)] was administered as a single dose. Animals were sacrificed 6 hours after LPS administration and lung tissue was taken for histopathological and immunohistochemical examinations. ANOVA and post hoc bonferroni test were used as statistical analysis.

Results: Histopathological analysis showed that hyperemia, significant neutrophil infiltration, septal wall thickening and edema, inflammation and alveolar macrophages were significantly increased in the LPS group compared to the control group (p<0.05). Histopathological findings in LPS+Ago group were found to be significantly decreased compared to LPS group (p<0.05). Immunohistochemical analysis revealed that Caspase-8, Haptoglobin, IL-4, IL-10 and SIRT-1 reactivities were significantly increased in the LPS group compared to the control group (p<0.001). The reactivity of these markers was significantly decreased in the LPS+Ago group compared to the LPS group (p<0.001).

Conclusions: Agomelatin improved histopathological and inflammatory responses by LPS induced sepsis model. Agomelatin may be used of additional treatment option in patients with sepsis.

PC003

The Effect of Citalopram and Thymoquinone on Oxidative Stress in the Testicular Tissue of Depressive Rats

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Aim: Depression is an important source of stress and stress has adverse effects on the reproductive system. In the study, the effects of citalopram and thymoquinone on oxidant stress were investigated in the testis of depressed rats.

Methods: Sixty-six Wistar-Albino rats were divided into six groups in the study. Control 1 (C1), Control 2 (C2), Reserpine (R), Reserpine + Citalopram (R+C), Reserpine + Thymoquinone (R+T), Reserpine + Citalopram + Thymoquinone (R+C+T). To induce depression, rats received intraperitoneal 0.2 mg/kg Reserpine for 14 days. 10 mg/kg Thymoquinone and 10 mg/kg citalopram were given by oral gavage 30 minutes before reserpine injection as antioxidant. Malondialdehyde (MDA), glutathione (GSH), and total nitric oxide (NOx) were observed in the testis tissue. At the end of the 14th day, the rats were sacrificed by decapitation under anesthesia with intra muscular (IM) pump (5 mg/kg)+ketamine (45 mg/kg). The results were compared to One Way Anova Tukey test. Those with p<0.05 were considered significant. Ethics Committee approval was obtained with code number G.Ü.ET-16.02 before the study.

Results: Increase in tissue MDA and NOx levels and decrease in GSH levels in group R (p<0.05). Citalopram and Thymoquinone approximated these deteriorated values to their control values (p<0.05). The most pronounced changes were seen in R+C+T, R+C and R+T groups, respectively.

Conclusions: Reserpine-induced depression in rats increased oxidative stress in testicular tissue, resulting in decreased antioxidant protection. Citalopram and thymoquinone alone or in combination reduced oxidative stress, the most pronounced effect being recorded in the co-treatment of Citalopram + thymoquinone.

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PC004

The Effects of Resveratrol on Oxidative Stress in Testicular Tissue of Diabetic Rats

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Aim: Oxidative stress play important role in emergence complications associated with diabetes. Resveratrol, biologically active compound, have anti-oxidant, antiinflammatory, cardioprotective, anti-cancer, neuro-protective effects. We investigated antioxidant, oxidant effects of resveratrol on diabetic rats testis.

Methods: Wistar-albino rats were divided 4 groups. 1. Control 2. Resveratrol 3. Diabetes 4. Diabetes+Resveratrol. Diabetes was constituted by intraperitoneal 65 mg/kg Streptozotocin dissolved in 0.1M (pH:4,5) sitrat buffer. Single dose citrate buffer were administered to control and resveratrol groups intraperitoneally. Two weeks after streptozotocin administration, rats have 250 mg/dl fasting blood glucose level were considered diabetes. 10 mg/kg/day Resveratrol administered by oral gavage during 8 weeks. Control group were administered 0.1M ethanol in equalduration. Rats were anaesthetized with Rompun+ketamine (50+60-100 mg/kg) and sacrificed by draw blood from cardia. Oxidant (Malondialdehit/MDA), antioxidant (Glutatyon/GSH) parameters were studied on testis. OneWay Anova and Tukey tests were used to analyze. P<0.05 was considered significantly.

Results: Diabetes decreased levels of GSH while increasing levels of MDA in testicular tissue. Decrease in increasing MDA levels (p <0.01) and increase in decreasing GSH levels (p <0.01) were observed with resveratrol application. There was no significant difference between control and resveratrol group.

Conclusions: Our findings indicate that resveratrol have antioxidant effects on oxidative damage triggering by diabetes in testis.

PC005

The Effect of R547, A Cyclin Dependent Kinase Inhibitor, on Hepatocellular Carcinoma Cell Death

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Aim: Hepatocellular carcinoma is derived from hepatocytes, 3rd of cancer related death. Cyclin- dependent kinases regulate the cell cycle and check points (1, 2). we aimed to determine the effect of R547, on the growth and apoptosis of Hep G2 and H4IIE, derived from human and rat,

Methods: Exposed to 0,1, 1, 10, 50, 100 µM for 24,48 hours, We determined survival rate with MTT assay, apoptosis with flow cytometry, statistical significance by one way anova and Tukey's tests. Cisplatin was positive control.

Results & Conclusions: At 0,1, 1, 10, 50, 100 µM doses of R547, Hep G2 cells were 101, 94, 93, 89 % 79 (p<0.001), for 24 hours; 92, 101, 53,6 (p<0.01), 47.4 (p<0.001), 41 (p<0.001) for

48 hours %. At the same doses, H-4-IIE were 90, 80 (p<0.01), 63 (p<0.001), 47 (p<0.001) 43 (p<0.001) % .96, 85 (p<0.01), 46 (p<0.001), 44 (p<0.001) 45 (p<0.01) %, for 48 hours. R547 wasn't affect Hep G2 for 24 hours, flow cytometry experiments were continued with H4IIE cells. Early apoptotic H-4-IIE cells were 38 and 45 (p<0.05 for both) % after applications of 10 and 25 µM R547 for 24 hours (control: 4,1%). R547, inhibits growth and has apoptotic effect on H-4-IIE cells for 24 hours.

PC006

Determination of in Vitro Cytotoxic Activity of new Chalcone-Phosphazene Compounds Bearing Indole and Imidazole Hetero Groups as Side Groups on A2780 and PC-3 Cancer Cell Lines

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Aim: Phosphazene compounds which are composed of phosphorus nitrogen atoms and exhibited some biological properties such as anti-tumor, antibacterial, antimicrobial, depending on the substituent groups.

Methods: In this work, new chalcone-phosphazene compounds bearing indole and imidazole hetero groups as side groups were obtained in the third steps. 1-1-(4-Hydroxyphenyl) 3- (1-methyl-1H-imidazole-2-yl) prop-2-en-1-one (AF-1) and 1- (4-Hydroxyphenyl)- 3- (1H-indole-5-yl) prop-2-en-1-one (AF-2) compounds were obtained from the reaction of hydroxyacetophenone (AF) with indole and imidazole carboxyaldehydes in a similar way to the literature, respectively [2]. 2- AF-1 and AF-2 are reacted with hexachloro-cyclotriphosphazene (HCCP), which are the phosphazene compounds HCP-1 and HCP-2 were synthesized. These compounds were characterized using NMR spectroscopy methods. 3- The possible anti-tumour effects of the newly synthesized substituted HCP-1 and HCP-2 compounds (1, 5, 25, 50 and 100µM concentrations) on ovarian (A2780) and prostate cancer (PC-3) cell lines were determined by MTT Assay. The compounds HCP-1 and HCP-2 were found to be effective against both cancer cell lines (p<0.05). Especially, the viability of PC-3 and A2780 cell lines reduced at 50 and 100 µM doses of HCP-1 and HCP-2 (p<0.05).

Results & Conclusions: Indicate that these new phosphazenes have cytotoxic activity on A2780 and PC-3 cancer cell lines. This work was supported by the Inonu University Research Foundation (Project no: TCD-2017-675).

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PC007

Increased Systemic Genotoxicity in Patients with Pterygium

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Aim: Pterygium is a common benign proliferative ocular surface disease. Local factors, mainly ultraviolet exposure, are thought to cause pterygium. However, relation between pathogenesis and systemic genotoxicity and oxidative stress parameters [total oxidant/antioxidant status (TOS/TAS), oxidative stress index (OSI)] has not been investigated yet. Present study aims to assess systemic DNA damage and oxidative stress parameters in patients with pterygium.

Methods: 19 patients with pterygium and age-sex matched healthy controls (59,7±12,1 vs. 56,6±13,2 years, p=0.397; Female/Male: 8/11 vs. 13/10, p=0.536) were included into the study. DNA damage was assessed by comet analysis from venous blood. TOS/TAS were measured by a commercial kit, OSI was calculated. Mann-Whitney U test was used for statistical analysis and ethics committee approval was obtained (June 2018/13).

Results: In patients with pterygium, DNA damage parameters as tail length (55.17±13.07 vs. 38.22±15.09, p=0.001), tail density (22.87±14.72 vs. 12.03±9.40, p=0.003), tail moment (6.58±5.21 vs. 2.99±3.59, p=0.001) were higher than controls. Moreover, TAS (1.02±0.22 vs. 0.87±0.29, p=0.033) and TOS (14.74±5.49 vs. 10.70±5.64, p=0.011) were also higher in patients with pterygium.

Conclusions: Although pterygium pathogenesis is suggested to be associated with local factors, this study points out increased systemic genotoxicity and oxidative stress load in patients with pterygium.

PC008

The Effects of Stress and Serotonin System on TH Cell Activity

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Aim: Stress, has varying effects on the immune system. Serotonin has important effects on both the stress response and the immune system. The aim of this study was to investigate the role of serotonin in the effects of acute stress on T helper cell activity.

Methods: 54 rats allocated into groups; Control (C), Methiothepin (M), Ondansetron (O), Acute stress (AS), AS+M, AS+O. After the completion of cold-immobilization stress protocol rats were exsanguinated, whole blood count recorded, plasma serotonin, IL-6, IL-17 and IL-25 levels were determined. Our data evaluated with non-parametric multiple comparison tests by using STAT/Statistic program. Project was approved by Local Ethics Committee for Animal Experiments of Gazi University.

Results: While acute stress significantly decreased leukocyte count (p=0.02) and IL-17 (p=0.002), IL-6 and IL-25 levels were not changed. Both ondansetron and methiothepin lowered IL-17

levels (p<0.05), but only methiothepin effected IL-17 levels under acute stress (p=0.01).

Conclusion: The decrease in leukocyte counts shows that stress protocol effected immune system. The return of IL-17 levels to the control levels by methiothepin suggests that the serotonergic system uses 5HT-1A, 5HT-1B and / or 5HT-7 receptors for the suppression of Th17 activity under acute stress.

PC009

Can Adropin and Preptin be a Prognostic Marker and a Potential Therapeutic Target in Prostate Cancer?

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Aim: Prostate Cancer(PCa) is the second most common cancer; and is the sixth most common cause of cancer-related mortality among men worldwide. It was claimed that obesity plays a role in the pathogenesis of PCa through different biological mechanisms including sex hormone secretion, adipokine signaling, and oxidative stress. In the present study, the relation between Adropin (ADR) and Preptin Hormones, which contribute to nutritional-behavior, metabolism and inflammation-processes, was investigated.

Methods: The present study was performed on venous blood samples taken from 30-patients who had no chronic drug after being diagnosed with PCa. Biochemical routine parameters; Prostate-Specific-Antigen (PSA), which is a PCa marker, and ADR and Preptin Hormones were measured from the blood. The comparative analyzes were performed by One-Way-Analysis of Variance and the Student-T-test (SPSS-20-Package-Program).

Results: The most important findings of the study were that while the PSA increased in cancer cases (p<0.001), ADR (p<0.001) accompanied this increase and the Preptin (p<0.001) levels decreased. In addition, total and direct bilirubin, C-reactive-protein, Glucose, Hemoglobin-A1C, Lactate-dehydrogenase, Gamma-glutamyl-transferase, Alkaline-phosphatase, Aspartate-amino-transferase, Gamma-glutamyl-transferase, Alanine-aminotransferase, Uric-acid, Creatinine and Internal-normalized-tissue levels were increased at a statistically significant level in cancer cases.

Conclusion: We believe that the Adropin and Preptin hormones, which are investigated firstly in PCa cases, may be used as a new biomarker in such cases.

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PC010

Can Insulin-Like Protein-3 and Adropin be a New Marker in Hepatocellular Carcinoma?

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Aim: Hepatocellular Carcinoma (liver cancer-HCC) is the sixth most common cancer type; and is the second leading cause of cancer-related mortality. It is estimated to be responsible for approximately 700.000 deaths worldwide on an annual scale. In the present study, the relation between hepatocellular carcinoma and Insulin-Like-Protein-3 (INSL3) and Adropin (ADR) peptides whose expressions were determined in various areas in the liver was investigated for the first time.

Method: This study was performed with venous blood samples of 30 patients who were diagnosed with HCC cancer, who did not have chronic drug use. Routine biochemical parameters of and the Alpha-Fetoprotein (AFP) and INSL3 and ADR levels, which is a marker used in HCC diagnosis, were measured in the study groups. The comparative analyzes were performed by using the One-Way-Analysis of Variance and Student-T-test (SPSS20 Package Program).

Results: The most important findings obtained in the present study were the increase in the AFP in cancer cases ($p<0.001$) accompanied by ADR increase ($p<0.005$) and the decrease in INSL3 ($p<0.001$) level.

Conclusions: It was determined that the levels of INSL3 and ADR Hormones, which were studied for the first time in HCC patients, decreased. We believe that these two hormones may be used as a new marker in HCC cases.

PC011

Can ADRP Hormone be a New Marker in Breast Cancer?

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Aim: Breast cancer is the most common invasive cancer diagnosed in women; and is associated with the risk factors like breast cancer, advancing age and obesity. The majority of lipid that is produced during lactation is released into the milk by encapsulation of the Cytoplasmic-Lipid-Droplets (CLD). The

protein associated with adipocyte-differentiation(ADRP) was determined that it played a key role during lactation. Proteomic studies showed that ADRP played an important role in the formation of CLD in the mammary gland.

Methods: This study was performed with the venous blood samples of 30 patients who had no chronic drug use after being diagnosed with breast cancer. The routine biochemical parameters of the groups and CA15-3 and ADRP levels, which are breast cancer tumor markers, were measured. The comparative analyzes were performed by One-Way-Analysis of Variance and Student-T-test. $P<0.05$ was considered to be significant (SPSS20 Package Program).

Results: The most important findings obtained in the study were a significant increase in CA15-3, which is a breast cancer tumor marker, and the ADRP levels at a statistically significant level when compared with healthy individuals ($p<0.001$, $p<0.05$, respectively).

Conclusions: It has been determined that the ADRP hormone, which is evaluated for the first time in breast cancer, is increased in breast cancer patients.

PC012

25-hydroxyvitamin D Levels in Non-Small Cell Lung Cancer Patients

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Aim: 25-hydroxyvitamin D [25 (OH) D] is the major circulating form and determinant of vitamin D which participates in critical cell functions such as cell proliferation, apoptosis, differentiation, metastasis, and angiogenesis. In this study, it is aimed to investigate 25 (OH) D levels in non-small cell lung cancer (NSCLC) patients.

Methods: Datas of stage II-IV 27 NSCLC patients were reviewed retrospectively. Patients were divided into two groups as 25 (OH) D levels ≤ 10 ng/ml and >10 ng/ml. Chi-square test was used in statistical analysis.

Results: Mean age was 59,3 years. All patients were deficient in vitamin D. There was no statistically significant relationship between 25 (OH) D levels and stage of disease or age. Also vitamin B12 levels and neutrophil lymphocyte ratio of patients were evaluated. There was no statistically significant relationship between these factors and stage of disease and age too.

Conclusions: In literature, there are conflicting results about the relationship between vitamin D and the incidence and prognosis of lung cancer. In this study, it was noted that all patients had vitamin D deficiency even though there was no relationship between 25(OH) D levels and stage of NSCLC at the time of diagnosis.

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PC013

Maternal Separation Alters Neuropeptide-S Production and Autonomic Outflow in Brain: The Alterations throughout Chronic Homotypic Stress

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Aim: Using experimental rodent IBS model, this study was designed to investigate the alterations in autonomic outflow and neuropeptide-S (NPS) production throughout chronic stress.

Methods: For irritable bowel syndrome (IBS) model, newborn Wistar pups underwent maternal separation (MS, n=12) from postnatal day-2 to day-14. At adulthood, males received chronic homotypic stress (CHS, n=12) comprised of 90-min restraint stress for 5 consecutive days. Throughout CHS, the alterations in NPS production were monitored by microdialysis from basolateral amygdala and immunohistochemistry in brainstem sections, while heart rate variability (HRV) was recorded daily. Data were analyzed with ANOVA followed by Tukey posthoc test. Protocols were approved by the Animal Ethical Committee of Akdeniz University (B.30.2.AKD.0.05.07.00/88).

Results: In control rats (n=12), NPS production exhibited a remarkable ($p<0.05$) increase on the day-1 which was restored to basal levels on day-5. In contrast, in MS rats, although NPS production was slightly higher on day-1, a noticeable ($p<0.05$) decrease was observed on day-5. In control rats, stress-induced increases in sympatho-vagal balance (LF:HF) were attenuated ($p<0.05$), whereas in MS rats, it remained higher throughout CHS.

Conclusions: The present data suggest that alterations in NPS production in brain may indicate and/or contribute to autonomic dysfunction underlying the pathogenesis of IBS.

PC014

The Effect of Agomelatine on Neurogenesis in Depressive Rats

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Aim: New drugs are still being produced for the treatment of depression. Despite all medications, depression is still an important health problem. In this study, "It is aimed to demonstrate the effect of agomelatine on neurogenesis in depressive rats".

Methods: Forty Wistar albino male rats (10-12 weeks old) were used by separating 4 groups: ((Control (CONT), Control-Agomelatine (CONT-AGO), Depression (DEP), Depression-Agomelatine (DEP-AGO)). Based on the method developed by Porsolt, depression model was constructed and this group was administered with saline for 15 days. After the depression model was established, DEP-AGO group rats were administered agomelatine (10mg/kg/day) for 15 days (gavage). All groups were

subjected to the sucrose preference test. Y-Maze test was performed to evaluate cognitive functions. Sections of the brain hippocampal region were taken and neurogenesis was demonstrated by evaluating nestin immunoreactivity intensity.

Results: The one-way ANOVA followed LSD test showed that the sucrose preference, Y-Maze test and nestin immunoreactivity were significantly decreased in DEP group compared to CONT group ($p<0.05$). When DEP group and DEP+AGO group were evaluated in terms of sucrose preference, DEP+AGO group significantly increased compared to DEP group ($p<0.05$).

Conclusions: Depression reduces cognitive functions and neurogenesis. Agomelatine improves these effects of depression. This study was supported by Erciyes University Research Fund (TTU-2016-6430).

PC015

Effect of Acute Swimming Performance on Behavior and Cognitive Functions in Depressive Female and Male Rats

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Aim: The positive effects of exercise on behavior and cognitive functions in depression are known, contradictory results are found about sex-related differences. The aim of the study was to investigate the effect of one-time acute swimming performance (ASP) on behavior and cognitive functions in female and male rats.

Methods: Wistar Albino sixty rats were used. Female and male rats were divided; control, depression and (ASP) after depression groups. Depression was subjected to Porsolt swimming test. One-time ASP was applied to rats until exhaustion behaviors were observed. The behavioral parameters in open field area (OFA) and spatial learning behaviors in the y-maze were obtained in all the rats.

Results: In the OFA, both male and female rats had increased locomotor activity in depression group compared to control group ($p<0.05$) and reached control value in ASP after depression. These changes are not different in terms of gender. The duration and the number of alternations on the target arm in the Y-maze were reduced in the depression group, no significant difference was found in gender.

Conclusions: The ASP positively affected depression-induced changes in behavior and cognitive function, but did not differ in terms of gender. This study was supported by Erciyes University (TOA-2015-5368).

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PC016

The Effect of Acute Caffeine Application on Anxiety-Like Behaviors of BALB / c and C57BL / 6 Mice

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Aim: Effect of caffeine on anxiety-like behaviors was assessed in elevated plus maze (EPM) test on two different strain. Our hypothesis was identified as “effect of caffeine on anxiety-like behaviors in hereditary different strain is different”.

Methods: In our study, adult Balb/c and C57BL/6 mice (N=33) were used at 8-10weeks of age. Mice were administered with caffeine at dose of 50 mg/kg (0.1mL/kg body weight) and the same volume of saline intraperitoneally to control-group. Mice were subjected to EPM test 30 minutes after injection. Behaviors of mice were recorded by video-camera for 5 minutes and scored manually. A two-way analysis of variance (ANOVA) was used for statistical-analysis of data. The data that did not conform to assumptions of normality and homogeneity of variances were tested using the Kruskal–Wallis followed by post-hoc comparisons using the Mann–Whitney U. Ethical approval was obtained from ethics committee of Cukurova University.

Results: In Balb/cmice, 50mg/kg dose of caffeine caused increase in the time spent in open-arm and decrease in the time spent in closed-arm ($p<0.05$). In C57BL/6 mice, caffeine did not change behavioral measures in EPM. In EPM, in C57BL/6control-mice were decrease in the time of enter latency to open-arm of EPM compared to Balb/c control-mice ($p<0.05$). Number of total arm entries were increase in C57BL/6control-mice compared to Balb/c control-mice ($p<0.05$).

Conclusions: In Balb/cmice with higher anxiety-like behaviors, caffeine reduced anxiety-like behavior at dose of 50 mg/kg. Caffeine did not alter anxiety-like behaviors in C57BL/6 mice with low anxiety-like behavior.

PC017

Damage Mechanisms in Rat Brain for JWH-018 from New Synthetic Cannabinoids

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Aim: The effects of synthetic cannabinoids were investigated after chronic administration of JWH-018 and relation to oxidative stress, apoptosis and PI3K/ACT/mTOR signal pathway in drug dependence on brain tissue in rats.

Methods: After approved by local ethic committee 16 adult wistar albino rats were divided into two groups as follows: control group and JWH-018 group (0,3 mg/kg /i.p). Blood

pressure, body temperature and heart rate were measured. Behavioral tests were applied. Statistical analysis was performed using the Mann Whitney U method with the SPSS 15.0 program. Routine HE, NOS, TUNEL, PI3K, ACT and mTOR immunohistochemistry were performed and values of $p<0.05$ were considered significant.

Results: All behavioral tests showed differences but not significant. Histological evaluation was consistent with moderate ischemia, enlargement of the capillaries, edema, cell degeneration and structural disorders were observed. Significant increase of oxidative stress marker with eNOS and apoptotic cells marked with TUNEL were observed. A significant decrease in PI3K/ACT/mTOR immunostaining was observed with H-score ($p<0.05$).

Conclusions: We conclude that JWH-018 as a new cannabinoid is capable of producing a moderate ischemia in the brain and cause oxidative stress and apoptosis with inhibition of PI3K/AKT/mTOR pathway where these mechanisms could be useful in the study of drug dependence damage.

PC018

The Effect of Chronic Administration of the Synthetic Cannabinoids, a Psychoactive Agent on Some Physiological Parameters in Rats

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Aim: Synthetic cannabinoids are synthetic new generation psychoactive substances. In this study, it was aimed to investigate the effects of synthetic cannabinoids JWH-018 on hemodynamics and behavior after chronic administration in rats.

Methods: After ethic committee approved healthy adult wistar male rats were divided into two study groups, Group I (control) received solvent only, and Group II (chronic drug) was given JWH-18 containing diluent (ip, in solvent, as 0,3 mg/kg, 14 days). After administration, weight, blood pressure, heart rate and body temperature were recorded. "Open Field Test (OFT)" and "Elevated Plus Maze Test (EPT)" were used in order to evaluate the behavioral changes. Statistical analysis was performed using the Mann Whitney U method with the SPSS 15.0 program.

Results: In our study, we observed that chronic injection increased pulse rate without altering blood pressure. While body temperature was decreased, locomotor activity was found to be increased in OFT. When anxiety indicators were evaluated that time spent in the center was decreased, and the in the peripherally was increased; whilst in EPT time spent on the arms was prolonged, in the center was diminished.

Conclusions: The result of further elaboration of our study with more animals and abstinence studies could be important in solving the problem of substance abuse.

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PC019

Investigation of the Effect of Capari (*Capparis spinosa*) in Sciatic Nerve Regeneration

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Aim: Sciatic nerve injury provides a practical experimental model in neuroregeneration research, although it's a relatively uncommon type of peripheral nerve injury. The effects of caper (*capparis spinosa*) on neuroregeneration was investigated in the present study.

Methods: Study was approved by the ethics committee of the Mustafa Kemal University (2017/1-4). Forty adult Wistar albino rats were assigned to Control, Sham, Injury and Treatment groups (n=10 for each). A crush injury was generated 1 cm proximal to the left sciatic nerve bifurcation in relevant groups. The treatment group received 500 mg/kg, p.o. caper extract for 6 weeks. Following the injury, the gait analysis (at 2nd and 6th weeks) and EMG (at 6th week) was conducted. According to the Kolmogorov Smirnov normality test, paired t test or wilcoxon test was used for walking test analysis results. Kruskal Wallis or One Way ANOVA test was used for EMG results.

Results: No statistical significance was found between groups in the gait analysis. According to the EMG, there was no difference between Injury and treatment groups for the nerve conduction rate (p>0.05).

Conclusion: The present findings indicate that caper is lack of any benefits to neuroregeneration in the utilized method of this study.

PC020

The Dose-Dependent Effects of Oxytocin on Learning-Memory and Anxiety Disorders in Adult Rats That Experienced Acute Infantile Maternal Deprivation Stress

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Aim: to determine the dose-dependent effects of oxytocin (OT) on learning-memory and anxiety disorders caused by acute infantile maternal deprivation in adult rats, and to evaluate the relationship of OT with vascular endothelial growth factor (VEGF), brain-derived neurotrophic factor (BDNF) levels in the prefrontal cortex (PFC).

Methods: 18-day Wistar-Albino rats left their mother for 24 hours and then 0.02 µg/kg or 2 µg/kg OT administered intranasally. When the rats were 60-day, Open Field (OF), Elevated Plus Maze (EPM), Morris Water Maze (MWM) tests were performed. The neurons numbers in the hippocampus, PFC, amygdala were counted. VEGF, BDNF levels in the PFC were measured. The experimental groups were analyzed by ANOVA post hoc Bonferroni test.

Results: All rats given 0.02 µg/kg OT were successful in the EPM, OF tests and had higher levels of VEGF, BDNF in PFC (p<0.05). The number of PFC neurons was low in all male MD (oxytocin+/-) groups (p<0.05), the number of amygdala neurons was low in both sexes MD (oxytocin+/-) groups (p<0.05).

Conclusion: The male rats were more affected by maternal deprivation, while the intranasal administration of OT had dose-dependent biphasic effects on learning-memory and anxiety disorders caused by maternal deprivation. Ethics committee approval was obtained, research support was provided (Dokuz Eylül University Project no: 2012.KB. SAG.054).

PC021

Age-Related Changes in the Oxidative Stress, Apoptosis, SIRT2 and Autophagy in the Cerebral Cortex: Protective Effects of Melatonin

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Aim: We aimed to study the role of melatonin (MLT) on SIRT 2 expression, oxidative stress, apoptotic activity and autophagy in the cerebral cortex of young and aged rats.

Methods: 24 young (3 months-old) and old (22 months-old) Wistar albino rats were divided into 4 groups namely: Young-Control (1% ethanol+PBS), Young-MLT (10 mg/kg-MLT), Aged-Control, and Aged-MLT. After the 30 days of drug administration the rats were sacrificed and the cerebral cortexes were isolated. Total oxidant status (TOS) and total antioxidant status (TAS) measurements were made using commercial kits. BCL-2, BAX, SIRT2 expressions were studied by Western blotting and beclin and ATG-5 by real-time PCR. Student's T, ANOVA and Pearson's tests were used for statistical analysis.

Results: We found that aging significantly decreased the BCL-2, BCL-2 / BAX ratio, beclin and TAS in the cerebral cortex and increased the TOS and OSI. SIRT 2 inhibition by MLT administration reduced cortical TOS and OSI levels, and increased BCL-2, BCL-2 / BAX ratio and beclin in aged animals.

Conclusions: Our results indicate that SIRT 2 could be a therapeutic target for the prevention of neurodegenerative diseases in the elderly.

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PC022

The Effect of Metaplasticity and Neurogenesis Relationship on Developed Memory Disorders in Hypothyroidism

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Aim: Adult neurogenesis is important to develop a high-level of synaptic plasticity and metaplasticity development (MPL), which facilitates further modification of the brain. In this study, we investigated that how long-term reduction in thyroid hormones affected metaplasticity and neurogenesis.

Methods: Hypothyroidism was induced by administration of 0.05% 6-n-propyl-2-thiouracil (PTU) in drinking water of rats. Field potentials were recorded from the granule cell layer of dentate gyrus (DG) in response to perforant pathway stimulation. A low-frequency stimulation (LFS, 5Hz) was applied for 180s before the high-frequency stimulation (HFS: 100Hz) to investigate the metaplasticity of long-term potentiation. Serum levels of free T4 were measured by ELISA.

Results: HFS giving after priming in hypothyroid rats induced synaptic depression (n=10; %65,4±10,0; P<0.01, one-sample T test) in absence of PS amplitude potentiation (n=10; %112,5±25,6; P >0.05). Same protocol caused a significant potentiation in the PS amplitude (n=10; %254,5±24,4; P < 0.001) in the absence of synaptic potentiation in control rats (n=10; 116,7±9,0; P > 0.05). Hypothyroidism induced in adult rats caused proliferation (30%) reduction in DG granule cells.

Conclusions: This study provides evidence that decreased levels of thyroid hormones cause a metaplastic LTD instead of LTP. Deteriorated neurogenesis can mediate this impaired metaplasticity that can play a role in memory impairments in hypothyroidism.

PC023

Effects of Selenium Deficiency and Supplementation on Synaptic Plasticity in Adult Rats

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Aim: Selenoproteins that are antioxidants and play a role in redox reactions must be maintained at the tissue level. The brain is more stable than other tissues in maintaining selenium (Se) levels. The goal of this study evaluated the Se deficiency and Se supplementation effects on learning and memory performance. Material and

Method: Experiments were performed on 2-month-old adult male Wistar rats. Rats are divided into 3 groups; control group (C, n=7), Se deficient group (Se0, 0.007 ppm sodium selenite – Se-deficient diet, n=7) and Se supplemented group (Se+, 10ppm sodium selenite –supplemented drinking water, n=7). Experiments were carried out for 21 days. Long-term potentiation (LTP) responses were recorded from the dentate gyrus of the rats under urethane anesthesia.

Results: Univariate ANOVAs showed a significant difference between the groups of amplitude increase of population spike (PS) during the induction (F2,20=4,769, p=0,022) and maintenance period (F2,20=12,413, p<0,001). The increase in the magnitude of PS values of Se deficient group was significantly lower compared to the control and Se supplemented group.

Conclusion: Se deficiency can be accompanied by impaired LTP of the PS amplitude. These results show the importance of Se in the brain. However, the effect of Se supplementation on synaptic plasticity has not been shown.

PC024

Anxiolytic and Hedonic Effect of Perga in Depressive Male Rats

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Aim: In this study, it is aimed to investigate the anxiolytic effect of perga which is one of the apitherapy products.

Methods: Forty Wistar albino male rats aged 12 months were divided into control (n=10), depression (n=10), perga (n=10), depression+perga (n=10) groups. Perga and depression + perga groups were administered perga 250 mg/kg per day for 15 days, and same amount of distilled water for same days for control and depression groups. Their Anxiety and panic behavior were tested in elevated plus maze and light darkness preference test. The data were analyzed by one-way ANOVA and post hoc Tukey test.

Results: Sucrose water consumption was reduced in depression-modeled rats compared to control rats, and increased in perga group, and decreased in response to depression-induced anhedonia in rats given depression + perga group. The duration of stay in the targeted areas were decreased in the elevated plus maze and light darkness preference in depressed rats compared to control rats (p<0.05). This time increased in rats given pergas

Conclusions: Perga increased the hedonic behavior by removing the anhedonia that developed in depression. The observation of the anxiolytic effect of the perga suggests that it can be used at least in part of the depression cases.

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PC025

Investigation of the Effects on Sulfite Exposure on EEG

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Aim: Sulfite is one of the most frequently used additives in food, drug and cosmetic industry for the sake of its' antioxidant and protective effects. It is especially reported during childhood that, attention deficit hyperactivity disorder and related EEG changes may be the result of industrial food additives. For this reason, we aimed to investigate possible effects of sulfite exposure in prenatal and postnatal period.

Methods: 60 Wistar rats were divided into four equal groups: Control group was fed with standard tap water; Group Pre+PostS were treated with 100 mg/kg/day sulfite in drinking water in prenatal and postnatal periods while same dosages were used for Group PreS in prenatal period and for Group PostS in postnatal period. On days 30th and 60th postnatally EEG recordings were performed for each group from frontal and parietal areas and data were analyzed by computer assisted spectral Fast Fourier Transform (FFT).

Results: There was a significant increase in Theta/Beta power ratio in the PreS group compared to the control group ($p<0.05$). There was not any difference between other groups.

Conclusions: Sulfite exposure during the prenatal period has detrimental effects on mother candidates and they require adequate nourishment.

Our project was supported by TUBITAK (project no: 116S382).

PC026

The Effect of SNr-DBS on Motor Cortex and Thalamus in the Bilateral 6-OHDA Rat Model of Parkinson's Disease

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Aim: This study was planned to investigate the effect of DBS treatment on substantia nigra pars reticulata (SNr) in the experimental Parkinson's disease (PD) model of rats.

Methods: In our study, adult male Wistar rats were randomly divided into 4 groups as: Control (n=12), Parkinson (n=12), Sham (Parkinson+electrode) (n=20) and DBS (Parkinson+DBS) (n=20). The procedures were reviewed and approved by Akdeniz University Local Committee on Animal Research Ethics (Protokol no: 2016.03.08). The DBS group was subjected to electrical stimulation for 3 hours in a day for two weeks. The locomotor activity tests were evaluated and then the immunohistochemical stainings were performed. Data were assessed using one-way ANOVA followed by Tukey Post hoc or Student-Newman Keuls tests.

Results: Locomotor activity levels of the animals were decreased in Parkinson group compared to control group which were improved by DBS treatment. Brain derived neurotrophic factor (BDNF), c-Fos containing cells and TH+ cell numbers in thalamus and frontal lobe (M1, M2) were counted and the numbers were shown to be increased after DBS in PD group.

Conclusions: Our results suggest that the DBS treatment on SNr increases BDNF levels in the thalamus and frontal lobe which improves the motor deficits in PD.

PC027

The Effect of Docosahexaenoic Acid (DHA) on Apelin and Apelin Receptor Protein Distribution of Pons and Cerebellum in the Experimental Model of Parkinson's Disease

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Aim: This study was conducted to determine the effect of DHA on the distribution of apelin and apelin receptor in cerebellum and pons in the experimental Parkinsonian mice.

Methods: Three-months-old male C57BL/6 mice were divided into 4 groups as: Control (n=10), DHA (n=10), Parkinson (n=10) and Parkinson+DHA (n=10). The procedures were reviewed and approved by Akdeniz University Local Committee on Animal Research Ethics (Protokol no:2013.06.04). On the 23rd day of the DHA (36mg/kg) administration, MPTP was intraperitoneally injected at a dose of 4x20 mg/kg-1at 2-hr. intervals. Motor activities of mice were evaluated after 7 days. Pons and cerebellum samples of mice were obtained for the expression analysis of apelin and apelin receptor protein.

Results: DHA treatment increased locomotor activity of Parkinson+DHA group compared with Parkinson group. The apelin expression in the cerebellum of mice in DHA and Parkinson+DHA groups were lower compared to control group but did not reach statistical significance. Apelin receptor expression was decreased in the Parkinson+DHA group compared to the control group, whereas it was increased compared to the other groups ($p<0.05$). Apelin and its receptor expression was found to be decreased in pons in all experimental groups relative to control ($p<0.05$).

Conclusions: These results indicate that, DHA administration was effective on locomotor activity in parkinsonian mice and on apelin and apelin receptor protein expression levels in pons and cerebellum regions.

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PC028

Effect of Central Exogenous Neuropeptide-S on 6-OHDA-induced Cognitive and Behavioral Changes in Rats

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Aim: This study was designed to investigate the effects of central neuropeptide-S (NPS) treatment on 6-OHDA-induced impaired cognitive and behavioral functions.

Methods: Acute (10 nmol, icv, n=10) or chronic (1 nmol, icv for 7 days, n=10) NPS treatment was performed in male Wistar rats following central injection of 6-OHDA (n=10). Experiments were carried out before and 7 days after 6-OHDA injection. Radial arm maze and elevated plus maze tests were used to assess working memory and anxiety, respectively, whereas the sucrose preference was tested to determine depression-like behaviors. Tyrosine hydroxylase (TH) immunoreactivity was detected by immunohistochemistry in nigral sections. Data were analyzed with ANOVA followed by Tukey posthoc test. Protocols were approved by the Animal Ethical Committee of Akdeniz University (B.30.2.AKD.0.05.07.00/103).

Results: Compared with control (n=10), 6-OHDA remarkably (p<0.05) reduced the number of nigral TH-positive cells which was restored by central chronic NPS administration. The 6-OHDA-induced impaired working memory was improved both by acute and chronic treatments (p<0.05), whereas only high dose acute treatment decreased (p<0.05) the anxiety levels. In contrast, chronic NPS treatment noticeably (p<0.05) improved the depression-like behaviors by increasing the sucrose preference.

Conclusions: NPS appears to be a novel therapeutic approach for treatment of non-motor parkinsonian manifestations.

PC029

A Bioinformatic Analysis of the ACE Gene and its Relation to Alzheimer Disease

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Aim: Angiotensin-Converting-Enzyme (ACE) mutations are reported to cause several disorders including microvascular, renal, cardiovascular, pancreatic, carcinogenic and neurodegenerative diseases. This study aims to generate a disease list and protein pathways associated with ACE and to analyse its relation to Alzheimer's disease (AD) by using bioinformatic tools.

Method: The disease list associated with ACE is determined from online databases, gene ontology (GO) and protein pathway analysis was performed with STRING and KEGG, respectively.

Results: The ACE gene was putative in a total of 632 disorders, with AD in the forty-fourth place. A total of 216 genes, starting with the amyloid-beta-precursor-protein (APP) gene, were found to be associated with AD, ACE being eleventh. The ACE gene was found to be effective in the amyloid beta pathways, particularly in the 'plate formation and APP metabolism' (32

genes), 'uptake and degradation' (23 genes) pathways. The involved genes were analysed to obtain protein-protein interaction maps. The GO-enrichment analysis could not detect an effect between AD and ACE in relation to cellular-components and biological-processes, however, 'peptidase' and 'endopeptidase' activity was determined in terms of molecular-function.

Conclusions: The diseases related to the ACE were reviewed. Its relation to AD, has been related to the molecular endopeptidase activity.

PC030

Inhibition of Extracellular Signal-Regulated Kinases 1/2 Rescues the Decay of Long-term Potentiation in the Dentate Gyrus in vivo: Implication on Alzheimer's Disease

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Aim: Long-term potentiation(LTP), once it has been induced, can decay over time in particular with weak stimulation protocols. Normal induction but rapid LTP decay and an increased Extracellular Signal-Regulated Kinases1/2 (ERK1/2) activation has been implicated in Alzheimer's disease (AD). For this reason, we are wondering if there are major differences in consolidation of LTP in presence and absence of a specific Erk1/2 inhibitor of LTP.

Methods: The study was carried out with the approval of Erciyes University Ethical Committee for Animal Experiments dated 12.08.2015 and numbered 15/114. Field potentials composing of a field-excitatory postsynaptic potential (fEPSP) and a population-spike (PS) were recorded from granule cell layer of dentate gyrus. After 5-min infusion of ERK1/2 inhibitor or saline, LTP was induced by delivering a high-frequency stimulus to perforant pathway.

Results: In the absence of LFS, ERK1/2 inhibition resulted in more depressed fEPSP slopes but less depressed PS amplitudes, whereas delivery of LFS after HFS equally depressed fEPSP slope and 39,5±3,9%, and depressed PS amplitude in absence and presence of ERK1/2 inhibitor, respectively. A significant interaction between protocol and treatment (F1.36=6.57; P=0.015) was found when PS amplitudes were analyzed by 2x2 ANOVA only.

Conclusions: The present study suggests implications of inhibition of ERK1/2-MAPK as a potential strategy for treatment of AD.

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PC031

Investigation of Clusterin, Sortilin-Related Receptor 1 and Complement Receptor 1 Gene Variations in Alzheimer's Disease

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Aim: The aim of this study was to determine variations of rs641120, rs202081077 and rs202213311 in genes encoding Clusterin (CLU), Sortilin-related Receptor 1 (SORL1), and Complement receptor 1 (CR1) proteins leading to the formation of tau and beta-amyloid, in Alzheimer's disease.

Methods: 68 patients with Alzheimer's disease and 75 control cases were included in the study (Ethics Committee No: 2012/436-994). This study was funded by Istanbul University with the project number 11719/24976. DNA was isolated from blood samples and amount and purity analyzes were performed. CLU and CR1 genotypes were determined with Polymerase chain reaction (PCR)-Restriction fragment length polymorphism (RFLP), while SORL1 genotypes were determined using capillary sequencing. The Chi square test (χ^2) was used to compare categorical data, and Fisher's Exact test was used to compare numerical data. $p < 0.05$ was considered significant.

Results: CLU (rs202081077) mutant TT genotype and T allele frequency ($p = 0.045$, $p = 0.004$); SORL1 (rs641120) mutant TT genotype and T allele frequency ($p < 0.001$, $p < 0.001$); CR1 (rs202213311) mutant GG genotype and G allele frequency ($p = 0.002$, $p < 0.001$) were higher in the Alzheimer group than control group.

Conclusions: Variations of CR1 (rs202213311), CLU (rs202081077) and SORL1 (rs641120) may play a role in the pathogenesis of Alzheimer's disease.

PC032

Effect of Cannabinoid Type 2 Receptor Activation in Okadaic Acid Induced Rat Alzheimer's Disease Model

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Aim: In this study we investigated the effect of the selective Cannabinoid type 2 (CB2) receptor agonist JWH-133 in okadaic acid (OKA) induced Alzheimer's Disease model.

Methods: 40 Sprague Dawley male rats were divided into 4 groups (Control, Sham, OKA, OKA + JWH-133). In the OKA group, bilateral intracerebroventricular (ICV) injection of 200 ng OKA was performed. In the OKA + JWH-133 group, injection of intraperitoneal JWH-133 (0.2 mg/kg/day) was performed for 13 days unlike the group of OKA. Immunohistochemical levels of caspase-3, phosphorylated tau (ser396), amyloid beta, tumor necrosis factor alpha (TNF- α) and interleukin 1 beta (IL-1 β) levels were examined in the cortex and hippocampus regions of the brain. One Way ANOVA test and post-hoc Tukey test were used for the analysis of the data. A value of $p < 0.05$ was considered statistically significant.

Results: Caspase-3, phosphorylated tau (ser396), amyloid beta, IL-1 β levels in the cortex and hippocampus were significantly increased in the OKA group compared to the control group. The JWH-133 application significantly reduced this increase.

Conclusions: In this study; We have found that administration of CB2 receptor agonist JWH-133 reduces neurodegeneration and neuroinflammation in the OKA-induced Alzheimer's Disease model. This study was supported by Bozok University (BAP-6602c-TF/17-139).

PC033

Comparison of Fluoxetine and Sertraline in Treatment of Postoperative Depression

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Aim: Sertraline and Fluoxetine are antidepressant agents in a group of drugs called selective serotonin reuptake inhibitors (SSRIs). They both affect chemicals in brain that may be unbalanced in people with depression. They are used to treat depression, obsessive-compulsive disorder, panic disorder, anxiety, post-traumatic stress disorder. In our study, we aimed to compare both agents' dose response and safety given to patients who underwent bypass surgery.

Methods: Human atrium tissues ($n = 17$, $n_s = 17$) were taken from patients, ages were between 42 to 72. All tissues were placed in organ baths containing Krebs solution, thermoregulated at 37°C, aerated (95% O₂ and 5% CO₂). Changes in isometric tensions were recorded using a four channel force displacement transducer. All tissues were washed for 3 hours in order to diminish the effects of anaesthetic agents. Adrenaline (10-1M) was administered in tissue cabs to induce isometric contractions. Cumulative fluoxetine (10-5M, 10-4M, 10-3M, 2. 10-3M) and cumulative sertraline (10-9-10-4M) doses were added to organ baths. Friedman Kruskal Wallis tests were used for statistical evaluation.

Results: Inhibition of contractions was statistically significant at 10-7, 10-6, 10-5, 10-4 M doses of sertraline and also significant at 10-3M, 2. 10-3M doses of fluoxetine ($p < 0.05$).

Conclusions: Sertraline and fluoxetine may cause negative inotropic effects on human atrium muscle. Therefore, sertraline may be used more carefully than fluoxetine in cardiac surgery performed patients.

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PC034

Investigation of the Influence of Music on Behavioral Findings by Valproic Acid-Induced Autism Model in Rats

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Aim: Autism is a disorder characterized by problems in social-interaction, repetitive behaviors. In the study, the healing effect of music on autistic symptoms was investigated in the autism model formed by Valproic-Acid (VPA).

Methods: Sprague-Dawley rats were administered VPA (500 mg/kg) and saline-solution (%0,9-NaCl) subcutaneously on 12.5th day of gestation. VPA-Music-Group (VMG, n=8): Mozart's K448 piano sonatas were played at 65 dB an hour a day for 14 days. VPA-Cage-Group (VCG, n=8) and Control-Cage-Group (CCG, n=8): They stayed in cages for 14 days in the meditation room. From P40, open-field, social-interaction, Y-maze and tail-flick tests were applied to animals.

Results: In the open field, the number of frames passed and distance traveled in VCG rats were significantly higher than those of CCG rats ($p<0.001$, $p<0.05$, respectively). In the social-interaction, the sociability-index decreased significantly in the VCG compared to KKG ($p<0.05$). The percentage of spontaneous alterations of VCG rats in the Y-maze was lower than in the CCG rats ($p<0.05$). In the tail-flick, pain sensitivity was reduced in VCG rats ($p<0.05$). The parameters assessed in all the tests did not show any significant difference between VMG and CCG group. In the analysis, One Way-ANOVA is used followed by Tukey test.

Conclusions: Our results suggest that the music may have a healing effect on the symptoms of autism.

PC035

Examination of Cognitive Skill Levels and Emotional Status in Chess Players Classified by Their Experiences

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Aim: In this study, it was aimed to compare the performance and the emotional states of the response speed and quality (DT), continuous attention/problem solving ability (COG), reasoning ability (SPM) and visual perception (TAVTMB) under stress of different levels of chess players.

Methods: A total of 105 girls and boys aged 7-16 years were classified into 3 groups according to their experience, professional, middle and beginners. Vienna Test System. CDI, CADSI and Kruskal-Wallis tests were applied.

Results: The response time of mid-level players was shorter than that of the professionals. Reaction quality was higher and more significant when compared to beginners in mid-level players.

There was no significant difference in COG, SPM, TAVTMB scores between the groups due to the non-homogeneous distribution of the groups.

Conclusion: Middle-level players have a good response speed and quality under stress and the response rate is due to the fact that the speed of the professional players is short compared to the mid-level players, and that they react with careful thought in the experience of being a chess player. As the chess experience of the players increases, depression and anxiety decrease.

PC036

Is Hypnosis Innocent? Physiopathological Evaluation of Effect on Vital Findings

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Aim: Hypnosis is used in Complementary Medical Treatments. Our aim is to assess whether hypnosis is a side effect by evaluating effect in vital signs. Vital signs change in pathologic conditions. Fever, pulse, blood pressure and number of breaths is a good indicator of side effect evaluation.

Methods: Healthy Twelve volunteers, six women and six men aged between 18 - 65 years who had received the necessary permits and consent. The hypnosis room was quiet and at room temperature to minimize the effect of vital signs. Participants used rapid hypnosis technique. Measurements were made under the hypnosis trans of 10-15 minute. They were awakened by the countdown method. The non-parametric Wilcoxon Signed Tanks test was used as the statistic to carry comparison test. $P<0.05$ was accepted as significant.

Results: The statistical result of all changes made by measurement of vital findings was found to be $p>0.05$. Changes in the vital signs pre-hypnosis and hypnosis didn't show any significant difference.

Conclusions: No significant difference in changes in vital signs in pre-hypnosis and hypnosis can show physiopathological well as the credibility of this treatment and without side effect. Our work may be a preliminary study for other research.

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PC037

Electrophysiological Investigation the Inhibition of Sodium-Glucose Co-Transport 2 in Hyperglycemic Cardiomyocytes

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Aim: It has been reported that sodium glucose cotransporter inhibitors reducing blood glucose by disrupted renal glucose uptake and improve diabetic complications. In this study we were aimed to clarify the underlying mechanisms of a sodium glucose cotransporter inhibitor-2, Dapagliflozin (DAPA), in rat embryonic ventricular H9c2 cell lines by performing electrophysiological measurements.

Methods: Cytosolic ion levels, reactive oxygen species and mitochondrial membrane potential were monitored with specific fluorescence dyes in microspectrofluorometry and confocal microscopy. Statistical significance is evaluated by one-way ANOVA followed by Tukey post-test. The probability level of $p < 0.05$ is considered statistically significant.

Results: Although 1 μ M DAPA exhibit cytotoxic effects, all experiments performed with 100 nM DAPA concentration. DAPA treatment did not changed cytosolic Na^+ and Zn^{2+} but restored Ca^{2+} , significantly ($p < 0.05$). Importantly, DAPA treatment further increase cytosolic H^+ in hyperglycemic cardiomyocytes. In addition, DAPA reduced reactive oxygen species but did not improve mitochondrial membrane potential in hyperglycemia.

Conclusions: Increased cytosolic H^+ following DAPA treatment suggest that DAPA seems to inhibit Na^+/H^+ exchanger activity. Antioxidant-mimetic effects of DAPA reduces reactive oxygen species in HG which promising a good candidate to improve diabetic cardiomyopathy.

PC038

The Effects of Exercise and Detraining on Renal Arylesterase Enzyme Activity in Spontaneously Hypertensive Rats

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Aim: This study aimed to investigate the effects of exercise on spontaneous hypertensive (SHR) and normal rats on renal arylesterase (ARE) enzyme activity and to explore the time-course of this activity during detraining.

Methods: The experimental protocol used in the study was accepted by Pamukkale University Animal Experiment Ethics Committee. SHR and control rats were grouped as sedentary, exercise, detraining. Swimming was applied to the rats in the exercise group. Renal ARE activity was measured via a commercial kit and systolic blood pressure (SBP) by tail-cuff

method. The results were evaluated by Kruskal-Wallis test, values of $p < 0.05$ were considered statistically significant.

Results: Exercise decreased SBP in both normal rats and SHR. Renal ARE activity of SHR was significantly higher than control ($p < 0.05$). Swimming caused decrement of ARE activity in SHR ($p < 0.05$) but not in control. While detraining yielded an increase in renal ARE activity in normal rats ($p < 0.05$), no significant changes were observed in SHR.

Conclusions: The renal ARE activity lowering effect of exercise was in line with the fall in SBP in SHR. The decrease observed in ARE activity in response to exercise in SHR may be due to the antioxidant effect of exercise.

PC039

Investigation of the Effect of Kisspeptin on Blood Pressure in Experimental Hypertension Model

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Aim: We aimed to investigate the effects of kisspeptin on experimental hypertension model induced by L-NAME.

Methods: 40 Sprague-Dawley male rats were used. Control and control+kisspeptin groups received intravenous saline injection, hypertension and hypertension + kisspeptin groups received 1.5 mg/100g L-NAME. L-NAME (150 mg/L) was added to drinking water of the rats in groups hypertension and hypertension+kisspeptin for 3 weeks. In the second week of experiment, kisspeptin (50 nmol/day) was given to the control+kisspeptin and hypertension+kisspeptin groups and saline were administered to the control and hypertension groups rats for 2 weeks through subcutaneously placed osmotic minipumps. On the 21st day of the experiment, the 24-hour urine of the rats was collected and then both the blood and the kidneys were taken under anesthesia and euthanasia was performed.

Results: Mean arterial blood pressures were increased in the hypertensive group ($p < 0.05$). In the hypertension+kisspeptin group mean arterial blood pressure decreased in the last week ($p < 0.05$). There was no significant difference between the groups in serum and urinary levels of kisspeptin and aldosterone.

Conclusions: We suggest that the effects of kisspeptin on hypertension treatment should be studied in detail with respect to doses, administration time and route regulations. This work was supported by TUBAP (2017/200).

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PC040

Investigation of Metabolic Differences in ST Segment Elevation Myocardial Infarction

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Aim: ST segment elevation myocardial infarction (STEMI) is one of the most significant reason for cardiovascular death in worldwide. Several metabolites may changes due to STEMI. Analysis of metabolites in biological fluids may give crucial information for diagnosis. In this study, it is aimed to both identify and determine the differences in metabolites related to STEMI.

Methods: Study has been approved by the ethics committee of the medical faculty of Atatürk University, Serum samples of 20 patients with STEMI and 15 healthy controls in cardiology clinic were collected. These serum samples were extracted by acetonitrile. LC/Q-TOF/MS/MS method was applied for analysis. METLIN database and MATLAB softwares were used.

Results: 340 m/z value were determined. Totally, 231 m/z value were studied ($p < 0.01$ and fold analysis > 1.5). Obtained data were qualified by Human Metabolome Database. Against controls, D,L-leucin, D-isoleucin, glycine, lysine, alanine, kreatin and fumaric acid levels were low, while L-arginine, L-valin, oleic acid, valeric acid, malonic acid and phosphatidylglycerol higher.

Conclusions: Obtained metabolites of this study may be used in both early diagnosis of STEMI and exploration of the mechanism as biomarker. Especially, fumaric acid and malonic acid have a great potential on explaining oxidative stress and hypoxia situation of STEMI patients.

PC041

Daytime Fasting Appears to be Beneficial as it Increases Heart Rate Variability Towards Evening

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Aim: The current study aimed to assess daytime fasting on heart rate variability (HRV).

Methods: 40 participants (22 males and 18 females, mean age 38.1 ± 1.44) were studied during Ramadan. Following approval by the local ethics committee (2018-78), participants' blood pressures and scores of hunger, thirst and tiredness (1 least-10 most Likert scale) were determined in the morning and in the afternoon. For HRV, 5-min electrocardiographic measurements were carried out in the morning, at noon and in the afternoon in the supine position. These recordings were evaluated by software to calculate HRV parameters including SDNN (standard deviation of normal RR intervals), LF (low frequency), HF (high frequency), VLF (very low frequency), LF/HF ratio. Comparisons were made by paired t-test.

Results: Morning and afternoon values for systolic ($105.9 \pm 2.1 \rightarrow 104.7 \pm 1.8$ mmHg) and diastolic ($73.2 \pm 1.4 \rightarrow 72.8 \pm 1.2$

mmHg) blood pressures and heart rate ($66.1 \pm 1.3 \rightarrow 65.6 \pm 1.4$ beat/min) did not significantly change, but hunger ($3.4 \pm 0.3 \rightarrow 5.4 \pm 0.4$), thirst ($3.85 \pm 0.4 \rightarrow 5.8 \pm 0.4$) and tiredness scores ($3.8 \pm 0.3 \rightarrow 6.3 \pm 0.4$) increased towards evening ($p < 0.05$). Morning, noon and afternoon values of SDNN ($43 \pm 3.7 \rightarrow 49 \pm 4.8 \rightarrow 48 \pm 3.4$) and VLF ($696 \pm 98 \rightarrow 899 \pm 171 \rightarrow 960 \pm 140$) increased starting from noon ($p < 0.05$).

Conclusions: Daytime fasting increases hunger, thirst and tiredness. However, as higher SDNN and VLF have been associated with better health outcomes, daytime fasting appears to be beneficial in short-term.

PC042

Effects of Fluoxetine in Healthy and Damaged Rat Aorta

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Aim: Fluoxetine is an antidepressant agent in selective serotonin reuptake inhibitors (SSRI) class. It is one of most commonly used drugs for treatment of depression. Information about effects of fluoxetine on cardiovascular system is limited. It was aimed to investigate effects of fluoxetine on response of phenylephrine contraction on healthy and damaged rat aorta.

Methods: Wistar albino rats were divided into 2 groups ($n=24$). Group 1 aorta-intact endothelium ($n=12$), group 2 aorta-damaged endothelium ($n=12$). Descending thoracic aorta was isolated after cervical dislocation. Aorta tissues were cleaned and sectioned into 3-4 mm long rings. Rings were placed in organ baths containing Krebs solution, thermoregulated at 37°C and aerated (95% O_2 and 5% CO_2). Changes in isometric tension of aorta rings were recorded using a four channel force displacement transducer. Phenylephrine ($\text{PE} 10^{-6}\text{M}$) was applied and contractions were recorded in both groups. Then fluoxetine was given cumulatively 0.01, 0.1, 1, 2 mM to group 1. In group 2 aorta damage was achieved by tearing endothelium with needle. After controlling endothelial damage by applying acetylcholine ($\text{ACh} 10^{-6}\text{M}$), damaged strips were washed for one hour and second dose of PE was administered and then fluoxetine was given cumulatively to group 2, contractions were recorded. Friedman Kruskal Wallis tests were used for statistical evaluation.

Results & Conclusions: In group 1, significant inhibition of spontaneous contractions was noticed in fluoxetine doses of 1 and 2 mM ($p < 0.05$). These results suggest that fluoxetine may have beneficial effects on treatment of hypertensive disorders.

PC043

Responses of Aortic Ring Vascular Smooth Muscle in Rats with Hyperthyroidism to Phenylephrine and Potassium Chloride

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Aim: The effects of thyroid hormones on receptor numbers and pharmacological contractile responses of vascular smooth muscle appear to be controversial. The aim of the present study was to evaluate the vascular responses to potassium chloride (KCl) and phenylephrine (PE) in a rat model of hyperthyroidism

Methods: The study was approved by the Ethical Committee of The Animal Research of Ataturk University. Wistar Albino type of rats were divided into two groups: Control (n=5) and hyperthyroidism (n=5). Hyperthyroidism was induced by intraperitoneal injection of L-thyroxine (0.3mg/kg/day) for two-weeks. The thoracic aorta rings suspended in an isolated organ bath with Krebs-Henseleit buffer. Maximal tension was measured in response to KCl and PE in rings with intact endothelium. The data were evaluated by one-way ANOVA with post-hoc Tukey test.

Results: Our results showed that contractile responses of the aortic rings of with hyperthyroidism to PE (10-7M) were significantly reduced compared to the control group (1.34±0.43g, 3.26±0.39g, respectively, p<0.05). Vascular response to 40 mM KCl show that, slight decrease in the hypethyroidism group relative to control (1.89±0.19g, 2.17±0.14g vs, respectively).

Conclusions: The decrease in the vascular response in this study suggests the decrease in vascular resistance in hyperthyroidism, and can be explained in part by changes in endothelial cell function.

PC044

Effect of Intracellular Angiotensin II on Diabetic Rat Vascular Smooth Muscle Cell Proliferation

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Aim: Intracellular synthesis of angiotensinII (AngII) is carried out by many cells. The mechanism of AngII on vascular smooth muscle cell (VSMC) proliferation is unknown. Therefore, effects of AngII, ATR1 and ATR2 on healthy and diabetic rat VSMC proliferation were investigated in our study.

Methods: Study was conducted in accordance with the decision of the Cukurova University Animal Experiments Local Ethics Committee. Wistar albino male rats were used. Diabetes was induced by streptozotocin in rats. Primary VSMC were cultured from thoracic aorta of kontrol and diabetic rats. AngII (0.001, 0.01, 0.1, 1, 10, 100 and 1000 µM), ATR1 antagonist Olmesartan 1µM and ATR2 antagonist PD123319 1µM were incubated for 24 hours. Proliferation was assessed by tetrazolium salt (MTT). The quantity of AngII in VSMC medium and lysate was measured by ELISA. Data were analyzed with ANOVA.

Results: In normal and diabetic VSMC, 0,1 µM and 0.01µM AngII increased cell proliferation significantly (p<0.01). In normal VSMC, AngII, AngII+PD123319, Olmesartan + PD123319 and AngII + Olmesartan + PD123319 applications while increasing cell proliferation AngII + Olmesartan application reduced (p<0.01). Proliferation did not change with AngII+Olmesartan administration in diabetic VSMC (p=0.081), (n=6-12). It has seen that normal and diabetic VDKH in cell medium and intracellular AngII. Intracellular and cell media showed no difference in AngII levels between two groups (n=4). **Conclusions:** Although there was an increased tendency in diabetic VDKH proliferation in our study, there was not difference between intracellular and extracellular AngII levels according to control group suggesting that there was not relationship between diabetic proliferation, AngII levels and ATR.

PC045

Which Antidepressant is Safer for a Postoperative Cardiac Patient?

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Aim: A novel antidepressant agomelatine is an atypical agent developed by a pharmaceutical company. Agomelatine is a synthetic analogue of melatonin, melatonergic agonist and serotonin 5HT2c antagonist. It is marketed for treatment of major depressive disorder. Sertraline is an antidepressant in selective serotonin reuptake inhibitors (SSRIs) class. It's used for depression, anxiety, panic disorder. In our study we aimed to compare two different antidepressant agents according to their safety in human atrium.

Methods: Atrium tissues (nS=28,nA=12) were taken from patients, ages between 45 to 72. All tissues were placed in organ baths containing Krebs solution, thermoregulated at 37°C, aerated (95%O₂, 5%CO₂). Changes in isometric tensions were recorded using four channel force displacement transducer. All tissues were washed for 3 hours in order to diminish effects of anaesthetic agents. Adrenaline(10-1M) was administered in tissue cabs to induce isometric contractions. Cumulative sertraline (10-9M-10-4M) and cumulative agomelatine (10-9-10-4M) doses were added to organ baths.

Results & Conclusions: Inhibition of contractions was statistically significant at 10-7M,10-4M doses of sertraline and significant at 10-4M dose of agomelatine (p<0.05). According to the results, agomelatine is suggested to be safer than sertraline. Both agents have negative inotropic effect in a dose dependent manner. They can be used for postoperative depression safely.

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PC046

Which one is Safer? Agomelatine or Fluoxetine?

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Aim: Agomelatine is an atypical antidepressant drug developed on basis that abnormal circadian rhythm causes depression. While most other typical antidepressant drugs are selective serotonin reuptake inhibitors (SSRIs) that seek to increase serotonin in brain, agomelatine activates melatonin (MT1 and MT2) receptors and blocks 5-HT_{2C} serotonin receptors. In our study we aimed to compare safety of two antidepressants.

Methods: Human atrium tissues (nF=17, nA=12) were taken from patients, ages were between 47 to 72. All tissues were placed in organ baths containing Krebs solution, thermoregulated at 37°C, aerated (95% O₂ and 5% CO₂). Changes in isometric tensions were recorded using a four channel force displacement transducer. All tissues were washed for 3 hours in order to diminish the effects of anaesthetic agents. Adrenaline (10⁻¹⁰M) was administered in tissue cabs to induce isometric contractions. Cumulative fluoxetine (10⁻⁵M, 10⁻⁴M, 10⁻³M, 2. 10⁻³M) and cumulative Agomelatine (10⁻⁹-10⁻⁴M) doses were added to organ baths. Friedman and Kruskal Wallis tests were used for statistical evaluation.

Results & Conclusions: Inhibition of contractions was statistically significant at 10⁻³M, 2.10⁻³M doses of fluoxetine and significant at 10⁻⁴M dose of agomelatine (p<0.05). Due to this outcome, fluoxetine is suggested to be safer than agomelatine in a dose dependent manner. So fluoxetine can be used for postoperative depression safely.

PC047

Dual Effect of Peripherally-Administered Apelin on Gastric Emptying: Contribution of Central Autonomic Pathways

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Aim: Peripherally-administered apelin has been shown to inhibit gastric motility in rats. Accumulating evidence indicates production of apelinergic system in circumventricular organs (CVOs) which are known to project autonomic centers in brain. The aim of this study was to investigate involvement of sympathetic and parasympathetic visceromotor pathways in apelin-induced gastroinhibitory response.

Methods: Subdiaphragmatic vagotomy (VGX) and/or celiac ganglionectomy (CGX) was performed in male Wistar rats 7 days prior to experiments (Animal Ethical Committee of Akdeniz University (B.30.2.AKD.0.05.07.00/101)). Apelin-13 was administered (30 nmol, ip) 90 min before gastric emptying (GE) measurements and collection of plasma and cerebrospinal fluid (CSF) samples. Apelin-induced c-Fos expression in CVOs was detected immunohistochemically. Data were analyzed with ANOVA followed by Tukey post-hoc test.

Results: GE was inhibited significantly (p<0.01) by apelin-13 which was partially attenuated in animals underwent CGX (p<0.05) or VGX (p<0.05), whereas it was completely restored

to basal level in CGX+VGX animals (p<0.01). Increased apelin concentrations were detected in plasma and CSF samples. Compared with control, a remarkable c-Fos expression was detected in CVOs (especially in area postrema and organum vasculosum lamina terminalis).

Conclusions: The present data suggests involvement of central autonomic pathways in gastroinhibitory action of peripheral apelin both in direct and indirect manner.

PC048

Effect of Intracerebroventricular Injected GLP-1 on Gastric Mucosal Blood Flow in Rats; Role of Central Receptors

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Aim: It was aimed to investigate the effect of glucagon-like peptide-1 (GLP-1), which is injected intracerebroventricularly (icv) into rats, on gastric mucosal blood flow (GMBF), normal and in the presence of ethanol, and the role of central receptors' in this effect.

Methods: Permission was obtained from Uludağ University Animal Care and Use Committee. During 30 minutes, GMBF was recorded every 5 minutes and the changes were determined according to the basal level, following injection of GLP-1 (3,10,30 µg/10 µl; i.c.v.) or serum physiologic. The receptor antagonist exendin-(9-39) (1 µg/10 µl; i.c.v.) was injected 5 min before injection of GLP-1 to monitor the interaction of central receptors. In order to investigate the effect of GLP-1 the alteration of ethanol on GMBF, 10 µg of GLP-1 and ethanol (1.5ml) was applied to the gastric circle. Mann-Whitney-U Test was used in two independent groups in statistical evaluation. P values less than 0.05 were considered statistically significant.

Results: 10 µg GLP-1 (normal and in the presence of ethanol) increased GMBF significantly (p<0.05). Exendin-(9-39) didn't change the effect of GLP-1 (p>0.05).

Conclusions: It was found that GLP-1 increases GMBF, normal and in the presence of ethanol, and that central receptors don't play role this effect.

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PC049

The Role of Enteric Neuronal Apelin in Stress-induced Gastrointestinal Dysmotility

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Aim: The aim of this study was to investigate the role of endogenous peripheral apelin in exogenous corticotropin-releasing factor (CRF)- and acute stress-induced gastrointestinal (GI) dysmotility.

Methods: Gastric emptying (GE), intestinal transit (IT) and gastro-duodenal fasting motor pattern were monitored in non-stressed (NS), CRF-injected (10 µg) and acute restraint stress (ARS)-loaded male Wistar rats. Apelin receptor antagonist F13A (100 µg) or CRF receptor antagonist astressin (30 µg) was administered intraperitoneally before ARS. Gastric and duodenal expressions of apelin were determined by immunohistochemistry in whole-thickness and whole-mount longitudinal muscle-myenteric plexus preparations. Data were analyzed with ANOVA followed by Tukey posthoc test. Protocols were approved by the Animal Ethical Committee of Akdeniz University (B.30.2.AKD.0.05.07.00/101).

Results: ARS delayed GE and IT significantly ($p<0.05$) which were restored ($p<0.05$) by pretreatment of F13A, whereas astressin was found to be ineffective. ARS disturbed gastric, but not duodenal phase III-like contractions which were preserved by astressin. F13A failed to restore both ARS- and CRF-induced impaired contractions. ARS increased neuronal apelin immunoreactivity both in gastric and duodenal myenteric ganglia.

Conclusions: The present data suggest that enteric neuronal apelin plays a role in stress-induced GI dysmotility through a CRF-independent pathway which appears to be effective only during postprandial stage.

PC050

The Effect of Central Exogenous Neuropeptide-S in 6-OHDA-Induced Gastrointestinal Dysfunction in Rats

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Aim: The aim of the present study was to investigate the alleviative effect of exogenous central neuropeptide-S (NPS) in Parkinson's disease (PD)-induced gastrointestinal (GI) motor dysfunction.

Methods: Adult male Wistar rats were divided into 4 groups as: Control (n=6), 6-OHDA-induced PD (n=6), acute (10 nmol, icv, n=10) and chronic (1 nmol, icv, 7 days, n=10) central exogenous NPS treatment. Seven days after central 6-OHDA injection, gastric emptying (GE) and intestinal transit (IT) were measured spectrophotometrically. Tyrosine hydroxylase- (TH), c-Fos- and NPS receptor (NPSR)-immunoreactive cells in substantia nigra pars compacta (SNpC) were analyzed by immunohistochemistry. Data were analyzed with ANOVA followed by Tukey posthoc

test. Protocols were approved by the Animal Ethical Committee of Akdeniz University (B.30.2.AKD.0.05.07.00/103).

Results: Compared with control rats, 6-OHDA significantly delayed GE which was restored ($p<0.05$) both by chronic and acute administrations of NPS, whereas it did not lead any noticeable change in IT. Chronic, but not acute administration of NPS restored ($p<0.05$) the 6-OHDA-induced loss of TH-positive cells. The expression of NPSR was detected on TH-positive SNpC cells in which c-Fos expression was observed following central NPS injection.

Conclusions: The present findings suggest NPSR in brain as a novel therapeutic target for parkinsonian GI dysfunction.

PC051

Hypothalamic Orexin-A Contributes to the CRF-mediated Gastric Dysmotility

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Aim: The present study was designed to investigate the role of endogenous central Orexin-A (OXA) in stress-induced gastric dysmotility.

Methods: Under non-stressed (n=10) and acute restraint stress (ARS) conditions (n=10), brain microdialysis was performed in male Wistar rats to determine the hypothalamic production of OXA and corticotropin-releasing factor (CRF) from lateral hypothalamic area (LHA) and paraventricular nucleus (PVN), respectively. For ARS, rats were placed on a plate with their trunks wrapped for 90 min. Postprandial gastric motility was assessed by monitoring antro-pyloric contractions in rats pretreated with OXA and/or CRF receptor antagonists, SB-334867 (40 µg, icv, n=6) and α -helical CRF9,41 (30 µg, icv, n=6) prior to the stress loading. Protocols were approved by the Animal Ethical Committee of Akdeniz University (B.30.2.AKD.0.05.07.00/133).

Results: Compared to their basal levels, OXA and CRF concentrations were increased ($p<0.05$) in ARS-loaded rats, whereas they were significantly ($p<0.05$) attenuated by pretreatment of their receptor antagonists. ARS disturbed the coordination of antro-pyloric contractions remarkably, which was attenuated partially by SB-334867 and α -helical CRF9,41. The ARS-induced changes were abolished completely when both antagonists administered together.

Conclusions: As a part of acute stress response, endogenous OXA appears to contribute to the CRF-induced impairment of gastric motility within hypothalamic neurocircuitry.

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PC052

The Effects of Agomelatine on Indomethacin-Induced Gastric Injury in Rats

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Aim: Gastric epithelial cells are exposed to toxic agents that can cause continuous mucosal injury. Cold/stress, ethanol, free oxygen species, ischemia/reperfusion and nonsteroidal anti-inflammatory drugs (indomethacin, aspirin) have been shown to be the primary factors in the pathogenesis of gastric damage. It is known that indomethacin increases free radicals and these radicals also stimulate lipid peroxidation. Agomelatine is a synthetic analog of melatonin and stimulates MT1 and MT2 membrane receptors in the same way as melatonin. Anti-apoptotic and antioxidant effects of melatonin have been reported in many studies. We thought that the ability of agomelatine to reduce oxidative stress, reduce apoptotic damage, and inhibit the secretion of proinflammatory cytokines (TNF- α , IL-1) may have protective effects on indomethacin-induced gastric damage. Materials-

Methods: In the study, 4 groups were formed: shame control, indomethacin-induced ulcer, indomethacin + agomelatine low dose and indomethacin + agomelatine high dose groups.

Results: TAS, TOS, and OSI levels were determined in stomach tissue. In addition, IL-1, IL-6, IL-10, and TNF- α levels (inflammation markers) were determined by ELISA in stomach tissue.

Conclusions: The results were evaluated statistically and the protective role of agomelatine against experimental damage to gastric damage was tried to be related with histopathologic and biochemical aspects.

PC053

The Effect of Central Neuropeptide-S on Gastric Motor Functions: The Stress-related Implications

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Aims: The present study was designed to test the effect of central neuropeptide-S (NPS) on (i) gastric motor functions under basal non-stressed (NS) conditions and (ii) acute stress-induced gastric dysmotility.

Methods: Solid gastric emptying (GE) was measured in NS and restraint stress (RS)-loaded male Wistar rats. NPS (10 nmol, icv) or NPS receptor (NPSR) antagonist ML154 (20 nmol, icv) was administered centrally. Simultaneously with heart rate variability, gastric postprandial motility was recorded via a strain gage implanted under isoflurane. Immunoreactivity for corticotropin-releasing factor (CRF) and NPSR were analyzed by immunofluorescence. Data were analyzed with ANOVA followed by Tukey posthoc test. Protocols were approved by the

Animal Ethical Committee of Akdeniz University (B.30.2.AKD.0.05.07.00/88).

Results: Neither central administration of NPS nor ML154 altered the GE under NS conditions. NPS significantly ($p<0.05$) attenuated the acute restraint stress (ARS)-induced delayed GE and increased sympatho-vagal balance (LF:HF), while restoring the ARS-induced impaired postprandial contractions. Colocalization of NPSR with CRF was demonstrated in hypothalamic paraventricular nucleus and amygdala.

Conclusions: The present data suggest that centrally-administered NPS alleviates the stress-induced disruptions in autonomic outflow to viscera by inhibiting the action of CRF within hypothalamus and amygdala, the pivotal control centers of central stress circuitry.

PC054

Renoprotective Effects of Evodiamine in Renal Ischemia Reperfusion Injury

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Aim: Renal-ischemia/reperfusion(I/R)-injury resulting in acute renal failure is a major clinical problem due to the high mortality rate. Increased reactive oxygen species have been reported during renal-I/R-injury. Evodiamine is one of the main bioactive components of Evodiae Fructus. In relation to the pharmacological efficacy of evodiamine, it is focused on cancer, obesity, nociception, inflammation, cardiovascular diseases, alzheimer and infectious diseases. Evodiamine has strong-inhibitory-effects on the synthesis of basic pro-inflammatory prostaglandin E2 (PGE2). For this reason, in this study, evodiamine was used in the renal-I/R-injury model.

Methods: In this study, 4 groups were formed: control, sham-control, ischemia-reperfusion(I/R), I/R+evodiamin(1mg/kg) groups. Effects of evodiamine against renal-I/R-injury were investigated. TAS, TOS, and OSI levels were determined. IL-1 β , IL-6, IL-10 and TNF- α levels were determined by ELISA.

Results: TNF- α was increased in the IR-group compared to the control and sham groups. The level of TNF- α in evodiamine-group was reduced compared to that of the IR-group. IL-1 β , IL-6 levels were reduced in evodiamine-group compared to the IR-group. IL-10 level increased in the IR-group compared to the control and sham groups, but decreased in the Evodiamine-group compared to the IR-group. While TOS, OSI decreased in the Evodiamine-group compared to the IR-group, TAS increased.

Conclusions: When assessed for inflammation and oxidative status, administration of evodiamin clearly reduced renal-I/R-injury.

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PC055

Caftaric Acid Attenuates Kidney and Remote Organ Damage Against Oxidative Stress Induced by Ischemia/Reperfusion

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Aim: In this study, we investigated effects of low and high doses of caftaric acid, an antioxidant in reducing of kidney and remote organ damage against oxidative stress induced by ischemia/reperfusion (IR).

Methods: For this purpose, Wistar rats were used in our study and divided into 4 groups as sham (n=8), IR (1 h ischemia/24 hours reperfusion; n=8), low (40 mg/kg; n=8) and high (80 mg/kg, n=8) doses caftaric acid treatment groups. One-way analysis of variances (ANOVA) was performed, later used the Tukey test. At the end of the 24-hour reperfusion period, kidney and lung tissues were removed for the measurement of some biochemical parameters. This study was approved by Experimental Animals Local Ethics Committee of Atatürk University (27.04.2018/100).

Methods: It was seen that oxidant parameters (TOS, OSI, MDA and MPO) in the kidney and lung tissues increased significantly in the IR group but antioxidant levels (TAS and SOD) level decreased. However, it was found that the oxidant level was lowered by caftaric acid and the antioxidant capacity was supported in these tissues.

Conclusions: We can say that caftaric acid is quite effective in protecting the kidney and lung against oxidative damage in the renal IR model.

PC056

Effect of Fraxin Against Kidney and Lung Tissue Damage in Abdominal Sepsis Model Conducted by Cecal Ligation Puncture Method

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Aim: In this study, we purposed to investigate effect of fraxin on kidney and lung injury in abdominal sepsis model conducted by cecal ligation puncture method.

Methods: Sprague Dawley rats have grouped as sham, cecal ligation puncture (CLP), low dose (50 mg/kg fraxin+CLP) and high dose (100 mg/kg fraxin+ CLP) treatment groups. At the end of the experiment, rats were sacrificed and kidney and lung tissues were taken for biochemical evaluations (TAS, TOS, OSI, SOD, MPO and MDA).

Results: TOS, OSI, MDA levels and MPO activity was elevated in the CLP group compared to the sham group, but these parameters decreased due to low (50 mg/kg) and high dose (100 mg/kg) fraxin treatment groups. But, SOD activity and TAS level were decreased in the CLP group, but increased in fraxin treatment groups.

Conclusions: The biochemical results of this study showed that different doses of fraxin were effective against kidney and lung tissue damage in abdominal sepsis model conducted by cecal ligation puncture method.

PC057

Investigation of Potential Protective Effects of Ellagic Acid Against Kidney Damage Induced by Irinotecan in Male Rats

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Aim: Irinotecan (IR) is thought to work by blocking the action of an enzyme in cells called topoisomerase I. Ellagic acid (EA) is a powerful anticarcinogenic and antimutagenic natural phenolic compound. This study was planned to demonstrate the protective effects of Ellagic acid against kidney damage caused by Irinotecan. Material-

Methods: 40 Sprague-Dawley male rats were used in the study. The rats were divided into 4 groups (n=10). Groups: Control, IR (10 mg/kg/week-i.p.), IR+EA (10 mg /kg/week+50 mg/kg/day), EA(50mg/kg/day-oral gavage). On day 30 of the experiment, kidney tissues of rats were removed under ketamine-xylazine anesthesia and histological examination was performed. The study was approved by the Ethics Committee of the Experimental Animals of the Inonu University Faculty of Medicine and supported by the Scientific Research Projects Coordination Unit (project no: 2016/32).

Results: In Control and EA groups, kidney showed normal histological appearance with H-E procedure. IR group showed histopathology were observed. These findings were significantly decreased in IR+EA group. There was a parallel correlation between biochemical results and histopathologic findings of kidney tissue (p<0.05).

Conclusions: As a result of Ellagic acid have protective effects against the kidney damage which created with Irinotecan.

PC058

In Patients Who Chronic Renal Failure Relationships with Zinc and Selenium of Thyroid Hormones

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Aim: Chronic renal failure is associated with multiple organ comorbidities, often involving thyroid dysfunction, with gradual deterioration of renal function as a result of progressive loss of nephron. Our aim is to investigate the possible association of thyroid functions of chronic renal failure patients with elements zinc and selenium.

Methods: The study included 20 patients (15 female, 5 male) and 20 healthy (8 female, 12 male) who were treated at the Bitlis Tatvan State Hospital Hemodialysis Unit for 53.05±8.90 months. Blood samples from the groups were by centrifuged at 3000 rpm for 15 min separated into serums. Some of obtained serums was used for thyroid hormones and some of them were used for zinc and selenium analysis.

Results: T3,T4 and selenium levels of patient group were statistically significantly lower than control group. Zinc value of the control group was 0,6698 mg/L while zinc value of patient group was decreased to 0.5209mg/L. There is a positive correlation between T3 with selenium and between T3,T4 with zinc in patient group.

Conclusions: Investigation of the association of important elements such as zinc and selenium with chronic renal failure in humans will contribute to improvement of prognosis of this disease and the development of new treatment modalities.

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C059

Modulation of the Oxidative Stress and ICAM-1 Levels by Metformin in Intestinal Ischemia/Reperfusion Injury

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Aim: Intestinal ischemia/reperfusion (I/R) injury can cause multiorgan failure and death in consequence of systemic inflammatory response. Metformin is a biguanide drug used for antihyperglycaemic effects. The purpose of the this study was to investigate the effects of metformin on the experimental model of intestinal I/R injury.

Methods: The mesenteric artery was clamped to induce ischemia for 45 minutes followed by reperfusion for 2 hours. Rats were divided to five groups (n=8). (1) Sham control group, (2) I/R control group, (3) Metformin 50 mg/kg treated I/R group, (4) Metformin 100 mg/kg treated I/R group and (5) Metformin 200 mg/kg treated I/R group. Metformin was administered by gavage for 1 week before surgery. Tissue levels of malondialdehyde (MDA), glutathione (GSH), myeloperoxidase (MPO) activity and intercellular adhesion molecule-1 (ICAM-1) as well as histological analysis were evaluated.

Results: In the I/R group, MDA, MPO, ICAM-1 levels and histopathological scores were increased however, GSH levels was decreased. Metformin treatment decreased MDA levels and improved histopathological scores in 100 and 200 mg/kg doses and decreased ICAM-1 and MPO levels all of doses. Metformin treatment did not change GSH levels.

Conclusions: These results demonstrate that metformin has protective effects on intestinal injury induced by I/R in rats.

PC060

The Effects of Erdosteine and Vitamin D on TRPM 2 Ion Channel in Renal Ischemia Reperfusion Damage Model in Rats

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Aims: The molecular steps of cell death resulting from ischemia reperfusion injury are not completely known. Therefore, we aimed to investigate the effects of erdosteine and vitamin D which have antimicrobial and antiinflammatory effects, on the gene expression level of TRPM2 ion channel by forming renal ischemia/reperfusion(I/R) model in our study.

Methods: Male Wistar albino rats were divided into 5 groups: sham (S; n=7), renal ischemia/reperfusion (I/R; n=9), erdosteine + ischemia/reperfusion (Erd+I/R; 7 days before I/R, 50 mg/kg/day Erd by oral gavage; n=7), vitaminD + I/R (VitD+I/R; 7 days before I/R, intramuscular 500 I.U/kg/day DVit; n=10), erdosteine + vitaminD + I/R (Erd+VitD+I/R; 7 days before I/R, 50 mg/kg/day Erd by oral gavage and intramuscular (500 I.U/kg/day DVit; n=8). In the I/R groups, left kidneys of the animals were subjected to 60minutes ischemia and 24hours reperfusion. Kruskal-Wallis and Mann-Whitney U tests were used for statistical evaluation.

Results: TRPM2 gene expression level in I/R group was found to be significantly higher than the sham group (p<0.05). TRPM2 gene expression level significantly decreased in Erd+I/R, VitD+I/R and Erd+VitD+I/R groups as compared to I/R group (p<0.05). No significant difference was found when Erd+VitD+I/R group were compared separately with Erd+I/R and VitD+I/R groups.

Conclusions: We think that erdosteine, vitamin D and these combination applications before I/R may act to prevent renal I/R injury associated with inhibition of oxidative stress by decreasing TRPM2 gene expression levels.

PC061

Effect of Erythrocyte Deformability on Esmolol in Rat with Lower Extremity Ischemia Reperfusion

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Aim: We aimed to investigate the effects of esmolol on erythrocyte deformability in rat lower limb I/R injury.

Methods: Following ethics committee approval 24 Wistar Albino male rats were randomly divided into 4 groups, Control (GroupC), Esmolol (GroupE), Ischemia-reperfusion (GroupI/R), I/R-Esmolol (GroupI/R-E). In I/R group, atraumatic microvascular clamp was placed to infrarenal abdominal aorta. After 120 minutes from ischemia, the clamp was removed and reperfusion was performed for 120 minutes. Esmolol (200 µg/kg) was administered 30 minutes before the operation in I/R-Esmolol group. Erythrocytes were obtained from heparinized whole blood samples. A constant flow filtrometer was used to measure erythrocyte deformability and relative resistance was calculated.

Results: Ischemia reperfusion increased relative resistance when compared to control group (p<0.001). The erythrocyte deformability index was significantly higher in the I/R and I/R-E groups than in the control group(p<0.001,p<0.001, respectively). Esmolol application significantly decreased the erythrocyte deformability index according to the I/R group (p=0.039).

Conclusions: It was found that the application of esmolol partially corrects the erythrocyte deformability impairment in the I/R-generated rats. Findings that we have reached in our study suggest that the protective effects of esmolol in I/R damage will be shown in detail and the indications for use will expand when supported by other studies.

PC062

Protective Effect of Casticin Against Ovary Ischemia-Reperfusion Damage

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Aim: In this study, protective effects of casticin different doses to reduce ovarian tissue damage were evaluated in experimental animals.

Methods: Sprague Dawley female rats were divided into four groups (n=8). Groups were conducted as sham (only laparotomy was performed), ischemia-reperfusion (the bilateral ovaries was rotated for 720 degrees around itself, fixed with a clamp for 3 hours and later, the clamp was opened and the blood flow of ovary tissue was provided for 3 hours), low dose of casticin (5 mg/kg i.p + ischemia 3 h/reperfusion 3h) and high dose of casticin (10 mg/kg i.p + ischemia 3 h/reperfusion 3h). Total oxidant status (TOS) and total antioxidant status (TAS), oxidative stress index (OSI), superoxide dismutase (SOD), myeloperoxidase (MPO) activities and malondialdehyde (MDA) levels were measured biochemically in the ovary tissues obtained with the completion of the experiment.

Results: TOS, OSI, MDA levels and MPO activity, was significantly elevated in the ischemia-reperfusion group compared to the sham group, but these parameters decreased due to different doses of casticin. In addition to, TAS level and SOD activity were decreased in the ischemia-reperfusion-group, but increased with application of casticin.

Conclusions: In study of the ovarian-ischemia-reperfusion, lipid peroxidation in the ovary tissue is decreased due to the application of casticin in different doses given before the reperfusion, thus casticin protects the against the oxidative stress.

PC063

Effect of ACA on Ischemia / Reperfusion Injury in Rats (A Histological Study)

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Aim: In this study, we investigated the effect of transient receptor potential melastatin-2 (TRPM2) channel, which is activated by oxidative stress and is associated with inflammation inhibitor N-(p-aminocinnamoyl) anthranilic acid (ACA) on renal I/R damage.

Methods: Our work has been approved by Inonu University Animal Research Ethics Committee (2017/A-17). 36 male Sprague-Dawley rats were divided into 4 groups (Control, I/R, I/R+ACA 5 mg, I/R+ACA 25 mg). Both kidneys of the animals in the I/R group were subjected to 45 minutes of ischemia

followed by 24 hours of reperfusion. Two different doses of ACA (5 and 25 mg / kg) were administered intraperitoneally to the treatment groups. Rat kidney tissues were histopathologically examined and immunohistochemically measured caspase-3 levels. All groups were compared by the nonparametric Kruskal-Wallis test. P<0.001 value was regarded as significant.

Results: Compared with the control group, in the I/R group; Severe glomerular and tubular damage occurred (p<0.001). At the same time, the number of caspase-3 positive cells significantly increased. ACA administration significantly reduced renal injury and caspase-3 positive cells compared to the I/R group.

Conclusions: ACA reduced apoptosis, glomerular and tubular damage due to kidney I/R. This study was supported by Bozok University (BAP-6602c-TF/17-83).

PC064

A Bioinformatic Analysis of the Genes and Pathways Related to Diffuse Intrinsic Pontine Glioma

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Aim: Glioma refers to a brain tumor arising from the glial cells. The diffuse intrinsic pontine glioma (DIPG) that centered in the pons is a severe, rare inoperable pediatric malignancy. Generally, DIPG patients harbor the p.Lys27Met mutation on the genes H3F3A and HIST1H3B. The aim of the study is to generate a list of related genes and pathways involved in the formation of DIPG by using bioinformatics tools.

Methods: The genes and pathways associated to glioma and DIPG were identified using online databases, including GeneCards, STRING and Gene Ontology (GO).

Results: Glioma and DIPG were associated with 4037 and 23 genes, respectively; including H3.3 (H3F3A), H3.1 (HIST1 gene group), ACVR1 and EZH2. STRING and GO enrichment analysis for the DIPG related genes revealed 'regulation of gene expression' and 'cellular response to reactive oxygen species' for biological process analysis. Furthermore, DIPG was related to 'G-protein coupled receptor pathways', 'apoptotic pathways in synovial fibroblast' and 'MAPK/ERK signaling pathways', leading to molecular mechanisms of cancer.

Conclusions: It could be suggested that the posttranslational modifications in the histone code leading to DIPG could be effected by the ACVR1 and EZH2 genes influencing embryonal development, which might further be regulated by molecular cancer pathways.

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PC065

The Effect of Melatonin on Chemotherapeutic Activity of PTX on HCT-116 Human Colon Cell Line

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Aim: Colorectal cancer is one of the most prevalent cancer type. Combinatorial treatment strategies are important field of cancer research. Paclitaxel (PTX) is a chemotherapy medication used to treat huge number of types of cancer. However, the resistance to the PTX treatment restrict its use in the clinics. Melatonin (MTN) is mainly produced by pineal gland. Besides its well-known function as the regulation of the circadian rhythm, anticancer effects have been indicated. The aim of this study is to determine the effect of MTN on PTX treatment.

Methods: The WST-1 colorimetric cell proliferation assay has been used to determine the toxicity, effective dose and exposure time of PTX and MTN. Flow cytometry-based apoptosis and necrosis detections have been performed.

Results: In this study, we examined whether MTN enhances chemotherapeutic activity of PTX on HCT-116 human colon cancer cell line. One-way ANOVA and Tukey's test were performed. Both drugs alone reduced the cell viability in a dose dependent manner ($p < 0.05$). Combination of drugs reduced the cell viability compared to PTX alone significantly ($p < 0.001$). Apoptosis and necrosis results are parallel with cell viability results.

Conclusions: Our results suggest that MTN potentiates the chemotherapeutic effect of PTX in a dose dependent manner.

PC066

Involvement of Intracellular Ca²⁺ Stores in Spontaneous Ca²⁺ Oscillations in a Human Strongly Metastatic Prostate Cancer Cell

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Aim: Intracellular Ca²⁺ can regulate a wide range of cellular processes including proliferation and metastasis. Interestingly, spontaneous Ca²⁺ oscillations were shown earlier to occur in strongly (but not weakly) metastatic human prostate cancer (PCa) cells. Here, we investigated the possible involvement of intracellular Ca²⁺ regulators - sarcoplasmic-endoplasmic reticulum Ca²⁺-ATPase (SERCA) and ryanodine receptor (RyR) - in the generation of spontaneous Ca²⁺ oscillations in PCa cells.

Methods: Experiments were carried out on human strongly metastatic PC-3M cells. Intracellular free calcium ion ([Ca²⁺]_i) was measured using a membrane soluble fluorescent Ca²⁺-indicator dye (Fluo-4AM) and imaged at 1 sec intervals on a Leica SP5 confocal microscope. For each cell, mean intensity of fluorescence was measured relative to baseline. Each experiment was done on a minimum of three separate dishes (26 cells).

Results: Application of the SERCA inhibitor thapsigargin (5 μM) and RyR activator caffeine (10 mM) both suppressed the Ca²⁺ oscillations ($n = 3$). Inhibition of RyR with 50 μM ryanodine

significantly decreased the amplitude of the [Ca²⁺]_i oscillations by 59% ($p < 0.001$; $n = 26$). In addition, oscillation frequency was significantly reduced by 72% ($p < 0.001$; $n = 26$).

Conclusions: It was concluded that SERCA and RyR play a significant role in the generation of the spontaneous [Ca²⁺]_i oscillations in PC-3M cells.

PC067

Investigation of Age-Related Changes in Oxidant and Antioxidant Status with mTOR Signal Pathway in Rat Liver Tissues

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Aim: The aim of our study is to investigate age-related changes in oxidant/antioxidant status and mTOR signaling pathway activity in liver.

Methods: Total oxidant (TOS) and antioxidant (TAS) levels in liver tissues of Sprague-Dawley rats at different age groups (0, 7, 14, 28-day and 2, 3, 6, 12, 18 24-mo-old.) were determined by colorimetric assay. mTOR pathway and active Caspase-3 activity were examined by western blot method in newborn, young adult, adult, aged rats (0, 28-day and 3, 24-mo-old.). Experimental procedures were approved by the Yeditepe University local ethics committee. Statistical analyses were conducted by using oneway ANOVA followed by Tukey's multiple comparison test.

Results: Our preliminary data suggests that TOS levels did not change significantly with age, while an increase with TAS levels were observed. TAS levels increased in 18 and 24-mo-old rats compared to 7 and 14 day old rats ($p < 0.05$, $n \geq 3$). Apoptotic activity increased with increasing age ($p < 0.05$). In mTOR signaling pathway activity, there was an age-dependent change in pS6 protein level in particular.

Conclusions: Age-related increase in TAS levels with unchanged TOS levels suggests that increased TAS capacity may control oxidative stress. Moreover, active Caspase-3 activity increases with age as well.

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PC068

The Effect of Ozone Treatment to Blood Samples of Patients with Rheumatoid Arthritis on DNA Damage

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Aim: In this study, we examined whether rheumatoid arthritis (RA) occurred a damage on DNA with 8-OHdG level and whether ozone treatment to blood samples of patients with RA occurred a damage on DNA.

Methods: The study was conducted with 32 RA patients and 31 people as control. To search the effect of ozone on DNA damage, blood samples of participants were examined by applying ozone (50 µg/ml), and others were examined by Comet method without ozonization. Serum 8-OHdG levels were measured by ELISA.

Results: 8-OHdG levels of RA patients were not found different than control group and 8-OHdG levels of patients in remission were not found different than patients in the active stage of the disease. According to comet data, no increase in DNA damage in RA patients was seen and no increase in DNA damage because of ozone treatment was observed either in healthy persons or RA patients.

Conclusions: It was observed that DNA damage did not increase by 8-OHdG levels in RA patients and applying ozone directly into the blood did not cause a damage in DNA. This study was conducted with ethical board approval and was supported by Çanakkale Onsekiz Mart University-Scientific Research Coordination Unit (TYL-2015-706).

PC069

Curcumin and Resveratrol as Protective Agents on Rotenone Induced Neurotoxicity

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Aim: Rotenone, is highly toxic and a general use pesticide. Curcumin and resveratrol are natural polyphenols that have protective effects. In this study, our aim was primarily to show the neurotoxic effects of rotenone on neuroblastoma cells and to investigate the effects of curcumin and resveratrol on cell proliferation and colony formation in neuroblastoma cells induced by rotenone.

Methods: The human neuroblastoma cell lines (SH-SY5Y) were used. In vitro assay, cell proliferation (MTS) and colony formation were assessed. Toxicity was established by applying rotenone in different doses, and the effective dose was determined to be 200 nM. Curcumin (10, 50, 100, 500, 1000 nM) and resveratrol (1, 5, 10, 50, 100 µM) were used for pre-treatment. One-way-Anova was used to evaluate the differences between the groups.

Results: Our results showed that pre-treatment with curcumin (10 nM) and resveratrol (1 µM) for 24h improved cell proliferation %87 and %98, respectively compare to control (p<0.05) in SH-SY5Y cells insulted with rotenone (200 nM). Colony formation capacity with these agents was also increased by 97% and 105% (p<0.05).

Conclusions: Curcumin and resveratrol increased cell proliferation and colony formation in SH-SY5Y cells insulted with rotenone. These findings suggest that polyphenols have a potential protective effect against neurotoxicity.

PC070

Effects of Opioids On Sodium Transport in Lung Alveolar Epithelium

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Aim: Pulmonary edema is often observed in patients suffering from opioid intoxication, where the most common ones are morphine, heroin, methadone. Active sodium-reabsorption drives the fluid reabsorption from the alveolar space and thus prevents edema. Here we tested, whether pulmonary edema may depend on opioid-induced effects on alveolar sodium-reabsorption.

Methods: Rat primary alveolar type II cells (AEC) were isolated, cultured to confluence, and sodium transport across the AEC was measured in Ussing chambers in presence of µ, δ, and κ opioid receptor agonists. Expression of opioid receptors was measured by Western blot. Values are means±SD, compared by One Way Repeated Measures ANOVA followed by Fisher LSD post-hoc test. Animal experiments were approved by Animal Protection Committee of University of Heidelberg and Regierungspräsidium Karlsruhe.

Results: AECs expressed all three opioid receptor subtypes. The δ-opioid receptor agonist DPDPE decreased amiloride-sensitive transepithelial sodium transport which reflects inhibition of epithelial Na-channels, (p<0.05). In contrast, the µ and κ opioid agonists DAMGO and U50488, respectively, stimulated sodium transport over a broad range of doses (p<0.05).

Conclusions: Besides their effects on central regulation of respiration, opioids also seem to affect lung sodium-reabsorption. In case of δ receptor stimulation, pulmonary edema may be caused by opioid-induced inhibition of alveolar reabsorption.

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PC071

Effect of Alpha-Lipoic Acid on TRPM7 Gene Expression in Experimental Varicocele Model

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Aim: Varicocele, occurred by backflow due to spermatic vein dilatation, is a pathological condition that causes male infertility by testicular temperature increase and increased oxidative stress. Reactive oxygen radicals are known disrupt spermatogenesis. we aimed to investigate the effect of alpha lipoic acid (ALA) on the TRPM7 ion channel whose activation could be changed in oxidative stress, in rats with varicocele.

Methods: This study was approved by the ethics committee of the MKU (2017/7-3). 24 Wistar albino male rats; Sham (S; n=8), Varicocele (V; n=8) and Varicocele +ALA (V+ALA; n=8). S; abdomen was opened and closed before varicocele. V; varicocele model was formed. V+ALA; after the varicocele was formed, 100 mg/kg ALA was administered by oral gavage every day for 8 weeks. TRPM7 gene expression levels were determined in testes tissues. According to the Shapiro Wilk normality test, Kruskal Wallis test was used. Mann Whitney U test was used in the comparison of groups.

Results: When compared to the other two groups, TRPM7 expression level was found to be statistically significant higher in V group ($p<0.01$, $p<0.05$, respectively). When compared to V group in V+ALA group, TRPM7 expression level was found significantly decreased ($p<0.05$).

Conclusions: TRPM7 is known to be highly expressed in spermatogenic cells in rat testes. We believe that ALA may contribute to the regulation of spermatogenesis by controlling Ca²⁺ signaling pathway with Mg homeostasis via TRPM7.

PC072

An Undergraduate Pilot Study: The Effectiveness of Industrial Grease in a Deep Partial-Thickness Burn Model

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Aim: The burn's an injury which may threaten the life and require emergency care. The effectiveness of the grease, which is empirically used for burn treatment by industrial laborers, was investigated in this pilot study.

Methods: Total of 6 Wistar rats was equally assigned to groups: Sham, Grease, and Sulphadiazine. Deep-partial-thickness burn wound (3-cm diameter) was generated on the dorsum of animals. Paracetamol (2%) was added to drinking waters for 3 days to restrict pain. Industrial grease or sulphadiazine (2 g) was topically applied to respective groups. The treatment was maintained until complete wound recovery to be observed in any animals. The two-way RM-ANOVA and post-hoc Tukey's test were used for statistical analyses. Accordingly, the treatment type

and time were dependent to the wound diameter (Ethics approval #2018/5-4).

Results: The study was ended when complete recovery was recognized in Sulphadiazine group at 21st day. Time ($p<0.001$) and the treatment type ($p=0.027$) independently affected the recovery (interaction, $p=0.251$). Sulphadiazine was superior to non-treatment ($p=0.034$) and grease ($p=0.038$), but there was no significance between non-treatment and grease ($p=0.977$).

Conclusions: Considering the complications, industrial laborers should be advised to refer current medical treatment choices instead of those that are not based on evidence.

PC073

Beneficial Effects of Beta Glucan Against TCDD Side Effects on The Hepatotoxicity System in Rats

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Aim: 2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin (TCDD) is a widespread environmental contaminant which causes severe toxic effect in animal and human. Beta glucan (BG) is known as strong antioxidant matter and is able to scavenge free radicals. Therefore this study aimed to investigate the protective effects of beta glucan and TCDD induced hepatotoxicity in rats.

Methods: 40 male Sprague-Dawley male rats were used in the study. The rats were divided into 4 groups (n=10). Groups: Control, TCDD (2microgram/kg/week-i.p.), TCDD+BG (2µg/kg/week+50mg/kg/day), BG (50mg/kg/day, oral gavage). On day 30 of the experiment, liver tissues of rats were removed under ketamine-xylazine anesthesia and histological examination was performed. The study was approved by the Ethics Committee of the Experimental Animals of the Inonu University Faculty of Medicine and supported by the Scientific Research Projects Coordination Unit (project no: 2015/45).

Results: In control and beta glucan groups, liver showed normal histological appearance with H-E procedure. TCDD group showed histopathology were observed. These findings were significantly decreased in TCDD+BG group. There was a parallel correlation between biochemical results and histopathologic findings of liver tissue ($p<0.05$).

Conclusions: In conclusion, beta glucan treatment exhibited protective activity on TCDD induced hepatotoxicity.

PC074

The Role of Gilaburu (*Viburnum opulus* L.) Fruit Extract on Burn-Induced Liver and Intestinal Damage in Rats

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Aim: This study aimed to investigate the effects of gilaburu (*Viburnum opulus* L.,GB) fruit extract on burn-induced remote organ injury in rats.

Methods: Under ether anesthesia, rats were exposed to 90oC (burn) or 25oC (control) water-bath for 10s to induce burn and treated either with saline (1 ml;p.o.) or GB (100 mg/kg/d;p.o.) immediately and at 24h after the burn injury. In the pretreatment group, GB administration was started 1 week before the burn injury. Rats were sacrificed 48h after burn injury, biochemical parameters in serum and tissue samples were measured.

Results: High liver enzymes in the serum, elevated malondialdehyde, luminol- and lucigenin-enhanced chemiluminescence values, and reduced antioxidant glutathione levels in liver and intestinal tissues of the burn group were all reversed by GB treatments (p<0.05-0.001). Increments of myeloperoxidase activity in both tissues were decreased in liver by GB treatments (p<0.001). Increased nitric oxide and peroxynitrite chemiluminescence levels in intestinal tissues were decreased by GB pretreatment (p<0.05-0.01), whereas elevated caspase-3 activity in liver tissues was decreased when GB was given immediately and at 24h after the burn injury (p<0.05).

Conclusions: Gilaburu has therapeutic and protective effects against burn-induced oxidative damage in remote organs by inhibiting burn-induced oxidative stress and inflammatory response.

PC075

Intestinal Ischemia Reperfusion Injury is Prevented by Urapidil According to Biochemical Results

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Aim: Intestinal-ischemia-reperfusion injury (IR) is one of the most important challenges of medical researchers because of its complications. Antioxidant enzymes like superoxide dismutase (SOD), catalase (CAT), and glutathione are so necessary to prevent oxidant status. MPO (myeloperoxidase) and MDA

(Malondialdehyde) are used to detect the inflammatory status. The oxidative stress can be estimated by TOS (total oxidant status), TAS (total antioxidant status) and OSI (oxidative stress index). In our study, we studied effects of urapidil on intestinal IR with two different doses (0,5 mg/kg-5 mg/kg) in order to understand whether urapidil has antioxidant effect or not.

Methods: In our study, 40-Wistar-albino-female-rats were divided into 5 groups including sham (group 1), IR (group 2), IR plus DMSO (dimethyl sulfoxide) (group 3), IR plus urapidil 0,5 mg/kg (group 4), and IR plus urapidil 5 mg/kg (group 5).

Results: While TAS levels are found as significantly reduced in the group 2 and 3 compared to sham (group 1); TOS, OSI, MDA and MPO levels was found significantly increased. While TAS is found as significantly increased in both group 4 and 5 compared to group 2 and 3, TOS, OSI, MDA and MPO levels, statistically significant decreased.

Conclusions: According to whole results, urapidil prevented the oxidant effects of reperfusion injury on intestinal tissue.

PC076

Evodiamine Against Intestinal Tissue Damage Induced by Mesenteric Ischemia-Reperfusion

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Aim: This study aimed to show protective effect of evodiamine against intestinal tissue damage induced by mesenteric ischemia-reperfusion. For this purpose, mesenteric ischemia-reperfusion model in experimental animals was conducted in our study.

Methods: In the low and high doses treatment of evodiamine and ischemia-reperfusion groups, superior mesenteric artery was clamped for 1h. Then, the clamp was opened and reperfusion was started for 2h. After termination of the experimental process, all animals were sacrificed and intestinal tissue samples were collected.

Results: It was seen that TOS, OSI, MDA levels and MPO activity increased ischemia-reperfusion group according to sham group. Moreover, SOD activity and TAC level reduced in the ischemia-reperfusion group. TAC value and SOD activity increased while TOS, OSI values, MPO activity and MDA level were decreasing in groups treated low and high doses of evodiamine (10 and 20 mg/kg) groups.

Conclusions: Two different doses of evodiamine revealed protective effects against intestinal tissue damage induced by mesenteric ischemia-reperfusion.

PC077

Effects of Propolis on Spatial Memory and Hippocampus of Lithium-Pilocarpine-Induced Status Epilepticus in Rats

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Aim: The aim of study is to detect neuronal changes in propolis hippocampal tissues and spatial memory in SE rats.

Methods: 50 Sprague-Dawley female rats were used In the study. Groups were divided into 10 rats, group 1 (G1) control, G2 (propolis + lithium-pilocarpine) G3, (lithium-pilocarpine + diazepam + propolis), G4 (lithium-pilocarpine-propolis), G5 (lithium-pilocarpine). Rats were floated in the Morris Water Tank. Then, hippocampus of the rats was removed and histological examination was performed. Mann-Whitney U test was used to assess data. $p < 0.05$ was considered statistically significant. The study was approved by Inonu University Medical Faculty Experimental Animal Ethics Committee and supported by Scientific Research Projects Coordination Unit (project no: 2014/14).

Results: Compared with the epileptic group, in the propolis group, duration of stay in the quadrants was long, platforming delay time and path were statistically shortened. The results obtained for the Morris Water Tank showed a parallelism between the changes in the morphological and numerical intensities of the neurons in the hippocampal area of the subjects ($p < 0.05$).

Conclusions: According to results; in SE rats propolis has been found to contribute to the elimination of the consequences of seizure-induced damage, especially when used at post-seizure phase.

PC078

Effect of Neuropeptide S on Penicillin-Induced Experimental Epileptiform Activity

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Aim: Epilepsy is a neurological disorder characterized by recurrent seizures. Neuropeptide S (NPS) is a regulatory peptide with potent pharmacological effects. NPS, reduces stress due to anxiety, increases dopamine levels, improves memory impairment and reverses neuronal loss caused by neurotoxins. In the present study, we aimed to investigate the effect of NPS on penicillin-induced epileptiform activity.

Methods: Male Wistar rats (n=70) weighing 210-230 g were used and all experiments approved by OMU Local Ethics Committee (2016/54). Rats were anesthetized with urethane and epileptiform activity was generated by intracortical injection of 500 IU Penicillin-G. NPS was intracerebroventricularly (i.c.v.) administered at eight different doses varies between 0.025-1 nmol. The chronic effect of NPS, the dose of 1 nmol (i.c.v.) was administered with the cannula every day for seven days.

Statistical comparisons were performed by ANOVA and Mann Withney-U tests using SPSS 17.

Results: All dose of NPS did not alter either mean frequency or amplitude of penicillin-induced epileptiform activity compared to control group. Chronically administration of NPS also did not affect the mean frequency and amplitude of epileptiform activity ($p > 0.05$).

Conclusions: NPS had no effect on epileptic activity at least, on the penicillin-induced epileptiform activity.

PC079

Effect of Ceftriaxone on Spontaneous Epileptic Discharges in Genetic Absence Epileptic WAG/Rij Rats

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Aim: An antibiotic Ceftriaxone, reduces generalized seizures when administered chronically. In this study, we examined the effect of ceftriaxone on spontaneous epileptic discharges in genetically absence epileptic WAG/Rij rats.

Methods: 6-7 months old WAG/Rij male rats (n=12) weighing 185-200 gr were divided into 2 groups; saline and ceftriaxone (200 mg/kg), after receiving permission from OMU local ethics committee. Bipolar electrodes were placed to the anesthetized animals. Following the recovery period, 3 hours of basal activity was recorded and after, rats received intraperitoneal (i.p.) 200 mg / kg ceftriaxone for 1 week. One hour after the last injection, 3-hour of ECoG activity was recorded again and the obtained data was compared with the pre-drug ECoG activity in terms of the number of spike wave discharges (SWDs) with the paired-t test.

Results: There was no statistically significant difference in the number of SWDs between control group (physiological saline; 1 ml, i.p.) and 200 mg/kg seftriaxone group (1 ml, i.p.) ($p > 0,05$).

Conclusions: In this study, it was determined that the application of chronic ceftriaxone does not affect the SWDs number. Ceftriaxone, commonly used antibiotic in the treatment of infections, can be used safely in absence epileptic patients.

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PC080

Effect of Exercise-Related Coenzyme Q10 Use on Epileptiform Activity in Rats

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Aim: The purpose of the present study was to evaluate the effects of treadmill exercise and coenzyme Q10 (COQ10) support on the frequency and amplitude of epileptiform activity in rats.

Methods: A total of 25 male albino Wistar rats were divided into four groups as Exercise (E), Control (K), Coenzyme Q10 (KoQ10) and Coenzyme Q10+exercise group (KoQ10+E). The experimental protocol was applied for 5 days a week during 10 weeks (Ethics committee number: OMU-HADYEK;2017/62). The rats were given a microinjector with 500 IU of penicillin in the left cortex and electrocorticogram recording was carried out for three hours using the PowerLab data collection system. The data were analyzed with Anova (SPSS v.21).

Results: Exercise significantly reduced the mean number of spikes of epileptiform activity between the 70th and 110th minutes compared to the control group ($p<0.05$). This significance was at an advanced level between 80th and 90th minutes ($p<0.001$). It was found that epileptiform activity decreased significantly in KoQ10 and KoQ10+E groups.

Conclusions: In this study, exercise and COQ10 supplementation were found to suppress epileptiform activity. Furthermore, it has been determined that exercise with epilepsy induced by penicillin shows more anticonvulsant effect by potentiating the effect of COQ10.

PC081

Effect of Caffeine on Spike Wave Discharges in Genetic Absence Epileptic WAG/Rij Rats

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Aim: Caffeine, a methylxanthine derivative, is found in many foods, especially beverages and it is also used as a food supplement by athletes. In this study, the effect of intraperitoneal (i.p.) administration of caffeine was examined on spike wave discharges (SWDs) in WAG/Rij rats.

Methods: Bipolar electrodes were placed in male 7-8 months old WAG/Rij rats weighing 200-220 gr ($n=28$) after receiving permission from OMU local ethics committee. 3 hours of basal ECoG activity was recorded. Caffeine was administered intraperitoneally at doses of 1, 3, and 10 mg/kg and ECoG recordings were obtained for another 3 hours. Paired-t test was used for comparisons.

Results: In control (physiological saline; 1 ml, i.p.) and 1 mg/kg caffeine (i.p.) groups, there was no significant difference between post-drug and pre-drug period in the number of SWDs. However,

at the doses of 3 mg/kg and 10 mg/kg caffeine significantly decreased the number of SWDs ($p<0.05$).

Conclusions: Caffeine, is a non-selective antagonist of adenosine A1 and A2A receptors, decreased the spontaneous absence seizures in rats. It is suggested that caffeine intake may not be risky for epileptic patients with absence seizures.

PC082

Effect of N-Acetylcysteine on Spike Wave Discharges in Absence Epilepsy Model

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Aim: Epilepsy is a common chronic neurological disorder that affects 1-3% of the population. In the present study, it was aimed to investigate the effect of N-acetylcysteine (NAC) on spike-wave discharges in genetically absent epilepsy WAG/Rij rats.

Methods: Twelve-month-old female WAG/Rij rats ($n=7$) were used in the study approved by SBU-HADYEK. Baseline EEG recordings were obtained from the animals 7 days after electrode placement. NAC (300 mg/kg i.p.) was administered for 5 days after baseline EEG recording. EEG recordings were obtained after the fifth dose again. Statistical comparison was performed using the Wilcoxon test.

Results: The baseline seizure frequency (nSWD), total seizure duration (dSWD) and mean seizure duration (sSWD) before NAC were 28 ± 6 , $93,6\pm21,4$ sec and $3,29\pm0,25$ sec respectively. After 5 days 300 mg/kg NAC injection, nSWD, dSWD and sSWD were 37 ± 5 , 264 ± 153 sec and $6,47\pm3,2$ sec respectively ($p>0,05$).

Conclusions: According to the data obtained from the study, 300 mg/kg NAC administration (for 5 days) led to an increase on the frequency and duration of SWD in absence epileptic female WAG/Rij rats, but this effect was not statistically significant. In order to better understand the effect of NAC on absence epilepsy, additional investigations are required.

PC083

Effects of N-Acetylcysteine on Pain Sensitivity in Experimental Epilepsy Models

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Aim: Recently described clinical presentation of epilepsy patients with only headache is referred as “(ictal) epileptic headache”. Comorbidity of epilepsy with migraine is found highly noticeable. N-Acetylcysteine (NAC) exerts a dose-dependent analgesia by the activation of mGlu2 receptors. Present study aimed to investigate the effects of NAC in pain sensitivity in rats with absence seizures using dynamic pain tests.

Methods: 12-month-old female WAG/Rij rats (n=7) with genetically absence epilepsy were included in this study (SBÜ-HADYEK 2018-04/07). Experiments were performed when the rats were out of proestrus phase in order to prevent effects of estrogen and progesterone on the behavioral tests. 300 mg/kg NAC was administered intraperitoneally for 5 days. Dynamic plantar test was used to determine the mechanical pain threshold before and after the injections. Wilcoxon test was used for statistical analysis of the data.

Results: Mechanical withdrawal latency in rats was $9,5 \pm 1,19$ sec before NAC administration, while it was found $11,36 \pm 1,34$ after the administration ($p > 0,05$). 300 mg/kg NAC administration for 5 days in female WAG/Rij rats did not make a statistically significant difference.

Conclusions: We concluded that using different doses of NAC and extending the study by increasing n count will be beneficial.

PC084

The Effect of N-Acetylcysteine on Locomotor Activity in a Genetic Model of Absence Epilepsy

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Aim: N-acetylcysteine (NAC) is a commonly prescribed drug as mucolytic. In some animal studies, NAC used with antiepileptic drugs has been reported to exhibit an anticonvulsant effect. In the present study, it was aimed to investigate the effects of NAC on motor and locomotor activities in the genetically absence epileptic WAG/Rij rats.

Methods: 12-month-old female WAG/Rij rats (n=7) were used in the study. The rats were administered intraperitoneally 300 mg/kg NAC for 5 days. Rotarod and open field tests were performed before and after the drug application to determine the effect of NAC on motor and locomotor activities in absence epileptic rats. Statistical analysis of the data was performed using the Wilcoxon test.

Results: Before and after NAC application, the latency to fall of the rats on the rotating cylinder were determined as 203 ± 34 and 109 ± 43 sec, respectively ($p < 0,05$). In the open field test, the total distance travelled by rats before and after NAC application was $14,7 \pm 2$ and $6,7 \pm 2$ meters ($p > 0,05$).

Conclusions: While injection of 300 mg/kg NAC in female WAG/Rij rats significantly reduced motor activity in rotarod test, the decrease in locomotor activity observed in open field test was not statistically significant.

PC085

Regulatory Neuropeptide Mechanisms in Pentylene-tetrazol-Induced Epileptic Seizures in Rats

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Aim: Neurogenic inflammation causes epileptic seizures by inducing excessive neuronal discharges. Ghrelin, obestatin and vasoactive intestinal-peptide (VIP) can modulate epileptic seizures. We aimed to investigate effects of ghrelin, obestatin and VIP on seizures and plasma levels of neurogenic inflammation markers including calcitonin gene-related peptide (CGRP), substance-P (SP) and IL-1beta in pentylenetetrazol-induced seizures in rats.

Methods: Male-rats were separated five-groups (n=7). Intraperitoneally, SF group received saline alone, other groups received saline, 80µg/kg of ghrelin, 1µg/kg of obestatin and 25 ng/kg of VIP 30 min prior to pentylenetetrazol injection (50 mg/kg), respectively. Video recordings and then blood of rats were taken. Behaviors were evaluated by Racine's scale and CGRP, SP and IL-1 concentrations were measured using ELISA. Data were analyzed with one-way ANOVA.

Results: While obestatin and VIP shortened onset-time of generalized tonic-clonic seizure ($p < 0,05$), VIP also shortened onset-time of first myoclonic-jerk ($p < 0,01$). While pentylenetetrazol increased plasma levels of CGRP, SP and IL-1beta ($p < 0,05$), ghrelin prevented these increases ($p < 0,05$). While VIP further enhanced CGRP levels induced by pentylenetetrazol ($p < 0,05$), it reduced IL-1beta levels ($p < 0,05$). Obestatin had no effect on CGRP, SP and IL-1beta levels ($p > 0,05$).

Conclusions: Our findings suggest that obestatin has proconvulsant, VIP has dual and ghrelin has anticonvulsant effects on epilepsy. Receptors of these neuropeptides may be an effective target for epilepsy treatment.

PC086

The Effect of Vilazodone on Penicillin-Induced Epileptiform Activity

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Aim: Vilazodone is a selective serotonin reuptake inhibitor and partial serotonin (5-HT_{1A}) receptor agonist which is commonly used for the therapy of depressive disorders. The aim of the study is to investigate the effects of vilazodone on the epileptiform activity induced by penicillin.

Methods: In this study, 24 adult male Wistar rats weighing 210 ± 30 g were used. Epileptiform activity was induced by injecting 500 IU Penicillin-G potassium (intracortically). Vilazodone, at doses of 5, 10, 20 mg/kg, (intraperitoneally) were applied 30 min after penicillin. This study was approved by the local Ethical Committee (OMU HADYEK) and supported by OMU Project Office (PYO.TIP. 1904.17.018). One-way ANOVA and the post-hoc Tukey tests of SPSS were used for statistical analyzes

Results: Vilazodone, at doses of 10 and 20 mg/kg, significantly decreased the mean frequency of epileptiform activity between 50-180 th min and 50-60th min compared to control group, respectively ($p < 0,05$). The dose of 5 mg/kg vilazodone did not significantly alter the frequency of epileptiform activity.

Conclusions: In this study, intermediate dose of vilazodone suppressed the epileptiform activity induced by penicillin. Further studies are needed to explain the certain mechanism of anticonvulsant effect of vilazodone on epilepsy.

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PC087

The Role of Nitrergic System in The Effect of Exenatide on Penicillin Induced Epileptiform Activity

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Aim: The aim of this study is to investigate the effects of exenatide, on penicillin-induced epileptiform activity in rats.

Methods: In the study 72 male Wistar rats were used. Exenatide was intraperitoneally injected, at doses of 50, 100, 200 µg/kg, respectively, 30 minutes before the penicillin injection. SNP or L-NAME were injected with exenatide 30-min before penicillin. One-way ANOVA and Post Hoc Bonferroni tests were applied. Our study is approved by ethics committee. This study was supported by Ondokuz Mayıs University (PYO.TIP: 1904.17.009).

Results: While administration of 200 µg/kg exenatide reduced the frequency of epileptiform activity ($p < 0.05$), 50 and 100 µg/kg doses of exenatide were not effective ($p > 0.05$). When the effective dose of exenatide and the SNP (50 µg/2 µl) were injected together spike frequency decreased significantly between 0-170 min ($p < 0.05$). When the effective dose was given together with L-NAME (100 µg/2 µl) spike frequency significantly decreased only between 90-110 minutes after penicillin injection ($p < 0.05$). There was no statistically significant difference in terms of latency and amplitude between the experimental groups.

Conclusions: It is thought that exenatide has an anticonvulsant effect, as the exenatide effect is partly blocked by L-NAME, it may also be via a different pathway besides NO.

PC088

Effects of Paricalcitol on WAG/Rij Rats with Absence Epilepsy

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Aim: Vitamin D is considered as neurosteroid and has a pivotal role in neuroprotection. Vitamin D regulator acts via vitamin D receptor. Paricalcitol is a vitamin D receptor agonist and has relatively few side effects. Genetically epileptic WAG/Rij rats model of absence epilepsy. The aim of this study was to evaluate the anticonvulsant effects of paricalcitol on WAG/Rij.

Methods: All procedures were approved by the Animal Ethics Committee of GaziOsmanPaşa University (2018-HADYEK-17). 21 male WAG/Rij rats were divided randomly into three groups. Tripolar electrodes were placed on skull to perform ECoG evaluation. Following the recovery period, ECoGs were recorded at 09:00 am for 2 hours every day. Subsequently, control (Group I; saline 0.5 ml/kg), paricalcitol (Group II: 5 µg/kg), paricalcitol (Group III: 10 µg/kg) were administered intraperitoneal (i.p.). 30 minutes after injection all animal ECoGs were recorded for another 2 hours. The total number, total duration, number of

spikes per cluster and amplitude of the spike-wave discharges (SWDs) were calculated.

Results: Comparison of ECoG recordings of the same groups before and after drug administration were made by paired-sample t-tests. Paricalcitol (5 µg/kg and 10 µg/kg) reduced the total number, total duration of SWDs ($p < 0.05$), number of spikes per cluster of SWDs ($p < 0.05$), without changing amplitude.

Conclusions: Our study has demonstrated that paricalcitol has antiepileptic effects on absence epilepsy in WAG/Rij rats.

PC089

Effects of P2X7 Receptors and T-type Calcium Channel Blocker NNC 55-0396 on Oxidative Parameters in Penicillin-induced Epileptiform Activity

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Aim: In this study, In this study, effects of P2X7 receptors (P2X7R) agonist BzATP and antagonist A438079 and T-type calcium channel blocker NNC 55-0396 (NNC) and their interaction on the protein oxidation (AOPP) and lipid peroxidation (MDA) were investigated in the penicillin induced epileptiform activity.

Methods: Male Wistar rats (n=49) weighing 220-240 gr were randomly divided into 7 groups. BzATP (100 µg; i.c.v.), A438079 (20 µg; i.c.v.), and NNC (30 µg; i.c.) and their combinations were administered 30 minutes after the penicillin injection (500 IU, i.c.). The rats were decapitated. The frozen tissues were solved, homogenized and measured at 450 nm wavelengths with commercial ELISA kits of AOPP (nmol/mL-protein) and MDA (nmol/mL-protein).

Results: AOPP and MDA levels were increased in the penicillin injection group compared to the pure control group ($p < 0.05$). A438079, NNC and the combination of A438079 + NNC reduced penicillin-induced oxidative damage ($p < 0.05$). On the other hand, BzATP injection caused an additional increment in the oxidative damage caused by penicillin ($p < 0.05$).

Conclusions: In this study, for the first time it has been shown that P2X7R show their effect via T-type calcium ion channels in experimental model of epilepsy.

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PC090

A Novel Putative Indicator of Irritable Bowel Syndrome: Erythrocyte Aggregation

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Aim: The aim of the present study was to investigate whether erythrocyte aggregation (EA) is altered in experimental irritable bowel syndrome (IBS) model utilized by neonatal maternal separation.

Methods: Newborn Wistar pups underwent maternal separation (MS) for 180 min from postnatal day-2 to day-14. Experiments were performed in 3-month-old male control (n=5) and MS (n=5) rats. Colon transit (CT) was measured before and following chronic homotypic stress (CHS) comprised of 90 min of restraint stress for 5 consecutive days. At the end of the CT measurements, the blood samples were withdrawn from abdominal aorta for EA test. Data were analyzed with Kruskal Wallis followed by Mann Whitney-U test. Protocols were approved by the Animal Ethical Committee of Akdeniz University (B.30.2.AKD.0.05.07.00/88).

Results: No significant difference observed in CT under basal conditions. However, following CHS, CT was accelerated significantly ($p<0.05$) in MS rats, compared with controls. Likewise, there was no noticeable difference in EA between control and MS, however, it was increased significantly ($p<0.05$) MS rats following CHS.

Conclusions: The present data suggest a novel clinical indicator which can be used for monitoring the severity of IBS. Keywords: Irritable bowel syndrome, erythrocyte aggregation, colon transit, stress.

PC091

The Relation of Neutrophil Lymphocyte Ratio to Other Prognostic Factors in Breast Cancer

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Aim: Several studies have shown that elevation in neutrophil lymphocyte ratio (NLR), a marker of systemic inflammation, is associated with prognosis in various malignancies. In this study, the relation of pretreatment NLR to prognostic factors such as age, stage and histopathological features in breast cancer was investigated.

Methods: Files of stage I-III 42 breast cancer cases who referred to Fırat University Hospital Radiotherapy Center between March 2017 and June 2018 were reviewed retrospectively. NLR was calculated by the pre-treatment blood count results of patients. NLR cut-off value was taken as ≥ 2.5 and < 2.5 based on the literature. The relation of NLR to clinicopathologic features was evaluated.

Results: The mean NLR was 2,38 (SD \pm 1,06). There was no statistically significant correlation between NLR and clinicopathologic features. High NLR was seen in 22,2% of stage I cases, 52,9% of stage II cases and 37,5% of stage III cases ($p = 0,301$). High NLR was more frequent in cases under 40 years of age ($p = 0,069$) and in grade 2-3 ($p = 0,071$) cases.

Conclusions: In this study, the relation of NLR to prognostic factors in breast cancer was not statistically significant. This may be due to low number of patients.

PC092

Measurement of Impedance Values of Different Erythrocyte Suspensions

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Aim: The study was aimed to determine whether the impedance measurements of erythrocyte suspensions can be used with a different calculation method in determining the degree of erythrocyte aggregation.

Methods: Impedance measurements of different erythrocyte suspensions were recorded in horizontal glass capillaries with a haematocrit value of 40% with Inductance-Capacitance-Resistance (LCR) meter after a stop flow generated by the injector pump.

Results: As a result of calculating the impedance values of the samples for which the aggregation in PBS did not occur, the impedance values of the samples that aggregation at different grades took place were calculated as in the previous measurements of erythrocyte suspensions time course was significantly decreased for in diluted plasmas and was increased for in the 1% dextran 500 solution. It is obvious that Aggregation Index (AI) was calculated, using Z data exhibited a similar trend for the diluted plasma and plasma with 1% dextran 500, with a rank order of Dextran500 > whole blood > 1/3 diluted plasma > 1/2 diluted plasma ($p<0.05$).

Conclusions: Although impedance measurements of erythrocyte suspensions do not allow for the calculation of erythrocyte aggregation kinetics, it is thought that they can be used as AI which indicates the degree of erythrocyte aggregation.

PC093

Effect of Lysophosphatidic Acid on Erythrocyte Nitric Oxide Production

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Aim: It has been shown that LPA activates endothelial nitric oxide synthase (eNOS) in endothelial cells IP3/Akt pathway dependent or independent and increases nitric oxide (NO) production. Although it is known that erythrocytes have a functional eNOS enzyme and erythrocyte-derived NO plays an important role in the regulation of physiological blood flow, the effect of LPA on erythrocyte NO production has not been studied. The aim of this study is to investigate the dose and time-dependent effect of LPA on erythrocyte NO production.

Methods: Erythrocyte packed were isolated from healthy volunteers and re-suspended in Hepes solution at a hematocrit of 0.01 l/l. Different doses of erythrocytes LPA in study; 100 nM, 1 μ M and 10 μ M with 1, 5, 15 and 30 min. it was incubated. Erythrocyte NO levels were measured by flow cytometry. Student-t test was used for evaluating the results. Sampling Protocols were approved by local Ethical Committees (24.02.2016/150)

Results: Significant increase was observed 100nM; 5, 15 and 30 min ($p<0.001$; $p<0.05$; $p<0.01$), 1 μ M; 5 and 10min ($p<0.01$; $p<0.05$), 10 μ M; 5 and 30 min ($p<0.01$; $p<0.01$).

Conclusions: Different doses of LPA in erythrocytes have been shown to increase NO production by increasing eNOS activity in erythrocytes as time manner.

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PC094

The Cognitive Functions, Emotional Learning and Blood Parameters in Female and Male Depressed Mice

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Aim: Anxiety is the general term for various disorders that cause nervousness, fear, anxiety, and anxiety. In this study, the effects of acute exercise on cognitive functions, emotional learning and pain threshold were investigated in depressed male and female rats.

Methods: Balb c type 8 week old female and male mice were used in the study. The depression (D) model was constructed by floating the plastic narrow capped female (n = 20) and male (n = 20) in the depth of 50 cm for 5 minutes. The depression-generated female (n = 10) and male (n = 10) mice were floated for 20 minutes to form the exercise group (DE). In the sucrose test, group D of both sexes consumed low sucrose water and high fountain water.

Results: At the open area level, the number of line passing increased in D groups and the number of itching decreased (p<0.05). In the T maze test, the time spent in the D group increased and the escape time decreased (p<0.05).

Conclusions: Depression negatively affected cognitive functions and emotional learning in female and male rats and no significant effect on blood parameters, pain threshold.

PC095

Influence of Florfenicol on Hematological Parameters in Broilers

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Aim: Florfenicol is a thiamphenicol derivative that acts on Gram-positive and negative bacterias. The aim of this study was to investigate the effects of high doses of florfenicol on hematological parameters in broilers.

Methods: Ethical approval was obtained from Local Ethics Committee (2014/25). In the study, 32 daily Ross 308 chicks were fed ad-libitum for 4 weeks by divided into 4 groups. Then, groups were received drinking water, 40, 60 and 120 mg/kg florfenicol by gavage once a day. After 5 days, erythrocytes count, hemoglobin and hematocrit were determined. Mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), and mean corpuscular hemoglobin concentration (MCHC) were calculated. Data were assessed by one-way ANOVA and Tukey.

Results: The number of erythrocytes decreased in all groups, while hemoglobin and hematocrit values decreased in the group

of 60 and 120 mg/kg compared to the control. While MCV increased in the group given 40 and 60 mg/kg; MCH and MCHC decreased in the group of 120 mg/kg compared with the control.

Conclusions: The reduction in the number of erythrocytes in all doses of florfenicol and reduction in hematocrit and hemoglobin in doses of 60 and 120 mg/kg florfenicol attributed to the suppression of erythrocytes production.

PC096

Investigation of The Effect of Some Herbal Extracts on Platelet Indices Used in Different Proportions of Drinking Water in Experimental Heat Stress Broiler

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Aim: Recently, platelet indices have been studied in relation to many diseases such as cancer, hematologic, cardiovascular, and diseases. In this study, the effect of EOM (essential oil mixture) which consists of Eucalyptus glabatus labii, Tymus vulgaris, Cymbopogon nardus and Syzigium aromaticum plants which are used differently in drinking water on thrombocyte indices in broilers exposed.

Methods: after ethics committee approval (22.02.2018-2/24), 400 male chickens with 1 day, Ross-308 etlik were used. Platelet indices were examined in specimens obtained from 10 animals randomly selected from each group and 80 of cervical dislocation methods in total. SPSS 20.0, Duncan, repeated measures tests were used in statistical evaluation.

Results: EOM applied in experimental groups had a significant decrease in PDW values in 500 ml dose groups (p<0.05), which had no effect on PLT, MPV, P-LCR (p<0.05). EOM applied in experimental groups does not have any effect on platelet indices, whereas PDW value 500 ml dose group significantly (p<0.05). The decline in the bone marrow as a result of the deterioration of the thrombocyte function is sufficient.

Conclusions: It has been concluded that there is no thrombocyte production. This Project (2017/69001/01) was supported by Bayburt University scientific research projects.

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PC097

Effect of Season, Age, Pregnancy and Lactation on Serum β -Carotene Levels in Domestic Cattle Breeds

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Aim: β -carotene is a precursor of vitamin A and an immunomodulatory molecule with antioxidant effect. Because they can not synthesize for animals, they feed from the feed. Inadequate reproductive parameters such as ovarian functions are adversely affected and many metabolic diseases occur. In this study, the effect of race, season, age, pregnancy and lactation on serum β -carotene level was investigated.

Methods: Following the approval of the ethics committee (Decision no: 14/79), the study group consisted of 1 to 3 month old calves (1st group), 12-24 month old group (2nd group), 10 weeks lactation cattle, dry season pregnant cattle (4th group) and 4 domestic cattle (480 cattle) were used as Southern Anatolian Red, Boz and Black cattle. β -carotene levels were measured by HPLC method in blood samples of SAS program (Version 8.02) was used for statistical evaluation, Student's t-test was used for Tukey.

Results: The β -carotene levels of calves, heifers, lactation and dry periods were 19, 675, 875, 251 $\mu\text{g/dl}$ in summer. 56, 93, 195 and 180 $\mu\text{g/dl}$ in winter 3, 19, 41 and 3 $\mu\text{g/dl}$, 36, 45, 102 and 16 $\mu\text{g/dl}$ in the winter respectively.

Conclusions: Race, season, age, lactation and pregnancy parameters were found to be effective on serum β -carotene level ($p < 0.05$).

This study was supported by TUBITAK (TOVAG-2140732).

PC098

Can Luteal Cell Co-Cultures be an Alternative for Reduction of the Immunorejection in Islet Transplants?

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Aim: This study aimed to determine whether there was an effect on transplantation of islets, co-cultured with luteal cells, to immune rejection by examining the levels of the inflammatory cytokines, interleukin 1 beta (IL-1 β), tumor necrosis factor alpha (TNF- α), and interferon gamma (IFN- γ) levels.

Methods: Luteal cells and islets were cultured both separately and together, and IL-1 β , TNF- α , and IFN- γ levels in the culture medium were measured using an ELISA at 48 and 96 h during the incubation period. Data were assessed by one-way analysis of variance with repeated measures and Tukey's post hoc test.

Results: Interleukin-1 β was significantly reduced at both 48 and 96 h, and TNF- α decreased only at 48 h ($P < 0.05$) in co-cultured groups compared with the islet groups ($P < 0.01$). Also, IFN- γ levels in co-cultured groups decreased statistically only at 96 h when compared with the islet group ($P < 0.001$).

Conclusions: Although IL-1 β , TNF- α , and IFN- γ were higher in islets than in luteal cells, decreasing levels of these inflammatory cytokines in the co-cultured groups might indicate that luteal cell secretions have decreasing effects in the co-cultured cells. Therefore, it is thought that immunorejection might be reduced in islet transplantation in which co-cultured islets and luteal cells were used.

PC099

Investigation of Vitamin, Calcium and Phosphorus Levels in Individuals Aged 65 Years and Over

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Aim: Vitamin D deficiency is a common condition in the elderly population. Calcium and phosphorus balance may change due to lack of vitamin D. It was aimed to investigate vitamin D, calcium and phosphorus levels and relation between them in subjects aged 65 years and over.

Methods: Vitamin D, calcium and phosphorus levels of patients admitted to Istanbul Medeniyet University (IMU), Goztepe Training and Research Hospital (GEAH), Family Medicine between 2015-2017 were retrospectively studied. Mann-Whitney U, Student's t, and Spearman's rho tests were used for data analysis and $p < 0.05$ was considered significant.

Results: The total number of patients with D vitamin levels was 941 (men:298, women: 643) and mean vitamin D value was 26.5 ± 20.87 . The proportion of women in normal D vitamin (30-150 ng/mL) and severe D vitamin deficiency (< 10 ng/mL) group was statistically significantly higher than the men groups ($p < 0.001$). The calcium and phosphorus levels in 183 of these patients were measured. As vitamin D levels increased, calcium levels also increased although not statistically significant ($p = 0.084$) in these patients, but the phosphorus levels unchanged.

Conclusions: Vitamin D deficiency was observed in 78,2% of men and in 67,2% of women aged 65 years and over.

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PC100

Effects of Half or Whole Night Shift in Women on Melatonin and Leptin Concentrations

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Aim: Current study investigated the effects of half- or whole-night-shifts on melatonin, leptin, estrogen and progesterone concentrations.

Methods: Female nurses having daytime working hours (Group 1, n=20) were compared with female nurses with half-night shifts (Group 2, 16:00-24:00 h) and with whole-night shifts (Group 3, 16:00-08:00 h) following ethical approval (2016-197). Blood samples taken at the start and end of shifts were used for hormone analyses. One-way ANOVA was used for the statistical comparisons.

Results: Melatonin concentrations were not different between the groups but there was a decrease from the beginning towards the end of the shifts in Groups 1 and 3 ($p<0.05$). Leptin concentrations were higher in nurses under half- and whole-night-shifts than the women under daytime working schedule ($p=0.001$). Progesterone concentration did not differ between the groups but nurses having whole-night-shifts had significantly lower estrogen levels than the nurses working in the daytime ($p<0.05$).

Conclusions: Melatonin levels are depressed as the nurses under shifts did not sleep. Higher leptin but lower estrogen levels in night-shifts suggest that both weight-appetite axis and hypothalamo-pituitary-gonadal axis have been disturbed. Thus, physiological factors should be taken into consideration when designing shifts. Supported by BAP of the İnönü University (2017/649).

PC101

Effects of Viral Mimetic Polyinosinic-Polycytidilic Acid Injection on Plasma Corticosterone Levels in Female Rats

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Aim: Viruses are one of the most important causes of central nervous system infections all over the world. It might be speculated that viral infections might activate the stress axis (i.e. corticosterone). Aim of the current study was to assess the effects of different doses of a viral mimetic, polyinosinic-polycytidilic acid (poly i:c), on corticosterone levels in rats.

Methods: Experimental study was carried out on 6-month-old, 250-300 gr female Sprague-Dawley rats (n=20) following ethical consent (2016-A-70). In each group, 5 rats were injected (i.p.) with 0 (Group 1), or 1 (Group 2), or 5 (Group 3) or 10 (Group 4) mg / kg poly (i:c) and 48 h later, under anesthesia, their blood samples were taken for corticosterone analyses. Comparisons were made by one-way ANOVA.

Results: Plasma corticosterone levels for Groups 1, 2, 3 and 4 were 611 ± 158 , 375 ± 133 , 423 ± 174 and 564 ± 226 ng/ml, respectively ($P>0.05$).

Conclusions: It seems from the current study that the effects of viral mimetic injection do not appear to include impaired activity of hypothalamo-pituitary-adrenal axis.

PC102

Stress-induced Alterations in Colonic Neuronal Apelin and CRF

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Aim: The aim of this study was to investigate acute stress-induced alterations in apelin and corticotropin-releasing factor (CRF) in colonic myenteric neurons.

Methods: Male Wistar rats were loaded with acute restraint stress (ARS, n=5) for 90 min, while non-stressed (NS, n=5) rats were kept in their cages. Detection of apelin and CRF were performed using immunohistochemistry in proximal and distal colon. Colocalization of CRF1 receptor immunoreactivity with apelin or APJ receptor was detected with double labeled immunofluorescence in colonic longitudinal muscle-myenteric plexus whole mount preparations. Data were analyzed with Kruskal Wallis followed by Mann Whitney-U test. Protocols were approved by the Animal Ethical Committee of Akdeniz University (B.30.2.AKD.0.05.07.00/101).

Results: Following ARS, CRF was upregulated remarkably ($p<0.05$) in distal colon, while the stress-induced change was not prominent in proximal colon. Apelin-positive cells were detected in myenteric ganglia of distal colon, while no apelin immunoreactivity observed in myenteric neurons in proximal colon. Both apelin and APJ receptor are colocalized with CRF1 receptor in myenteric neurons of distal colon.

Conclusions: These results suggest that enteric APJ receptors seem to be a therapeutic target for the treatment of stress-related GI disorders.

PC103

Assessment of Meal Skipping Behaviours and Related Lifestyle Factors in Turkish Adolescents: A Cross Sectional Study

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Aim: Adolescence plays a vital role in development of dietary habits that continues into adulthood. The aim of the study was to investigate the meal skipping and related factors such as gender, age, body mass index (BMI), eating speed, food preference and mealtime consistency in Turkish adolescents.

Methods: This cross-sectional study was carried out with 1561 Turkish adolescents, aged between 14-17 which were registered twenty five different high schools in, Uskudar, Istanbul. Height and weight of participants were measured by research team dietiticians. Personal and nutritional informations were obtained through the questionnaire via face to face interview. Data were analyzed using SPSS 21.0 software program. Chi-square-test was performed. The Study was approved by Yeditepe University Ethics Committee for Clinical Research (Approval Number: 739).

Results: Almost seventy percent of participants had tendency to meal skipping, half of them were skipping the breakfast. Meal skipping was statistically significant with gender ($p<0.01$), BMI ($p<0.05$), eating speed ($p<0.05$), unhealthy food preference (added sugar and trans fat included) ($p<0.05$), mealtime consistency ($p<0.01$) and snacking habits ($p<0.05$).

Conclusions: In this study, meal skipping was found as a behavioral problem that disrupts the nutritional pattern and causes unhealthy food preference regardless of the skipped meal.

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PC104

Effects of Peripheral Irisin Infusion on the Glucose Uptake in High-Fat-Diet-Induced Obese Rats

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Aim: Irisin is a recently identified myokine/adipokine that it secreted from skeletal muscle tissue during exercise. It has been proposed that irisin may play roles both in glucose uptake and regulation of energy metabolism. This study was designed to identify the possible effects of irisin on glucose uptake and uncoupling protein-3 (UCP-3) of diet-induced obese rats after peripherally irisin infusion.

Methods: In this study, rats weighing 150-200 g were fed with high-fat-diet-chow for 12 weeks and divided into four groups. After development of obesity was corrected by measuring their body weight at the end of 12 weeks, two different concentrations of irisin were infused to all animals (except control and sham groups) as intraperitoneally for two weeks by using osmotic mini pumps.

Results: In the mRNA gene expression and protein levels of UCP3 in the muscle tissue were detected no any significant alteration ($p>0.05$). But 10 and 100 nM concentrations of irisin caused significant decreases in serum glucose levels ($p<0.05$).

Conclusions: The study results manifested that irisin caused increase in glucose uptake of skeletal muscle, but the effect revealed a mechanism other than alterations in the level of UCP3 is accepted an indicator of energy use. This study was supported by TUBITAK (Project no: 214S205).

PC105

Association with ABO and Rh Blood Groups and Eating Behavior in Obesity

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Aim: To determine controlled, uncontrolled and emotional eating behavior of obese outpatients using Three Factor Eating Questionnaire, and, to investigate relationship between this behavior and ABO blood groups and Rh factors.

Methods: We formed two groups: one was the obese group of women and the other was non-obese control group of women were blood donors. After determining their heights; their weights, body mass indices, fat percentages, fat weights and fat-free weights were determined using a Bioimpedance device. They were then asked to fill in questionnaire that measures controlled, uncontrolled and emotional eating behavior. Their blood groups

and Rh factors were determined by blood bank. ANOVA and ANCOVA tests were used, and $p<0.05$ was used to determine significance between groups.

Results: While controlled eating behavior was found to be stronger in A blood group compared with the O group; uncontrolled and emotional eating behavior were similar in all blood and Rh groups. All eating behavior values were significantly stronger in the obese group compared with the control group.

Conclusions: Since our results indicated statistically significant eating behavior between A and O blood groups, more experiments are needed to discover importance of types of antigens within erythrocytes in eating behavior.

PC106

The Comparison of Visceral Adiposity Measures Between Type 2 Diabetics and Healthy Individuals

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Aim: The study was aimed to compare visceral adiposity (VAI), deep-abdominal adipose tissue (DAAT) and lipid accumulation product (LAP) indices in healthy controls and type-2 diabetic patients.

Methods: In this cross-sectional study, 20 healthy controls and 20 type-2 diabetic patients between 33-65-year-old were included. The anthropometrical measures (weight, height, waist circumference) were noted. HDL-c and triglyceride values were measured to calculate indices. Pearson's chi-squared and Mann-Whitney tests were used for statistical analyses (ethics approval:#2016/57).

Results: There were 17 male (control=6, DM=11) and 23 female (control=14, DM=9) participants (average age 46.2 ± 10). VAI was found to be 2.07 ± 1.59 in controls and 3.16 ± 2.81 in diabetics ($p>0.05$). In controls, DAAT and LAP indices (respectively 184.8 ± 64.3 cm² and 56.3 ± 37.0 cm. mmol/L) were lower ($p<0.05$) than that in diabetics (respectively 250.0 ± 86.3 cm² and 103.9 ± 91.3 cm. mmol/L). HOMA-IR was found to be moderately/strongly correlated with VAI and LAP in controls (respectively $r=0.629$ and 0.511 , $p<0.05$). Neither fasting blood glucose nor HbA1c were correlated with VAI, DAAT or LAP indices ($p>0.05$).

Conclusions: Assessment of the visceral adiposity, which is associated with diabetic complications, by using these easy-to-apply indices may offer an insight about diabetic regulation and prognosis. The consideration of mentioned anthropometrical indices in follow-up/treatment may provide a clinical advantage.

PC107

Effect of Nesfatin-1 on a Rat Acute Pancreatitis Model and Examination of Underlying Mechanism

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Aim: To investigate the putative antiinflammatory effect of nesfatin-1 and underlying antiinflammatory mechanisms, in a cerulein-induced acute pancreatitis rat model. Materials and

Methods: Ghrelin, oxytocin and melanocortin receptor antagonists that mediate the effects of Nesfatin-1 were used. Rats were injected twice with cerulein (50 µg/kg/hr, intraperitoneally), with an hour in between (Acute pancreatitis); while control group had vehicle injections. Nesfatin-1 (10 µg / kg) and oxytocin receptor antagonist (1 mg/kg) , melanocortin receptor antagonist (130 µg / kg) and ghrelin receptor antagonist (Cortistatin 175 µg / kg) were injected prior to cerulein. At the 12th h rats were sacrificed. The pancreas and serum samples were stored for the determination of histological analyse, malondialdehyde, glutathione, myeloperoxidase activity, luminol-lucigenin chemiluminescence and amylase levels. GraphPad Software Prism 5 statistical program, two-way analysis of variance (ANOVA) and Student's t-test was used. Ethics Committee approved the study.

Results: In AP groups, amylase level, histological score, lucigenin levels and MPO activity were increased and Nesfatin1 reversed these changes. Decreased lucigenin chemiluminescence level was increased with atosiban, while MDA level was increased with Cortistatin.

Conclusions: These findings suggest that nesfatin-1, which appears to have anti-inflammatory properties and exerts cell protection by inhibiting neutrophil infiltration and oxidative stress. Our results suggest that Nesfatin-1 has different effects on different parameters through different receptors.

PC108

The Impact of Oxytocin on Thiol/Disulphide and MDA/GSH Homeostasis in Acute and Chronic Stress Applied Rats

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Aim: Stress, an inevitable fact of daily life, can trigger diseases mainly by disturbing homeostasis. Recently oxytocin is considered as a good candidate to relieve stress. We aimed to evaluate the impact of oxytocin on serum thiol/disulphide and malonyldialdehyde/glutathione homeostasis in acute and chronic stressed rats.

Methods: Male Sprague-Dawley rats (n=56) were randomly divided into control (C), acute (1 day/AS) and chronic stress (5 days/CS) groups. The animals in each group were subdivided into intranasal oxytocin (2 µg/kg) or placebo applied groups. The two-hours cold-inactivity stress was applied to stress groups. Stress system activation was evaluated by salivary cortisol levels and elevated plus maze scores. Malonyldialdehyde, glutathione, native thiol, disulfide and total thiol were measured in the post-stress serum samples. Data was analyzed by SPSS 22.0.

Results: The stress system was activated in stress groups and was significantly higher in CS group. Oxytocin suppressed stress response regardless of the duration, exhibited favorable effect on serum malonyldialdehyde/glutathione balance and disulfide concentration in AS group.

Conclusions: Since oxytocin exhibited anxiolytic effect it is important to employ methods to increase endogenous oxytocin and/or application of exogenous oxytocin to prevent stress-induced oxidant stress, which may play a role in the pathogenesis of diseases.

PC109

The Effect of Vitamin D in an Experimental Varicocele Model

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Aim: Varicocele is a pathological cause of male infertility. The effect of vitamin-D supplementation on experimental varicocele was histopathologically and biochemically investigated.

Methods: Thirty male Wistar rats were divided as Sham, Varicocele and Treatment groups (each n=10). For 4 weeks, 500 I.U/kg/day, i.m. vitamin-D was administered to Treatment group following the generation of varicocele model. Oxidative status [total oxidant/antioxidant status (TOS/TAS) and oxidative stress index (OSI)] and spermatogenesis (Johnsen scoring) was evaluated. OW-ANOVA was used for statistical analysis.

Results: Compared to Sham, Varicocele group was found to have decreased seminiferous elements in Johnsen scoring (p<0.01) which increased to the levels of Sham with treatment (p<0.05). The increment of OSI and TOS, and decrement of TAS in Varicocele group (p<0.05) was recovered by the treatment (p<0.05). Furthermore, lesser testicular weight than other groups was found in Varicocele group (p<0.05).

Conclusions: Our findings stresses out the role of oxidative stress in the pathophysiology of varicocele. Vitamin-D may reduce varicocele-induced injury by restricting the oxidative stress. Considering the importance of seminiferous tubular degeneration in varicocele-induced infertility, the improvement with vitamin-D supplementation may provide a novel approach in the restoration of fertility following the surgical treatment of varicocele. Granted by Hatay Mustafa Kemal University (BAP#16562).

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The Prenatal Effect to Ossification of Exposure to Radiofrequency-Electromagnetic Field

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Aim: We aimed to investigate ossification induced by prenatal exposure to 2450 MHz RF-EMF by double staining method in rat fetuses.

Methods: 12 Wistar Albino female and 4 male rats were used in this study. A control and three exposure groups were including a male and three female rats. The exposure groups were exposed by 2450 MHz EMF. 1st were exposed male but not females. 2nd were exposed both male and female. 3th were exposed female but not male. Exposing time was 12 hours for 30 days. At the end of 30 days all groups were fertilized. On the 18th day of gestational period, pregnant rats were sacrificed under general anesthesia. Parietal-parietal distance, occipitofrontal long and head-tail long of fetuses were measured and then took 70% ethylalcohol for ossification. Clavicle, scapula, humerus, radius and ulna were painted by doublestaining method. Images were evaluated using the Imagej program.

Results: Parietal-parietal distance, head-tail length, occipito-frontal length were increased in the exposure group. The total bone length, percentage of ossification and zone length showing ossification of five bones were the lowest in the control group and higher in the exposure groups. The first group was highest in the exposure groups.

Conclusions: RF-EMF was increased parietal-parietal distance, head-tail length, occipitofrontal length in fetuses and was increased total bone length, percentage of ossification and zone length showing ossification in five bones. Acknowledgments: ERUBAP Project number: TCD-2017-7275.

PC111

The Effects of Bisphenol A on in Vitro Cat Uterus Contractility

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Aims: Bisphenol A (BPA) is an environmental pollutant used as a plasticizer in the manufacture of many plastic products such as packaging, containers, and bottles of water and beverage. This

study was conducted to investigate the in vitro effect of BPA on spontaneous contractions of feline uterus.

Methods: With the approval of Kirikkale University Ethical Committee (2018-E.4707), uterine samples (1 cm) of female cats in estrus were suspended in an isolated organ bath filled with Krebs solution at 39±1°C and 1g pre-tension was applied. Following tissue stabilization and recording spontaneous contractions for control, the effect of vehicle and BPA (1, 10, 100 µM) on the frequency and mean amplitude of contractions in 10 min intervals were evaluated. Parametric and nonparametric data were analyzed by the Student t-test, and the Wilcoxon Signed Ranks test respectively.

Results: All concentrations of BPA used in study significantly (p<0.05) reduced dose-dependently the amplitude of spontaneous contractions, while only highest dose of BPA significantly decreased the frequency of contractions (p <0.05).

Conclusion: In reproductive physiology, regular uterine contractions are very important for successful fertilization, implantation, and gestation. It is thought that the suppressive effect of BPA on spontaneous contraction of feline uterine may lead to infertility problems.

PC112

Eight-Weeks of Treadmill Exercise Ameliorates Bladder Contractile Dysfunction in Diabetic Rats

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Aim: Impaired smooth muscle contractility is among the One of the common complications of diabetes. Potential beneficial effect of exercise on diabetes-associated impaired bladder contractility is not known. The aim of this study was to investigate possible effects of exercise on diabetes-induced contractile impairment of isolated detrusor muscle.

Methods: Adult male Sprague-Dawley rats were habituated to treadmill running before being divided into control (normoglycemic) and diabetic groups. Diabetes was induced by intraperitoneal injection of streptozotocin (STZ) and confirmed by serum glucose levels >300 mg/dL of fasting animals. Animals in the diabetes group was further divided into diabetes only, diabetes + low intensity exercise, diabetes + high intensity exercise groups. The low intensity exercise protocol was 30 min/day by running at 0,5 km/h for 5 days/week and animals on high intensity exercise group performed 60 min/day by running at 1 km/h for 5 days/week, for 8 weeks. Detrusor strips were isolated from the rats and suspended in tissue bath containing physiological saline. Strips were contracted by bath applications of carbachol (CCh, 1 µM) and high KCl. ANOVA, Duncan and non-parametric tests were used for statistical analysis.

Results: Contractile response to cholinergic stimulation with CCh (0,1, 1 and 10 µM) was significantly weaker from strips from diabetic rats compared to control rats in terms of peak amplitude and area under force-time curves (AUFC) of isometric contractions. Contractile response of strips from low and high-intensity exercise groups to CCh and KCl was significantly stronger and close to control levels.

Conclusions: These results demonstrated that exercise has a potential of benefit against diabetes induced bladder dysfunction, although the mechanism of action remain unclear.

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PC113

Effects of Sertraline on in Vitro Rat Uterus Contractions

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Aim: Sertraline, is a selective serotonin reuptake inhibitor group antidepressant drugs, are commonly used in pregnant. However, their effects on rat uterus are not investigated particularly experimentally. We aimed to investigate sertraline effect on rat uterus.

Methods: In study we used 24 Wistar Albino rats in two groups: Control (group 1) (n=8)-spontaneous contraction (group 2) groups. Uterus tissues were isolated quickly and sectioned into 2x12 mm strips. Uterus strips then placed in organ baths containing Krebs–Henseleit solution, which is thermoregulated at 37°C and aerated (95%O₂ and 5%CO₂). Changes in isometric tension of uterus strips were recorded using a four channel force displacement transducer. Sertraline is a selective serotonin reuptake inhibitor. Group 1, only spontaneous contractions was observed. Group 2, when contractions were stable cumulative sertraline (10-9, 10-8, 10-7, 10-6, 10-5, 10-4, 10-3) was given on spontaneous contractions. Friedman and Kruskal Wallis tests were used for statistical evaluation.

Results & Conclusions: Sertraline was given cumulatively to group 2, significant inhibition of spontaneous contractions frequency was noticed in sertraline doses of 10-6-10-7 (p<0.05). Sertraline 10-5-10-6 doses also made significant inhibition in contractions amplitude when compared to spontaneous contraction (p<0.05). These results suggest that sertraline may have beneficial effects on prevention of spontaneous abortus.

PC114

Methotrexate-Induced Testicular Injury: Effect of Agomelatin on Testicular Function

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Aim: Methotrexate (MTX) is a drug used in the cancer treatment. However, it may cause toxicity in some tissues. This study was aimed to evaluate the protective effects of agomelatin (AGO) against testicle toxicity in methotrexate-treated rats.

Methods: Ethical approval was obtained for the study (07.06.2017/303). 24 Wistar Albino male rats (3-4 months old) were randomly divided into 3 groups. Groups; Control, MTX (20 mg/kg MTX, single dose, ip), MTX+AGO (20 mg/kg ip single dose and 40 mg/kg, gavage, 7 days). Animals were sacrificed 24 hours after the last AGO administration. Testis tissue was excised for histopathological/immunohistochemical (Hsp70/iNOS/OPN) assays. Findings were evaluated by ANOVA and Bonferroni Dunn tests. Values of P<0.05 were considered significant.

Results: In MTX group vascular congestion, intestinal edema, tubular degeneration and spermatozoa necrosis and decreased spermatogenesis were observed (p<0.001). This findings were lower the AGO treated groups. Also, the number of spermatozoa in the seminiferous tubules increased significantly (p<0.001). In

immunohistochemical examination, in MTX group, iNOS and OPN were significantly increased according to the control group (p<0.001, p<0.05, respectively). But, the HSP results were similar to the control group. The most common immune-positive cells were the Leydig cells.

Conclusions: According to our results, MTX administration leads to testicle toxicity and this toxicity can be reduced by AGO treatment.

PC115

Investigation of the Achievability of Stem Cells Derived from Luteal Cells in Rats

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Aim: This study performed to investigate whether luteal cells from rat corpus luteum differentiate into stem cells or not.

Methods: Ethical approval was obtained from Local Ethics Committee (2016/15). Luteal cell suspension obtained from superovulated rat ovaries and purified by Percoll gradient. Then, they were incubated with mesenchymal stem cell medium. At the end of the second passage, some part of the cells was used to determination of surface markers by flow cytometry, some of them were incubated with differentiation medium and were stained with Oil Red-O and Alizarin Red on the day 21st.

Results: It was observed that cells were negative for CD11b and CD45 that are hematologic surface markers and were positive for CD90 and CD49 that are stem cell surface markers. It was determined that stem cells differentiated from luteal cells were stained with Oil Red-O and Alizarin Red by differentiated into adipogenic and osteogenic tissue respectively by using differentiation kits.

Conclusions: These results confirmed the hypothesis that adult rat luteal cells can differentiate into multipotent adult stromal mesenchymal stem cells. It is also thought that they may be used as a source especially for the reproductive system diseases of the females and for possible clinical studies.

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PC116

Effect of Caffeine Exposure on Xenopus Embryos Using Frog Embryo Teratogenesis Assay: Xenopus

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Aim: In this study, the effect of caffeine on the development of Xenopus embryos was investigated.

Methods: In our preliminary study, embryos obtained by in vitro fertilization method and incubated with 100 and 1000 µM/L caffeine for 96 hours. Embryo development was examined with a microscope for 4 days. Normal, abnormal and death figures were recorded and pictures of embryos were taken with a camera connected to an Olympus SZ-61 model ocular microscope. The length of embryos were measured. The length data were analyzed with ANOVA; normal, abnormal and deaths were analyzed with chi-square test. Finally, embryos were fixed in 3% formaldehyde.

Results: Normal, abnormal and death percentages in embryos were; the control group was 97.5,2.5,0; 97.5,2.5,0 in embryos exposed to 100 µM/L caffeine; 0,70, 30 in embryos exposed to 1000 µM/L caffeine. While there was not statistically significant difference between control group and 100 µM/L caffeine exposed embryos, length shortening ($p<0.001$) was observed in 1000 µM/L caffeine exposed embryos.

Conclusions: Statistical differences were not calculated between embryos development applied with 100 µM /L caffeine and control group embryos. While most of the embryos applied with 1000 µM/L caffeine died; anomalies and length shortening were observed in surviving embryos. Our results are consistent with studies showing that high dose caffeine causes teratogenesis. Although daily caffeine consumption level cannot be completely determined, excessive caffeine using should be limited at pregnant women.

PC117

Evaluation of the Effect of Glucose and Bovine Serum Albumin on Xenopus Embryos by Fetax Test

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Aim: It is stated that if hyperglycemia does not control in diabetic mothers, some fetal developmental anomalies may occur in fetus. For this purpose, we investigated effect of glucose and Bovine Serum Albumin (BSA) on malformation, growth inhibition and mortality in Xenopus laevis embryos.

Methods: In our preliminary study, Xenopus laevis embryos were obtained by in vitro fertilization method and incubated with glucose and BSA. Solutions were changed every 24 hours and development of the embryos was examined under microscope. Normal, abnormal and deaths recorded. End of 96 hours, appearance of embryos in petri dish was photographed with a camera attached to OlympusSZ-61 ocular microscope. Embryos were maintained in 3% formaldehyde. The data were analyzed by chi-squared test.

Results: At the end of 96 hours, normal, abnormal and death percentages of control and other groups were measured; Control

95%, 5% and 0%, 200 mg/dL Glucose; 96,6%, 3,3%, 0%, 5%, 28,33%, 66,66% in embryos treated with 200 mg/dL Glucose+BSA; 500 mg/dL Glucose was found to be 0%, 0%, 100%, in embryos applied with 500 mg/dL Glucose+BSA 96,6%, 1,6%, 1,6%. Compared with control group, there was significant difference in 200 mg/dL and 500 mg/dL Glucose+BSA groups ($p<0.05$). Edema, broken tail, tail spine, microcephaly and microphthalmia were observed embryos exposed to Glucose+BSA.

Conclusions: Glucose is known to be non-enzymatically coupled with proteins to form advanced glycosylation end products (AGE). AGEs may show toxic effects to embryo binding its receptors (RAGE). Compared with single glucose exposure, cell damage can be seen more in embryos found in the Glucose+BSA treated groups.

PC118

The Effect of Monosodium glutamate, Lithium and GSM Like Radiofrequency Irradiation on Xenopus Embryos Using FETAX Test

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Aim: The living beings are exposed to thousands of xenobiotics in their surroundings. In this study planned to evaluation monosodium glutamate (MSG), Lithium and 900 MHzRF application's effects on Xenopus embryos.

Methods: Embryos obtained by in vitro fertilization method were exposed for 96 hours in a petri dish containing MSG, Lithium and 900 MHzRF irradiation. Embryo development was examined under a microscope for 4 days, and embryos were photographed and measured in size.

Results: Control at the end of ninety-six hours and the exposed groups of embryos normal, abnormal and death percentages were as, 98.3, 0.8 and 0.8; lithium (0.02 gr / L) 0.0, 25.0, 75.0; and RF (900 MHz) 95.0, 5.0, 0.0; respectively. The anomalies and mortality rates were increased with increasing concentrations of MSG (120, 500, 750 and 1000 mg / dL) alone and as combined form ($p<0.05$). One-way ANOVA was used for analysis of data.

Conclusions: Development of Xenopus embryos exposed to MSG to ADI (Acceptably Daily Intake) level (120mg/dL) when compared with control group were not observed significance. When lithium was administered alone, no normal embryos were seen, while MSG+Li and RF+Li, MSG+RF+Li combination's group were showed high normal embryos ratio may because of MSG synergistically affect others.

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Effect of Monosodium Glutamate and 900 MHz Radiofrequency Electromagnetic Radiation on Membrane Potential of Fertilized and Unfertilized Xenopus Eggs

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Aim: With the advancement of technology, the number of xenobiotics exposed to living things. We investigated whether monosodium glutamate and 900 MHz RF-EMR had an effect on the resting membrane potential of fertilized and unfertilized eggs. Material and

Methods: The eggs obtained by squeezed method and were fertilized with invitro fertilization. After exposure of Xenopus embryos to RF-EMR with power density of 900 MHz and 1.59 W/m² for 6 hours and DZPs were recorded. One-way ANOVA followed by the Bonferonni post-hoc test was used for analysis.

Results: DZP of fertilized and unfertilized eggs were recorded as -38,6±4.5 mV, -28,3±3.4 mV respectively. The DZP of the groups who applied MSG of fertilized and unfertilized eggs were recorded (p<0.05) as -31,0±1.9 mV, -29,4±2.6 mV respectively. Similarly, DZP of fertilized and unfertilized eggs with RF-EMR were recorded as -22,2±1.5 mV, -24,0±0.8 respectively. The DZP of fertilized and unfertilized eggs with RF-EMR+MSG were recorded (p<0.05) as -47,2±3.1 mV, -30,3±1.4 mV respectively.

Conclusions: 1. Fertilization occurs with hyperpolarization (HP). 2. MSG causes depolarization (DP) in fertilized eggs and HP in unfertilized eggs. 3. MSG + RF causes HP in fertilized and unfertilized eggs together. 4. Partial DP occurs only in eggs with RF-EMR applied.

PC120

Functional Evaluation of Eccentric and Concentric Exercises in 12-17 Adolesan Age Group Archers

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Aim: The aim of study investigate and compare effect of eccentric and concentric exercises on functional properties such as grip strenght, pain threshold, muscle shortness, circumference measure and body composition.

Methods: 12-17 aged 15 male and 15 female participants selected from kayseri archery team and divide two exercise group: Eccentric and Concentric Exercise Group. Athletes trained during six week with free weight and evaluated before and after exercise program. Grip strenght with manuel dynamometer, pain threshold with algometer, muscle shortness with tapeline, body composition with Tanita was measured.

Results: Lean body mass, muscle mass, pain threshold increased and muscle shortness, body fat decrease in both group. Pain threshold and circumference measure increased in concentric group according to eccentric group.

Conclusions: In both groups, almost all parameters showed positive change after training. We think that training programs involving concentric contractions may be more effective in the case of individuals engaging in archery sports, in which

resistance training for the related muscles is useful for reducing the risk of injury and improving performance.

PC121

Examination of Physical Activity Levels of Bartın University Students

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Aim: Sedentary lifestyle is one of the reasons of impairment of health. For a healthy life, person should be conscious about physical activity and increase their activity levels. The purpose of this study is to determine the physical activity levels of Bartın University students.

Methods: Sociodemographic form and International Physical Activity Survey were applied to 1051 volunteer students that participated in the study. Scores were obtained by using MET (metabolic equivalent) value. Participants' physical activity levels were classified as low (<600 MET), moderate (600-3000 MET) and high (>3000 MET). In the analysis of the data, frequency, percentage and Chi-Square were used and the significance level was accepted as p<0.05.

Result: When the frequency and percentage distributions of physical activity levels of the students are evaluated; of the students 36.4% sufficient level, 44.4% low level to participated physical activity. 19.2% of the students were found not to be physically active. The mean daily sitting time (min) was 358.2±261.6. In the students' physical activity levels, their departments, gender, education-seminar receiving status and alcohol use statistically significant differences were found (p<0.05).

Conclusions: Because of the only 36.4% of the students have enough physical activity, students should be increase physical activity in order to run up the protection of the health and quality of life.

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PC122

Comparison of Body Composition and Basal Metabolic Rate of Pamukkale University Sportsmen and Sedentary Students

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Aim: Football, handball and basketball are the sports branches that require high level muscle strength and aerobic/anaerobic effort capacity. The study aimed to determine and compare some physiological, physical characteristics of football, handball, basketball players of our university with sedentary students.

Methods: The study included 38 male sportsmen (19 football, 13 basketball, 6 handball) (mean age 21.92 ± 2.57), 42 sedentary students (mean age 23.19 ± 1.47). Body composition, basal metabolic rate (BMR) were measured with Tanita-BC 418MA. Results were evaluated by Mann-Whitney U, Spearman tests and the ethical committee approved the study (date 17/01/2018, number 4282).

Results: The total muscle weight, lean mass, BMR, fluid and bone mineral weights, mineral, protein and intra-extracellular fluid amounts of the sportsmen were higher than controls; while fat percentages were lower ($p < 0.05$). Weight, body mass index (BMI) were similar. There was a positive correlation between BMR and body mass ($p < 0.05$).

Conclusions: The results demonstrating unchanged weight and BMI despite the alteration in muscle, lean mass, fluid, bone mineral weights; mineral, protein, intra-extracellular fluid amount, fat percentage emphasize the importance of regular exercise. Our results suggest that the increase in muscle mass may be the main determining factor in the high BMR.

PC123

The Importance of Physical Activity in the Present and Past: Opinions of Thinkers

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Aim: The physical activity is getting decrease due to developing of technology, work life and the urbanization, so this situation has a bad role on the human health. The aim of this study is to compare the information that presents the relationship of exercise approaches and exercises in the past period with today's information and evaluate the perspective of the exercise at that time.

Methods: The works of scientists and philosophers living in the past period were investigated by examining the opinions of physical activity and body health.

Results: Ibn-i Sina who lived in the eleventh-century and made a reputation especially as a physician, was a scientist. He defined exercise as a series of voluntary movements that consist of deep and rapid respiration. Moreover, he thought that regular exercise

had a protective effect against temperament and humoral disturbances. Another well-known thinker, Ibn-i Miskeveyh said "children and adults drop into a habit that moving, riding, making physical exercise, and avoid to acquired habits that are the opposite of them "He emphasized that physical education and sports have a great positive effect on human health.

Conclusion: The views of archaic scholars about physical activity has a significant importance for occurring the physical, mental and spiritually healthier societies.

PC124

The Effects of Exercise on Anxiety and Startle Reflex in Rats Applied Dizocilpine

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Aim: It is aimed to investigate whether exercise has a positive effect on the adverse effects of MK-801.

Methods: With ethics committee approval (EÜHADYEK: 17/021), Wistar female 8-week-old rats were given 0.5 mg / kg MK-801 i.p. (n=10). In the control group, the same amount of SF injection was given (n = 10 male). The exercise group was training 15 min daily swimming exercise for 10 days and then 0.5 mg / kg MK-801 was given i.p. (n=10). Elevated T-maze and prepulse inhibition test were applied to all the groups. Data were compared with the ANOVA test.

Results: No significant difference was found between the groups at prepulse inhibition response. There were significant differences at the time spent in the closed arm ($p < 0.05$) and open arm ($p < 0.05$) in the elevated t-maze test between the groups.

Conclusions: It is concluded that MK-801 did not make changes in schizophrenia in the dose and duration given in this study in the adult rat brain, but it affected the emotional state, caused anxiety, and the exercise was the healing effect of these adverse events. This study was supported by Erciyes University Scientific Research Projects Unit TYL-2017-7249 project.

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PC125

Different Exercise Intensity and Oxidative Stress Responses: Thiol / Disulfide Homeostasis

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Aim: The purpose of this study is to determine the oxidative stress responses of rats with different intensity of treadmill exercise.

Methods: Male albino Wistar rats (n=32) were randomly divided into four groups as follows: control, low, moderate and high intensity exercise group (Ethics committee no: AIBÜ;2017/12). Treadmill exercise was performed 5 days per week for 4 weeks. Following completion of the experimental protocol, serum total thiol, native thiol, and disulphide concentrations were determined using a novel automated measurement method. Additionally, dynamic disulphide status (DD), reduced thiol (RT), oxidized thiol (OT) were compared among the groups. The data were analyzed with analysis of variance (Anova; SPSS v.21).

Results: In comparison with the control group, DD levels were significantly lower in moderate group and highest in the control group (P<0.05). The lowest OT and the highest RT rates were determined to be in the control group. The highest OT value was observed in the moderate group.

Conclusions: For the first time in the present study, the effect of different intensities of chronic exercise on thiol/disulfide balance was investigated with a new method. These findings show that moderate-intensity aerobic exercise is more effective in reducing OS than low and high-intensity.

PC126

The Comparison of the Perceived Exertion of Physically Active and Non-Active Men During High Intensity Cycling Intervals

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Aim: High-intensity interval training (HIIT) has been proposed to athletes as well as non-active (NA) persons for health benefits in recent years. The aim of this study is to compare the rating of perceived exertion (RPE) of physically active (PA) and NA men during HIIT.

Methods: Peak oxygen consumption (VO₂peak) was determined after ethical approval PA (n=9) and NA (n=9) healthy men. At the following day, the participants did 4 consecutive exercise by pedaling with a load of 0.050 kg per kilogram during 30-sec followed by active resting periods with pedaling with 30 W during 4-min. RPE was assessed by using the Borg CR10 Scale

after each sprint. Mann-Whitney U and t-test were used for statistical comparisons.

Results: VO₂peak were higher in the PA than NA group (37.0±6.0 mL/kg/min and 25.5±4.1 mL/kg/min, p=0.023). The mean of the mean-power values in the PA group (5.5±1.0 W/kg) was higher than the NA group (3.3±0.8 W/kg; p=0.023). RPE at the end of each sprint was similar in groups. The first sprint was perceived as moderate (3.3±1.8 and 3.0±0.5; p=0.409) and the last sprint was perceived as hard (5.3±1.1 and 6.4±2.6; p=0.617) in groups.

Conclusions: Similarly perceived exertion has been shown during a single session of HIIT in men who have different performances. The study was supported by TUBAP (2017/103).

PC127

Comparison of the Effects of Isometric and Isotonic Exercise on Reducing Pain in Lumbar Disc Herniation Patients

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Aim: The effects of isotonic, isometric exercises on waist and leg pain were investigated in patients with lumbar disc herniation.

Methods: The isometric and isotonic exercise programs (10 days, 3 sets, 10 repetitions each day) were given to patients suffering from lumbar disc herniation (30 male, 30 female, aged range 25-65); with approval of ERU Ethics Committee (2017/354). VAS, Flexibility test and Oswestry Functional Disability Scale were performed before and after exercises. In isometric exercise lumbar region flexion was applied to the maximum level the patient could withstand for 10 seconds in the supine position, with the knee and hip slightly flexed. In isotonic exercise lumbar extension was performed to the maximum angle that the upper body weight could tolerate when the patient was in prone position, supported by their arms. Results Positive improvements in pain severity, waist flexion and Oswestry functional disability scales in both groups (p<0.05) were noted. No statistically significant difference was found between the groups, using Turcosa Cloud (Turcosa Ltd. Co) statistical software.

Conclusions: Both exercise programs reduced pain severity, increased waist flexibility and lumbar region motion, and regulated daily activity. It was supported by ERU BAP (TYL 2017-7524).

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PC128

Investigation of the Relationships Between Knee Osteoarthritis and Obesity via Untargeted Metabolomics Analysis

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Aim: Osteoarthritis (OA), the most encountered arthritis form, is disease resulting from degeneration of articular cartilage. Obesity is strongly related with the chronical diseases. Metabolomics is a popular method in investigating biomolecules. It is aimed to determine the role of obesity as a risk factor in knee OA via untargeted metabolomics method.

Methods: Study was approved by the ethics committee of medical faculty of Atatürk University. Serum samples of following groups were collected 28 patients (14 have obesity (OOA) and 14 non-obesity (NOOA)) and 15 healthy controls from Ortopedics and Traumatology policlinic. Serum proteins were denatured by acetonitrile and chromatographic separation of metabolites were achieved by LC/Q-TOF/MS/MS method. Data acquisition, classification and identification were achieved by METLIN database, MATLAB2017a-PLSToolbox 7.2 and HMDB, respectively.

Results: In analysis, L-leucin, glycine and L-lycine higher; arginine and 1 α -25dihydroxy D3 lower in NOOA with respect to control. OOA levels of valine, glycine, histidine, L-treonin and oleic acid is higher. arginine and phosphatidylcholine is lower than control. Finally, OOA L-ornithine is lower; leucine, isoleucine and valine higher than NOOA.

Conclusions: Identified metabolites could be potential marker to understand the relation between obesity and OA. These metabolites are good sign for differences of phosfolipid and amino acid metabolism.

PC129

The Relationship Between Number of Exacerbation and TNF- α Levels in COPD Patients

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Aim: COPD is a non-reversible, airflow limitation disorder characterized by abnormal inflammatory responses and attacks of noxious gases and particulates. It is aimed whether relationship between the number of exacerbations of COPD patients and serum TNF- α levels.

Methods: Forty-eight volunteers who were diagnosed with COPD between the ages of 18-85 who applied to the ERU Medical Faculty Hospitals were included in this study Clinical Research Ethics Committee approved the study (2018/43). After spirometric tests FEV1 and FEV1 / FVC measurements, volunteers were confirmed and the number of attacks determined. Blood TNF- α levels were measured. Mann Whitney U test and

Spearman correlation were used and p<0.05 was considered significant.

Results: The average age of the patients is 60.7 and the average number of annual attacks is 1.4 \pm 0.1. The mean FEV1 / FVC was 57.2 and the mean FEV1 was 52.2. Patients were classified as <1 attack, 1-3 attacks, 3-5 attacks, > 5 attacks.

Conclusions: There was a correlation between the number of exacerbations and serum TNF- α levels, and the number of exacerbated TNF- α levels was also increased (p<0.05).

PC130

Investigation of Ischemic Modified Albumin level in patients with obstructive sleep apnea syndrome (OSAS)

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Aim: The relationship between the demographic and polysomnographic characteristics of the patients with obstructive sleep apnea syndrome (OSAS) and Ischemic Modified Albumin (IMA) levels were investigated. Materials and

Methods: Clinic alethics committee was approved this study. The one hundred eighty patiens were evaluated tothe sleep laboratory for examineallnightpolysomnography between 2017-2018 years in the Isparta City Hospital. IMA, Albumin and IMA/Albumin ratio (IMAR) levels were measured in serum of patient with OSAS diagnosis (Apnea hypopnea index; AHI \geq 5/h) and control group (AHI<5/h). The demographic and polysomnographic characteristics of the patients were compared. For statistical analysis, ANOVA post hoc LSD test was used.

Results: The one hundred eighty patiens (101M/79F) were included in this study with a mean age of 49.87 \pm 13.52 years and a BMI of 26.10 \pm 12.73. IMA, Albumin and IMAR index control group, mild OSAS, moderate OSAS and severe OSAS groups were found 0.62 \pm 0.02, 0.61 \pm 0.04, 0.060 \pm 0.03, 0.61 \pm 0.03; 4.2 \pm 0.30, 4.19 \pm 0.35, 4.13 \pm 0.27, 4.07 \pm 0.29; 0.14 \pm 0.01, 0.014 \pm 0.01, 0.014 \pm 0.01, 0.015 \pm 0.01 respectively. There was a significant difference between the control and middle OSAS groups in IMA values (p<0.05) and it was decreased in middle OSAS group. There was a significant difference between the control and severe OSAS groups in IMA values (p<0.05) and it was decreased in severe OSAS group.

Conclusions: IMA values were significantly lower in the moderate and severe OSAS group. We think that this correlation between the severity of the disease's and the IMA can be used for diagnosis and treatment.

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PC131

A New Elective Course at the Faculty of Medicine: Robophysiology

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Aim: Increasing the impact of technology on the medicine, requires the education of medical doctors using these technologies to be revised. The development in the software is the spread of the "Python" programming language. The development in hardware is the widespread use of the "Arduino" microcontroller.

Methods: The reason for choosing Python language in software is very easy to learn because it is very similar to English grammar. Despite being easy, it is pretty powerful. Arduino is the best tool to learn the hardware.

Results: The lesson we started last year will be given in the fall and spring semesters next year by extending twofold. The technological change we are experiencing is a sign that these courses will be included as compulsory courses in the Faculty of Medicine curriculum in the near future.

Conclusions: Medicine, inevitably, will be a field where robots and people will collaborate in the future. Hacettepe University has initiated its first initiative as an institution that not only teaches today but also educates future doctors. In order to prepare for the future, I think that this initiative we started in Hacettepe is necessary to be expanded as an elective course in all medical faculties.

PC132

A Modified TBL Used in an Integrated Physiology and Biochemistry of Endocrine System Lectures

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Aim: Team-based learning (TBL), originally developed by Dr. Larry Michelson, is the newest strategy for business courses and, in the last few years, numerous medical schools have adopted TBL in the delivery of basic sciences, clerkship, and residency programs.

Methods: In this study, the integrated physiology and biochemistry lectures are prepared by using a modified TBL method. Physiology and biochemistry lectures of Growth and development subject committee lectures are planned to be delivered by TBL method in academic year 2017-2018 at ACUSoM. Two lecturers from both departments worked together and prepared an integrated program with supervision of medical education department.

Results: It is shown with the feedbacks, observations and exam results that TBL sessions were effective to enhance not only the self- learning, but also collaborative and cooperative learning strategies among students. The learning objectives are also used for to understand the context in a deeper way.

Conclusions: As a result, a modified TBL method could easily be used for integrated physiology and biochemistry contents.

PC133

Investigation of Physiology Exam Anxiety of the Students of Süleyman Demirel University Medical Faculty Term 2

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Aim: The purpose of our work; with test anxiety medicine training in semester 2 students Physiology course is to determine anxiety which occurs against the exam.

Methods: Our work is approved by the Ethics Committee. Anxiety with test anxiety; Westside and Modified Science Anxiety surveys were used to assess demographic information.

Results: There were 224 male students and 122 female students from SDU Faculty of Medicine term 2 students. Student's satisfaction level was 35,9% and 36,8% respectively. The test anxiety score was found as 34,23±9,97 in males, 35,43±7,87 in females, 10,99±4,79 in males and 11,75±3,76 in females. There was a statistically significant difference between test anxiety score and career choice (p<0.05). There was a statistically significant difference between test anxiety and science anxiety points and income (p<0.05). There was a statistically significant difference between science anxiety score and university satisfaction (p<0.05). According to the students, the female students (14,58±3,75) who were lost to the physiology lesson were higher than the male students (13,53±4,77) and the female students (36,68±7,35), (37,06±10,07) were found to be higher in the students.

Conclusions: We think that the studies for solving the pre-test physiology lessons will result in effective education and the learning will be easier.