

Turkish Society of Physiological Sciences 44th National Physiology Congress

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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

Elif Özkök¹, Hatice Yorulmaz², Gülten Ateş Uluçay³, Vakur Olgaç⁴ and Şule Tamer⁵

¹Department of Neuroscience, Aziz Sancar Institute of Experimental Medicine, Istanbul University, Istanbul, Turkey

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

³Department of Physiology, Faculty of Medicine, Istanbul Yeni Yüzyıl University, Istanbul, Turkey

⁴Department of Pathology, Oncology Institute, Istanbul University, Istanbul, Turkey

⁵Department of Physiology, Istanbul Medical Faculty, Istanbul University, Istanbul, Turkey

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

Mustafa Saygın¹, Önder Öztürk² and Özlem Özmen³

¹Suleyman Demirel University, Faculty of Medicine, Department of Physiology, Isparta, Turkey

²Suleyman Demirel University, Faculty of Medicine, Department of Chest Diseases, Isparta, Turkey

³Mehmet Akif Ersoy University, Faculty of Veterinary, Department of Pathology, Burdur, Turkey

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

Dilek Kuzay¹ and Çiğdem Özer²

¹Ahi Evran University, Faculty of Medicine, Department of Physiology, Kırşehir, Turkey

²Gazi University, Faculty of Medicine, Department of Physiology, Ankara, Turkey

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. Control1 (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

Cigdem Özer¹, Çağrı Alp Düz¹, Duygu Tozcu², Burcu Sırmatel¹

¹Gazi University, Faculty of Medicine, Department of Physiology, Ankara, Turkey

²Ufuk University, Faculty of Medicine, Department of Physiology, Ankara, Turkey

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

Betül Hacıoğlu¹, Gökhan Kuş² and Selda Kabadere³

¹ Eskişehir Osmangazi Institute of University Health Sciences, Department of Physiology, Eskişehir, Turkey

² Anadolu University, Open Education Faculty, Management of Health Institutions, Eskişehir, Turkey

³ Eskişehir Osmangazi University, Medical School, Department of Physiology, Eskişehir, Turkey

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

Süleyman Sandal¹, Suat Tekin¹, Kenan Koran² and A. Orhan Görgülü²

¹ İnönü University, Medical School, Department of Physiology, Malatya, Turkey

² Firat University, Medical School, Department of Physiology, Elazığ, Turkey

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

Sadettin Caliskan¹, Emine Kilic-Toprak¹, Ibrahim Toprak², Yasin Ozdemir¹, Onder Demirtas², Fatih Altintas¹ and Vural Kucukatay¹

¹ Pamukkale University, Faculty of Medicine, Departments of Physiology, Denizli, Turkey

² Pamukkale University, Faculty of Medicine, Departments of Ophthalmology, Denizli, Turkey

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

Ayşe Meltem Sevgili¹ and Kutluhan Ertekin²

¹ TOBB Economy and Technology University, Ankara Turkey

² Ufuk University, Ankara, Turkey

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?

Ersen Eraslan¹, Ömer Topdağı², Ayhan Tanyeli³, Mustafa Can Güler³, Engin Şebin⁴, Saime Özbek Şebin³ and Elif Polat⁵

¹ Bozok University, Faculty of Medicine, Department of Physiology, Yozgat, Turkey

² Atatürk University, Faculty of Medicine, Department of Internal Medicine, Erzurum, Turkey

³ Atatürk University, Faculty of Medicine, Department of Physiology, Erzurum, Turkey

⁴ Health Sciences University Erzurum Regional Education and Research Hospital, Department of Biochemistry, Erzurum, Turkey

⁵ Atatürk University, Faculty of Medicine, Department of Biochemistry, Erzurum, Turkey

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?

Ersen Eraslan¹, Ömer Topdağı², Ayhan Tanyeli³, Mustafa Can Güler³, Engin Şebin⁴, Saime Özbek Şebin³ and Elif Polat⁵

¹Bozok University, Faculty of Medicine, Department of Physiology, Yozgat, Turkey

² Atatürk University, Faculty of Medicine, Department of Internal Medicine, Erzurum, Turkey

³ Atatürk University, Faculty of Medicine, Department of Physiology, Erzurum, Turkey

⁴ Health Sciences University Erzurum Regional Education and Research Hospital, Department of Biochemistry, Erzurum, Turkey

⁵ Atatürk University, Faculty of Medicine, Department of Biochemistry, Erzurum, Turkey

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?

Ömer Topdağı¹, Ersen Eraslan², Ayhan Tanyeli³, Mustafa Can Güler³, Engin Şebin⁴, Saime Özbek Şebin³ and Elif Polat⁵

¹Atatürk University, Faculty of Medicine, Department of Internal Medicine, Erzurum, Turkey

²Bozok University, Faculty of Medicine, Department of Physiology, Yozgat, Turkey

³Atatürk University, Faculty of Medicine, Department of Physiology, Erzurum, Turkey

⁴ Health Sciences University Erzurum Regional Education and Research Hospital, Department of Biochemistry, Erzurum, Turkey

⁵ Atatürk University, Faculty of Medicine, Department of Biochemistry, Erzurum, Turkey

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

Serdar Sahinturk¹ and Kadriye Sahinturk²

¹ Bursa Uludag University, Faculty of Medicine, Department of Physiology, Bursa, Turkey

² Firat University Hospital, Radiotherapy Center, Elazig, Turkey

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

Mehmet Bülbül, Osman Sinen and Leyla Abueid

Akdeniz University, Faculty of Medicine, Department of Physiology, Antalya, Turkey

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

Umut Bakkaloğlu¹, Ercan Babur², Burak Tan², Kamile Yazgan³, Betül Yalçın⁴, Arzu Hanım Yay⁴ and Asuman Gölgeli²

¹ Mustafa Kemal University, Faculty of Medicine, Department of Physiology, Hatay, Turkey

² Erciyes University, Faculty of Medicine, Department of Physiology, Kayseri, Turkey

³ Kapadokya University, Kapadokya Vocational Collage, Department of Physiology, Nevşehir, Turkey

⁴ Erciyes University, Faculty of Medicine, Department of Histology and Embryology, Kayseri, Turkey

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

Asuman Gölgeli¹, Kamile Yazgan Özdiraz², Umut Bakkaloğlu³

¹ Erciyes University, Medical School, Department of Physiology, Kayseri, Turkey

² Cappadocia University, Department of Electroneurophysiology, Urgup, Nevşehir, Turkey

³ Mustafa Kemal University, Tayfur Ata Sökmen Medical School, Department of Physiology, Hatay, Turkey

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

Kübra Akıllıoğlu, Meltem Dönmez, Zehra Çiçek, Ayper Boğa Pekmezekmek and Ayşe Doğan

Cukurova University, Medical Faculty, Department of Physiology, Adana, Turkey

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

Gizem Şen¹, Büşra Tozduman¹, Nuran Ekerbiçer¹, Fatih Çöllü², Merve Temel¹, Mehmet Murat Demet³, Necip Kutlu¹, Tuğba Gürpınar Çavuşoğlu⁴ and Mehmet İbrahim Tuğlu⁵

¹Manisa Celal Bayar University, Faculty of Medicine, Department of Physiology, Manisa, Turkey

²Manisa Celal Bayar University, Faculty of Science, Department of Biology, Manisa, Turkey

³Manisa Celal Bayar University, Faculty of Medicine, Department of Psychiatry, Manisa, Turkey

⁴Manisa Celal Bayar University, Faculty of Medicine, Department of Pharmacology, Manisa, Turkey

⁵Manisa Celal Bayar University, Faculty of Medicine, Department of Histology and Embryology, Manisa, Turkey

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

Gizem Şen, Nuran Ekerbiçer, Büşra Tozduman, Merve Temel

Manisa Celal Bayar University, Faculty of Medicine, Department of Physiology, Manisa, Turkey

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

Ozlem Ishakoglu¹, Okan Tutuk¹, Hatice Doğan¹, Enver Ahmet Demir¹, Ibrahim Kahraman² and Cemil Tümer¹

¹ Hatay Mustafa Kemal University, School of Medicine, Department of Physiology, Hatay, Turkey

² Hatay Mustafa Kemal University, School of Medicine, Department of Biophysics, Hatay, Turkey

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

Ayfer Dayı¹, Müge Kiray¹, Ali Rıza Şişman², Seda Özbal³, Başak Baykara³, İlkey Aksu¹ and Nazan Uysal¹

¹ Dokuz Eylül University, Faculty of Medicine, Department of Physiology, Izmir, Turkey

² Dokuz Eylül University, Faculty of Medicine, Department of Biochemistry, Izmir, Turkey

³ Dokuz Eylül University, Faculty of Medicine, Department of Histology and Embriology, Izmir, Turkey

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

K. Gonca Akbulut¹, Arzu Keskin-Aktan², Samira Abdi Abgarmi³ and Hakan Akbulut³

¹ Gazi University, Faculty of Medicine, Department of Physiology, Ankara, Turkey

² Nuh Naci Yazgan University, Health Science Faculty, Kayseri, Turkey

³ Ankara University, Faculty of Medicine, Department of Internal Medicine, Ankara, Turkey

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

Nurcan Dursun¹, Ercan Babur¹, Burak Tan¹, Umut Bakkaloğlu², Bilal Koşar¹ and Cem Süer¹

¹ Erciyes University, Medical School, Department of Physiology, Kayseri, Turkey

² Mustafa Kemal University, Medical School, Department of Physiology, Hatay, Turkey

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

Ercan Babur¹, Umut Bakkaloğlu², Burak Tan¹, Cem Süer¹ and Nurcan Dursun¹

¹ Erciyes University, Medical School, Department of Physiology, Kayseri, Turkey

² Mustafa Kemal University, Medical School, Department of Physiology, Hatay, Turkey

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 (F_{2,20}=4,769, p=0,022) and maintenance period (F_{2,20}=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

Türkan Ekici and Asuman Göğeli

Erciyes University, Medical Faculty, Department of Physiology, Kayseri, Turkey

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 perga.

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

Güven Akçay¹, Deniz Kantar Gök¹, Betül Danışman¹, Mustafa Munzuroğlu¹, Ceren Kencebay², Özgür Duman³, Narin Derin¹

¹Akdeniz University, Faculty of Medicine, Department of Biophysics, Antalya, Turkey

²Akdeniz University, Faculty of Health Sciences, Department of Physical Therapy and Rehabilitation, Antalya, Turkey

³ Akdeniz University, Faculty of Medicine, Department of Pediatric Neurology, Antalya, Turkey

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

Eylem Turgut¹, Hande Parlak¹, Asiye Kübra Göksu², Gamze Tanrıöver², Levent Sarıkçıoğlu³ and Aysel Ağar¹

¹Akdeniz University, Faculty of Medicine, Department of Physiology, Antalya, Turkey

²Akdeniz University, Faculty of Medicine, Department of Histology and Embryology, Antalya, Turkey

³Akdeniz University, Faculty of Medicine, Department of Anatomy, Antalya, Turkey

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

Hande Parlak¹, Nuray Acar², Ayşe Özkan¹, Hakan Soylu², Sema Avcı², İsmail Üstünel², V. Nimet İzgüt-Uysal¹ and Aysel Ağar¹

¹ Akdeniz University, Faculty of Medicine, Department of Physiology, Antalya, Turkey

² Akdeniz University, Faculty of Medicine, Department of Histology and Embryology, Antalya, Turkey

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

Mehmet Bülbül¹, Narin Derin², Osman Sinen¹, Güven Akçay², Ayşe Özkan¹ and Aysel Ağar¹

¹ Akdeniz University, Faculty of Medicine, Department of Physiology, Antalya, Turkey

² Akdeniz University, Faculty of Medicine, Department of Biophysics, Antalya, Turkey

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

Şevval Kayacan¹, Simge Başmaya¹, Sevim Nur Erkayran¹, Eyyüp Kalemli¹ and Güldal İnal Gültekin²

¹Istanbul Okan University, Faculty of Medicine, Istanbul, Turkey

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

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

Bilal Koşar, Ercan Babur, Sümeyra Delibaş, Nurcan Dursun and Cem Süer

Erciyes University, Medical Faculty, Department of Physiology, Kayseri, Turkey

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

Feyza Genç Şatır¹, Burcu Çaykara², Hani Alsaadoni¹, Halime Hanım Pençe³, Sadrettin Pençe⁴, Ender Çoşkunpınar⁵, Necip Ozan Tiryakioğlu⁶ and Gökhan Erkol⁷

¹Istanbul University, Aziz Sancar Institute of Experimental Medicine (ASDETA), Department of Molecular Medicine, Istanbul, Turkey

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

³University of Health Sciences, Faculty of Medicine, Department of Medical Biochemistry, Istanbul, Turkey

⁴University of Health Sciences, Faculty of Medicine, Department of Physiology Istanbul, Turkey

⁵University of Health Sciences, Faculty of Medicine, Department of Medical Biology, Istanbul, Turkey

⁶Istanbul Gelisim University, School of Health Sciences, Department of Physiotherapy and Rehabilitation, Istanbul, Turkey

⁷Istanbul University, Cerrahpasa Faculty of Medicine, Department of Neurology, Istanbul, Turkey

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

Murat Çakır¹, Züleyha Doğanıyığıt², Suat Tekin³, Yavuz Erden⁴, Yılmaz Çiğremiş⁵ and Süleyman Sandal³

¹Bozok University, Faculty of Medicine, Department of Physiology, Yozgat, Turkey

²Bozok University, Faculty of Medicine, Department of Histology and Embryology, Yozgat, Turkey

³Inonu University, Faculty of Medicine, Department of Physiology, Malatya, Turkey

⁴Bartın University, Faculty of Science, Department of Molecular Biology and Genetic, Bartın, Turkey

⁵Inonu University, Faculty of Medicine, Department of Medical Biology and Genetics, Malatya, Turkey

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

Z. Işık Solak Görmüş¹, Niyazi Görmüş², Hatice Solak¹, Raviye Özen Koca¹, Aynur Koç¹, Fatma Nur Takı¹, Selim Kutlu¹

¹ Necmettin Erbakan University, Meram School of Medicine, Department of Physiology, Konya, Turkey

² Necmettin Erbakan University, Meram School of Medicine, Department of Cardiovascular Surgery, Konya, Turkey

³ Hitit University, School of Medicine, Department of Physiology, Corum, Turkey

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 ($n = 17$, $n = 17$) 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 (10⁻¹⁰M) was administered in tissue baths to induce isometric contractions. Cumulative fluoxetine (10⁻⁵M, 10⁻⁶M, 10⁻⁷M, 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

Mustafa Titiz¹, Sümeyye Çilingir¹, Gülşah Beyza Ertoşun¹, Dilan Acar², Mehmet Şerif Yavuz², Gamze Kırıkçı³ and Güldal Güleç-Süyen¹

¹ Acıbadem Mehmet Ali Aydınlar University, Faculty of Medicine, Department of Physiology, İstanbul, Turkey

² Acıbadem Mehmet Ali Aydınlar University, Faculty of Science and Literature, Department of Psychology, İstanbul, Turkey

³ Acıbadem Mehmet Ali Aydınlar University, Faculty of Medicine, Department of Anatomy, İstanbul, Turkey

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

Elif Sümeyya Erdemir¹, Şüheda Alpay¹, Necip Kutlu¹ and Erol Ozan²

¹ Manisa Celal Bayar University, Medical School, Department of Physiology, Manisa, Turkey

² Manisa Celal Bayar University, Medical School, Department of Psychiatry, Manisa, Turkey

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

Fusun Sunar¹ and Serkan Küçüktürk²

¹ KTO Karatay University, Faculty of Medicine, Department of Medical Education, Konya, Turkey

² Necmettin Erbakan University, Meram Faculty of Medicine, Department of Biostatistics, Konya, Turkey

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

Yusuf Olğar¹, Ayşegül Durak¹, Sinan Değirmenci¹, Naci Ertürk², Muhammet Talha Akbaş², Mehmet Cihangir Deniz², Ahmet Aygün², Muhammed Furkan Erciyas², Burak Tahir Yazar², Mustafa Salih Yılmaz² and Belma Turan¹

¹ Ankara University, Faculty of Medicine, Department of Biophysics, Ankara, Turkey.

² Ankara University, Faculty of Medicine Third Semester Students, Ankara, Turkey.

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

İsmail Hakkı Akbudak¹, Özgen Kılıç-Erkek², Emine Kılıç-Toprak², Egem Burcu Tuzcu², Vural Küçükataş² and Melek Bor-Küçükataş²

¹ Pamukkale University, Faculty of Medicine, Department of Internal Medicine, Denizli, Turkey

² Pamukkale University, Faculty of Medicine, Department of Physiology, Denizli, Turkey

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

Özlem Yalcinkaya Yavuz¹, Nurettin Aydogdu¹, Ebru Taştekin², Muhammed Ali Aydın¹, Nihayet Kandemir¹ and Assel Kudaibergenova¹

¹Trakya University, Faculty of Medicine, Department of Physiology, Edirne, Turkey

²Trakya University, Faculty of Medicine, Department of Pathology, Edirne, Turkey

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

Gülşah Gündoğdu¹, Fatma Demirkaya Miloğlu², Onur Senol², Yavuzer Koza³ and Fuat Gündoğdu³

¹ Ataturk University, Faculty of Medicine, Department of Physiology, Erzurum, Turkey

² Atatürk University, Faculty of Pharmacy, Department of Analytical Chemistry, Erzurum, Turkey

³ Atatürk University, Faculty of Medicine, Department of Cardiology, Erzurum, Turkey

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

Pınar Çakan and Sedat Yıldız

Inonu University, Faculty of Medicine, Department of Physiology, Malatya, Turkey

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

Fatma Nur Takı, Hatice Solak, Raviye Özen Koca, Faik Özdengül, Z Işık Solak Görmüş and Selim Kutlu

Necmettin Erbakan University, Faculty of Medicine, Department of Physiology, Konya, Turkey

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

Hilal Üstündağ¹, Esra Şentürk², Fikret Çelebi³ and Mustafa Gül⁴

¹ Artvin Coruh University, Faculty of Health Sciences, Artvin, Turkey

² Ağrı İbrahim Çeçen University, School of Health, Ağrı, Turkey

³ Ataturk University School of Veterinary Medicine, Department of Physiology, Erzurum, Turkey

⁴ Ataturk University, Faculty of Medicine, Department of Physiology, Erzurum, Turkey.

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

Zehra Çiçek, Zehra Gül Yaşar, Kübra Akıllıoğlu and Ayşe Doğan

Cukurova University, Medicine Faculty, Physiology Department, Adana, Turkey

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?

Niyazi Görmüş¹, Z. Işık Solak Görmüş², Aynur Koç³, Hatice Solak², Raviye Özen Koca², Fatma Nur Taki² and Ayşe Özdemir²

¹Necmettin Erbakan University Meram Faculty of Medicine Department of Cardio Vascular Surgery, Konya, Turkey

²Necmettin Erbakan University, Faculty of Medicine, Department of Physiology, Konya, Turkey

³Hitit University, Faculty of Medicine, Department of Physiology, Çorum, Turkey

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 5HT_{2c} 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?

Raviye Özen Koca¹, Z. Işık Solak Görmüş¹, Hatice Solak¹, Ayşe Özdemir¹, Selim Kutlu¹ and Niyazi Görmüş²

¹ Necmettin Erbakan University, Meram School of Medicine, Department of Physiology, Konya, Turkey

² Necmettin Erbakan University, Meram School of Medicine, Department of Cardiovascular Surgery, Konya, Turkey

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

Mehmet Bülbül, İlknur Bisen and Osman Sinen

Akdeniz University, Faculty of Medicine, Department of Physiology, Antalya, Turkey

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

Türkan Çelik and Naciye İşbil

Uludağ University, Faculty of Medicine, Department of Physiology, Bursa, Turkey

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

Mehmet Bülbül¹, Osman Sinen¹, Leyla Abueid¹ and Gökhan Akkoyunlu²

¹ Akdeniz University, Faculty of Medicine, Department of Physiology, Antalya, Turkey

² Akdeniz University, Faculty of Medicine, Department of Histology and Embryology, Antalya, Turkey

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

Mehmet Bülbül, Leyla Abueid, Osman Sinen, Ayşe Özkan and Aysel Ağar

Akdeniz University, Faculty of Medicine, Department of Physiology, Antalya, Turkey

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

Mehmet Bülbül, Onur Bayramoğlu and Osman Sinen

Akdeniz University, Faculty of Medicine, Department of Physiology, Antalya, Turkey

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

Ayhan Tanyeli¹, Ersen Eraslan², Mustafa Can Güler¹, Nezahat Kurt³ and Zeliha Yetim⁴

¹ Atatürk University, Faculty of Medicine, Department of Physiology, Erzurum, Turkey

² Bozok University, Faculty of Medicine, Department of Physiology, Yozgat, Turkey

³ Atatürk University, Faculty of Medicine, Department of Biochemistry, Erzurum, Turkey

⁴ Atatürk University, Faculty of Medicine, Department of Histology and Embryology, Erzurum, Turkey

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

Mehmet Bülbül, Onur Bayramoğlu, Leyla Abueid and Osman Sinen

Akdeniz University, Faculty of Medicine, Department of Physiology, Antalya, Turkey

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

Ersen Eraslan¹, Ayhan Tanyeli² and Elif Polat³

¹ Bozok University, Faculty of Medicine, Department of Physiology, Yozgat, Turkey

² Atatürk University, Faculty of Medicine, Department of Physiology, Erzurum, Turkey

³ Atatürk University, Faculty of Medicine, Department of Biochemistry, Erzurum, Turkey

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.

PC055

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

Ayhan Tanyeli¹ and Fazile Nur Ekinici Akdemir²

¹Atatürk University, Faculty of Medicine, Department of Physiology, Erzurum, Turkey

²Agri Ibrahim Çeçen University, High School of Health, Department of Nutrition and Dietetics, Ağrı, Turkey

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

Ayhan Tanyeli¹, Fazile Nur Ekinici Akdemir²

¹Atatürk University, Faculty of Medicine, Department of Physiology, Erzurum, Turkey

²Agri Ibrahim Çeçen University, High School of Health, Department of Nutrition and Dietetics, Ağrı, Turkey

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

Cemile Ceren Güllü¹, Aslı Taslidere¹, Nese Basak Türkmen² and Osman Çiftçi³

¹Inonu University, Faculty of Medicine, Department of Histology and Embryology, Malatya, Turkey

²Inonu University Faculty of Pharmacy, Department of Pharmaceutical Toxicology, Malatya, Turkey

³Pamukkale University, Faculty of Medicine, Department of Medical Pharmacology, Denizli, Turkey

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

Adeviye Özkan İbiş¹, Burhanettin Baydaş² and Tuba Özkul³

¹Ankara Yıldırım Beyazıt University, Vocational School of Health Services, Electroneurophysiology Program, Ankara, Turkey

²Bingöl University, Faculty of Health Sciences, Nutrition and Dietetics, Bingöl, Turkey

³Erciyes University, Halil Bayraktar Vocational School of Health Services, Electroneurophysiology Program, Kayseri, Turkey

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.

C059

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

İnci Turan¹, Hale Sayan Özçmak¹, V. Haktan Özçmak¹ and Figen Barut²

¹ Zonguldak Bülent Ecevit University, Faculty of Medicine, Department of Physiology, Zonguldak, Turkey

² Zonguldak Bülent Ecevit University, Faculty of Medicine, Department of Pathology, Zonguldak, Turkey

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

Hatice Doğan, Okan Tutuk, Enver Ahmet Demir, Cemil Tümer

Hatay Mustafa Kemal University, School of Medicine, Department of Physiology, Hatay, Turkey

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

Faruk Metin Çomu¹, Ayşegül Küçük², Ülkü Sabuncu³, Nevriye Salman³, Timuçin Sabuncu⁴, Gülay Kip⁵, Ömer Kurtipek⁶ and Mustafa Arslan⁶

¹Kırıkkale University, Medical Faculty, Department of Physiology, Kırıkkale, Turkey

²Kütahya Health Sciences University, Medical Faculty, Department of Physiology, Kütahya, Turkey

³Health Science University, Yüksek İhtisas Training and Research Hospital, Department of Anesthesiology and Reanimation, Ankara, Turkey

⁴Hacettepe University, Medical Faculty, Department of Cardiovascular Surgery, Ankara, Turkey

⁵Gazi University, Faculty of Dentistry, Department of Paediatric Dentistry (Anaesthesiology and Reanimation Specialist), Ankara, Turkey

⁶Gazi University, Medical Faculty, Department of Anesthesiology and Reanimation, Ankara, Turkey

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.

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PC062

Protective Effect of Casticin Against Ovary Ischemia-Reperfusion Damage

Ayhan Tanyeli¹, Fazile Nur Ekinçi Akdemir², Ersen Eraslan³, Mustafa Can Güler¹ and Ömer Topdağ⁴

¹ Atatürk University, Faculty of Medicine, Department of Physiology, Erzurum, Turkey

² Ağrı İbrahim Çeçen University, Department of Nutrition and Dietetics, High School of Health, Ağrı, Turkey

³ Bozok University, Faculty of Medicine, Department of Physiology, Yozgat, Turkey

⁴ Atatürk University, Faculty of Medicine, Department of Internal Medicine, Erzurum, Turkey

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)

Murat Çakır¹, Aslı Taşlıdere², Suat Tekin³ and Halil Düzova³

¹ Department of Physiology, Faculty of Medicine, Bozok Üniversitesi, Yozgat, Turkey

² Department of Histology and Embryology, Faculty of Medicine, Inonu University, Malatya, Turkey

³ Department of Physiology, Faculty of Medicine, Inonu University, Malatya, Turkey

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

Simge Başmaya¹, Şevval Kayacan¹, Eyyüp Kalemli¹, Dila Yıldız¹ and Güldal İnal Gültekin²

¹Istanbul Okan University, Faculty of Medicine Student, Istanbul, Turkey

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

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

Burcu Gemici¹, Cihan Süleyman Erdoğan¹, Elif Günelan¹ and Başak Aru²

¹ Yeditepe University, Faculty of Medicine, Department of Physiology, Istanbul, Turkey

² Yeditepe University, Faculty of Medicine, Department of Immunology, Istanbul, Turkey

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

Nahit Rızaner¹, Rustem Onkal¹, Scott P. Fraser² and Mustafa B.A. Djamgoz²

¹Cyprus International University, Cyprus

²Imperial College, London, England

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

Meltem Yalçın¹, Nuray Yazıhan², Muhsine Sinem Ethemoglu¹, Cihan Süleyman Erdoğan¹ and Mehtap Kaçar¹

¹ Yeditepe University, Faculty of Medicine, Department of Physiology, Istanbul, Turkey

² Ankara University, Faculty of Medicine, Department of Internal Medicine, Department of Pathophysiology, Ankara, Turkey

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

Pınar Yüksel, Mustafa Edremitlioğlu, Coşkun Zateri, Dilek Ülker Çakır and Münevver Coşkun

Canakkale Onsekiz Mart University, Çanakkale, Turkey

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

Betül Genç¹, M Alper Erdoğan² and Özlem Yılmaz¹

¹Ege University, Faculty of Medicine, Department of Physiology, Izmir, Turkey

²Izmir Katip Çelebi University, Faculty of Medicine, Department of Physiology, Izmir, Turkey

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

Sevin Güney¹, Ezgi Ermiş-Kaya² and Heimo Mairbäurl²

¹Gazi University Faculty of Medicine, Department of Physiology, Ankara, Turkey

²Heidelberg University, Medical Clinic VII, Sports Medicine, Germany

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

Okan Tutuk¹, Hatice Doğan¹, Enver Ahmet Demir¹, Sümeyye Tutuk² and Cemil Tümer¹

¹Hatay Mustafa Kemal University, School of Medicine, Department of Physiology, Hatay, Turkey

²Hatay Mustafa Kemal University, School of Medicine, Department of Biochemistry, Hatay, Turkey

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

Okan Gönder¹, Faruk Arslan¹, Ender Remzi Siyer¹, Yasemin Bilgiç², Enver Ahmet Demir² and Cemil Tümer²

¹ Undergraduate Student at School of Medicine, Hatay Mustafa Kemal University, Hatay, Turkey

² Department of Physiology, School of Medicine, Hatay Mustafa Kemal University, Hatay, Turkey

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

Osman Çiftçi¹, Nese Basak Türkmen², Aslı Taslidere³ and Cemile Ceren Gül³

¹Pamukkale University, Faculty of Medicine, Department of Medical Pharmacology, Denizli, Turkey

²Inonu University Faculty of Pharmacy, Department of Pharmaceutical Toxicology, Malatya, Turkey

³Inonu University, Faculty of Medicine, Department of Histology and Embryology, Malatya, Turkey

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

Sinem Usuk¹, Begümhan Ömeroğlu Yel¹, Muhammet Emin Çam², Meral Yüksel³ and Berna Karakoyun⁴

¹Marmara University, Faculty of Health Sciences, Department of Nutrition and Dietetics, Istanbul, Turkey

²Marmara University, Faculty of Pharmacy, Department of Pharmacology, Istanbul, Turkey

³Marmara University, Vocational School of Health-Related Professions, Department of Medical Laboratory, Istanbul, Turkey

⁴Marmara University, Faculty of Health Sciences, Department of Basic Health Sciences, Istanbul, Turkey

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 peroxyxynitrite 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

Deniz Öztürk¹, Ayhan Tanyeli², Derya Güzel³, Elif Polat⁴ and Hüseyin Baylan⁵

¹Atatürk University, Vocational School of Health Services, Erzurum, Turkey

²Atatürk University, Faculty of Medicine, Department of Physiology, Erzurum, Turkey

³Sakarya University, Faculty of Medicine, Department of Physiology, Sakarya, Turkey

⁴Atatürk University, Faculty of Medicine, Department of Biochemistry, Erzurum, Turkey

⁵Atatürk University, Faculty of Medicine, Department of Anatomy, Erzurum, Turkey

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

Mustafa Can Güler¹, Ayhan Tanyeli¹, Fazile Nur Ekinici Akdemir², Ersen Eraslan³, Mustafa Can Güler¹ and Ömer Topdağ⁴

¹Atatürk University, Faculty of Medicine, Department of Physiology, Erzurum, Turkey

²Ağrı İbrahim Çeçen University, Department of Nutrition and Dietetics, High School of Health, Ağrı, Turkey

³Bozok University, Faculty of Medicine, Department of Physiology, Yozgat, Turkey

⁴Atatürk University, Faculty of Medicine, Research Hospital, Department of Internal Medicine, Erzurum, Turkey

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.

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PC077

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

Gül Büşra Kaya¹, Memet Hanifi Emre², Azibe Yıldız³ and Nigar Vardi³

¹ İnönü University, Faculty of Medicine, Department of Physiology, Malatya, Turkey

² Bahçeşehir University, Faculty of Medicine, Department of Physiology, İstanbul, Turkey

³ İnönü University, Faculty of Medicine, Department of Histology and Embryology, Malatya, Turkey

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

Çiğdem Çiçekli, F. Banu Şen, Mustafa Ayyıldız and Erdal Ağar

Ondokuz Mayıs University, Medical Faculty, Department of Physiology, Samsun, Turkey

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

Emre Soner Tiryaki, Gökhan Arslan, Mustafa Ayyıldız and Erdal Ağar

Ondokuz Mayıs University, Medical School, Department of Physiology, Samsun, Turkey

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

Yıldırım Kayacan¹, Günay Çerit², Babak Elmi Ghojbeigloo², Süleyman Emre Kocacan³ and Mustafa Ayyıldız⁴

¹ Ondokuz Mayıs University, Yasar Dogu Faculty of Sport Sciences, Coaching Education Department, Samsun, Turkey

² Ondokuz Mayıs University, Institute of Health Sciences, Samsun, Turkey

³ Ondokuz Mayıs University, Health Care Vocational High School, Samsun, Turkey

⁴ Ondokuz Mayıs University, Faculty of Medicine, Department of Physiology, Samsun, Turkey

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

Gökhan Arslan, Emre Soner Tiryaki, Mustafa Ayyıldız and Erdal Ağar

Ondokuz Mayıs University, Medical School, Department of Physiology, Samsun, Turkey

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

Cumaali Demirtaş, Hande Kılıçkaya, Sena Ebru Çağlar, Metehan Akça, Kemal Tolga Saraçoğlu and Mehmet Yıldırım

University of Health Sciences, Faculty of Medicine, Department of Physiology, Istanbul, Turkey

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

Sena Ebru Çağlar, Cumaali Demirtaş, Hande Kılıçkaya, Metehan Akça, Tolga Kemal Saraçoğlu and Mehmet Yıldırım
University of Health Sciences, Faculty of Medicine, Department of Physiology, Istanbul, Turkey

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

Hande Kılıçkaya, Sena Ebru Çağlar, Cumaali Demirtaş, Metehan Akça, Kemal Tolga Saraçoğlu and Mehmet Yıldırım
University of Health Sciences, Faculty of Medicine, Department of Physiology, Istanbul, Turkey

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 Pentylentetrazol-Induced Epileptic Seizures in Rats

Erkan Kılınc¹ and Handan Güneş²

¹ Abant İzzet Baysal University, Medical Faculty, Department

of Physiology, Bolu, Turkey

² Cumhuriyet University, Faculty of Medicine, Department of Physiology, Sivas, Turkey

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 pentylentetrazol-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 pentylentetrazol 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 pentylentetrazol 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 pentylentetrazol ($p < 0,05$), 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

Hülya Hökelek¹, Süleyman Emre Kocacan², Mustafa Ayyıldız² and Erdal Açar²

¹ Ondokuz Mayıs University, Health Science Institute, Department of Neuroscience, Samsun, Turkey

² Ondokuz Mayıs University, Faculty of Medicine, Department of Physiology, Samsun, Turkey

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

Aysegül Yıldız¹, Süleyman Emre Kocacan² and Aydın Him³

¹Ondokuz Mayıs University, Health Sciences Institute, Department of Neuroscience, Samsun, Turkey

²Ondokuz Mayıs University, Faculty of Medicine, Department of Physiology, Samsun, Turkey

³Bolu Abant İzzet Baysal University, Faculty of Medicine, Department of Physiology, Bolu, Turkey

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

Hatice Aygün¹, Mustafa Ayyıldız² and Erdal Ağar²

¹Gaziosmanpaşa University, Faculty of Medicine, Department of Physiology, Tokat, Turkey

²Ondokuz Mayıs University, Faculty of Medicine, Department of Physiology, Samsun, Turkey

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

Gökhan Arslan¹, Bahattin Avcı², Süleyman Emre Kocacan¹, Emil Rzayev², Mustafa Ayyıldız¹ and Erdal Ağar¹

¹Department of Physiology, Medical School University of Ondokuz Mayıs Samsun, Turkey

²Department of Medical Biochemistry, Medical School, University of Ondokuz Mayıs Samsun, Turkey

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.

This study supported by TÜBİTAK (Project number: 115S361)

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PC090

A Novel Putative Indicator of Irritable Bowel Syndrome: Erythrocyte Aggregation

Gunel Abdullayeve

Akdeniz University, Medical Faculty, Department of Physiology, Antalya, Turkey

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

Serdar Şahintürk¹ and Kadriye Şahintürk²

¹Bursa Uludağ University, Faculty of Medicine, Department of Physiology, Bursa, Turkey

²Firat University Hospital, Radiotherapy Center, Elazığ, Turkey

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 Firat 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

Mehmet Üyükü

Bezmialem Vakıf University, Faculty of Medicine, Department of Physiology, Istanbul, Turkey

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

Gunel Abdullayeve

Akdeniz University, Medical Faculty, Department of Physiology, Antalya, Turkey

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

Kamile Yazgan Özdiraz¹ and Asuman Gölgeci²

¹ Cappadocia University, Electroneurophysiology Program, Urgup-Nevsehir, Turkey

² Erciyes University, Faculty of Medicine Department of Physiology, Kayseri, Turkey

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

Ayşe Arzu Yiğit¹, Ebru Yıldırım², Emine Baydan³, İlkay Aydoğan⁴, Hüsamettin Ekici² and Enes Güncüm²

¹ Kirikkale University, Faculty of Veterinary Medicine, Department of Physiology, Kirikkale, Turkey

² Kirikkale University, Faculty of Veterinary Medicine, Department of Pharmacology and Toxicology, Kirikkale, Turkey

³ Ankara University, Faculty of Veterinary Medicine, Department of Pharmacology and Toxicology, Kirikkale, Turkey

⁴ Kirikkale University, Faculty of Veterinary Medicine, Department of Animal Nutrition and Nutritional Diseases, Kirikkale, Turkey

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

Bülent Bayraktar¹, Emre Tekce², Mehmet Gül³ and Sevil Bayraktar⁴

¹ Bayburt University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation, Bayburt, Turkey

² Bayburt University, Faculty of Applied Sciences, Organic Farming Management, Bayburt, Turkey

³ Ataturk University, Faculty of Veterinary Medicine, Department of Animal Nutrition and Nutritional Diseases, Erzurum, Turkey

⁴ Ondokuz Mayıs University, Faculty of Veterinary Medicine, Department of Physiology, Samsun, Turkey

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 *Syngium 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

Bülent Bayraktar¹, Ayşe Arzu Yiğit² and Hüsametdin Ekici³

¹ Bayburt University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation, Bayburt, Turkey

² Kırıkkale University, Faculty of Veterinary Medicine, Department of Physiology, Kırıkkale, Turkey

³ Kırıkkale University, Faculty of Veterinary Medicine, Department of Pharmacology and Toxicology, Kırıkkale, Turkey

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?

Gülbahar Böyük¹ and A. Arzu Yiğit²

¹ Başkent University, Vocational School of Health Services, Department of Medical Imaging Techniques, Ankara, Turkey

² Kırıkkale University, Faculty of Veterinary Medicine, Department of Physiology, Kırıkkale, Turkey

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

Ebru Arslan¹, Güler Öztürk¹, Burcu Çaykara¹ and Hacer Hicran Mutlu²

¹ Istanbul Medeniyet University, Faculty of Medicine, Department of Physiology, Istanbul, Turkey

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

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 $26,5 \pm 20,87$. 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

Pınar Çakan and Sedat Yıldız

Inonu University, Faculty of Medicine, Department of Physiology, Malatya, Turkey

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

Pınar Çakan and Sedat Yıldız

Inonu University, Faculty of Medicine, Department of Physiology, Malatya, Turkey

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

Gökhan Akkoyunlu¹, Mehmet Bülbül², Osman Sinen² and Leyla Abueid²

¹Akdeniz University, Faculty of Medicine, Department of Histology and Embryology, Antalya, Turkey

²Akdeniz University, Faculty of Medicine, Department of Physiology, Antalya, Turkey

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

Elif Günelan¹, Binnur Okan Bakır², Rabia Balı³, Özlem Tanrıöver⁴, Burcu Gemici¹

¹Yeditepe University, Faculty of Medicine, Department of Physiology, Istanbul, Turkey

²Yeditepe University, Faculty of Health Science, Department of Nutrition and Dietetics, Istanbul, Turkey

³Istanbul Sabahattin Zaim University, Institute of Science, Department of Nutrition and Dietetics, Istanbul, Turkey

⁴Yeditepe University, Faculty of Medicine, Department of Family Medicine, Istanbul, Turkey

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

Süleyman Sanda¹, Suat Tekin¹, Yavuz Erden², Ahmet Burak Çağlayan³, Fatma Özyalın⁴, Yılmaz Çiğremiş⁵ and Cemil Çolak⁶

¹ İnönü University, Faculty of Medicine, Department of Physiology, Malatya, Turkey

² Bartın University, Faculty of Science, Department of Molecular Biology, Bartın, Turkey

³ Istanbul Medipol University, Faculty of Medicine, Department of Physiology, Istanbul, Turkey

⁴ İnönü University, Faculty of Medicine, Department of Medical Biochemistry, Malatya Turkey

⁵ İnönü University, Faculty of Medicine, Department of Medical Biology and Genetics, Malatya Turkey

⁶ İnönü University, Faculty of Medicine, Department of Biostatistics and Medical Informatics, Malatya Turkey

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

Serpil Çeçen¹ and Canan Eren²

¹Marmara University Pendik Training and Research Hospital, Department of Sports Physiology, Istanbul/Turkey

²Marmara University, Pendik EAH Blood Bank, Istanbul, Turkey

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

Duygu Egeli¹, Enver Ahmet Demir¹, Hatice Doğan¹, Okan Tutuk¹, Murat Açıık² and Cemil Tümer¹

¹Hatay Mustafa Kemal University, School of Medicine, Department of Physiology, Hatay, Turkey

²Ankara University, School of Health Sciences, Department of Nutrition and Dietetics, Ankara, Turkey

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

Hülya Buzcu¹, Dilek Özbeyli², Meral Yüksel³, Özlem Tuğçe Çilingir Kaya⁴ and Özgür Kasımay Çakır¹

¹ Marmara University, Faculty of Medicine, Department of Physiology, Istanbul, Turkey

² Marmara University, Vocational School of Health Services, Department of Medical Pathology Techniques, Istanbul, Turkey

³ Marmara University, Vocational School of Health Services, Department of Medical Laboratory Techniques, Istanbul, Turkey

⁴ Marmara University, Faculty of Medicine, Department of Histology and Embryology, Istanbul, Turkey

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

Hilal Korkmaz¹, Deniz Önal², Murat Alışık³, Özcan Erel³ and Bilge Pehlivanoglu²

¹ Gazi University, Faculty of Medicine, Department of Physiology Ankara, Turkey

² Hacettepe University, Faculty of Medicine, Department of Physiology, Ankara, Turkey

³ Yıldırım Beyazıt University, Faculty of Medicine, Department of Biochemistry, Ankara, Turkey

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

Gökhan Ağtürk¹, Enver Ahmet Demir², Okan Tutuk², Hatice Doğan², Tumay Özgür³ and Cemil Tümer²

¹ Department of Physiology, School of Medicine, Halic University, Istanbul, Turkey

² Hatay Mustafa Kemal University, School of Medicine, Department of Physiology, Hatay, Turkey

³ Hatay Mustafa Kemal University, School of Medicine, Department of Medical Pathology, Hatay, Turkey

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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PC110

The Prenatal Effect to Ossification of Exposure to Radiofrequency-Electromagnetic Field

Fazile Cantürk Tan¹, Yasin Karamazı¹, Sümeyye Uçar², Süleyman Daşdağ³, Betül Yalçın⁴ and Burak Tan⁵

¹ Erciyes University, Faculty of Medicine, Department of Biophysics, Kayseri, Turkey

² Erciyes University, Faculty of Medicine, Department of Anatomy, Kayseri, Turkey

³ İstanbul Medeniyet University, Faculty of Medicine, Department of Biophysics, İstanbul, Turkey

⁴ Adıyaman University, Faculty of Medicine, Department of Histology and Embryology, Adıyaman, Turkey

⁵ Erciyes University, Faculty of Medicine, Department of Physiology, Kayseri, Turkey

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, occipitofrontal 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

Ruhi Kabakçı¹, Hasan Ceyhun Macun², İbrahim Mert Polat² and Ebru Yıldırım³

¹ Kirikkale University, Faculty of Veterinary Medicine, Department of Physiology, Kirikkale, Turkey

² Kirikkale University, Faculty of Veterinary Medicine, Department of Obstetric and Reproductive Disease, Kirikkale, Turkey

³ Kirikkale University, Faculty of Veterinary Medicine, Department of Pharmacology and Toxicology, Kirikkale, Turkey

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

Ahmet Ayar, Vildan Keleş Güler, Büşra Perihan Yücel and Ömer Faruk Kalkan

Karadeniz Technical University Faculty of Medicine, Department of Physiology, Trabzon, Turkey

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

Faik Özdemir, Raviye Özen Koca, Fatmanur Takı, Hatice Solak, Z Işık Solak Görmüş and Selim Kutlu

Necmettin Erbakan University, Meram Faculty of Medicine, Department of Physiology, Konya, Turkey

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 were 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 abortion.

PC114

Methotrexate-Induced Testicular Injury: Effect of Agomelatin on Testicular Function

Rahime Aslankoc¹ and Özlem Özmen²

¹ Suleyman Demirel University, Faculty of Medicine, Department of Physiology, Isparta, Turkey

² Mehmet Akif Ersoy University, Faculty of Veterinary, Department of Pathology, Burdur, Turkey

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). These findings were lower in 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

Ayşe Arzu Yiğit¹, Emine Ümran Örsçelik², Gülbahar Büyük³, Meral Tiryaki⁴ and Ferda Alparslan Pınarlı⁵

¹ Kirikkale University, Faculty of Veterinary Medicine, Department of Physiology, Kirikkale, Turkey

² Kirikkale University, Faculty of Veterinary Medicine, Department of Anatomy, Kirikkale, Turkey

³ Baskent University, Vocational School of Health, Department of Medical Services and Techniques, Ankara, Turkey

⁴ Diskapi Yıldırım Beyazıt Education and Research Hospital, Department of Pathology, Ankara, Turkey

⁵ Myogen Laboratory and Health Service, Ankara, Turkey

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

Meltem Dönmez, Ayper Boğa Pekmezekmek, Zehra Çiçek, Kübra Akıllıoğlu and Ayşe Doğan

Cukurova University Medicine Faculty, Physiology Department, Adana, Turkey

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

Zehra Çiçek, Ayper Boğa Pekmezekmek, Meltem Dönmez, Kübra Akıllıoğlu and Ayşe Doğan

Cukurova University, Medicine Faculty, Physiology Department, Adana, Turkey

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 invitro 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 micropthalmia 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

Ayper Boğa Pekmezekmek¹, Mustafa Emre² and Yaşar Sertdemir³

¹ Cukurova University, Medical Faculty, Department of Physiology, Adana, Turkey

² Cukurova University, Medical Faculty, Department of Biophysics, Adana, Turkey

³ University of Cukurova, , Medical Faculty, Department of Biostatistics, Adana, Turkey

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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PC119

Effect of Monosodium Glutamate and 900 MHz Radiofrequency Electromagnetic Radiation on Membrane Potential of Fertilized and Unfertilized Xenopus Eggs

Mustafa Emre¹ and Ayper Boğa Pekmezekmek²

¹ Cukurova University, Faculty of Medicine, Department of Biophysics, Adana, Turkey

² Cukurova University, Faculty of Medicine, Department of Physiology, Adana, Turkey

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

Recep Baloğlu and Sami Aydoğan

Erciyes University, Faculty of Medicine, Department of Physiology, Kayseri, Turkey

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

Yasemin Şahin Yıldız¹, Ümit Kılıç², Ersin Beyazçiçek³, Özge Beyazçiçek³ and Şerif Demir³

¹ Bartın University, Health Services Vocational School, Department of Health and Care Services, Bartın, Turkey

² Duzce University, Health Services Vocational School, Department of Medical Services and Techniques, Duzce, Turkey

³ Duzce University, Faculty of Medicine, Department of Physiology, Duzce, Turkey

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

Yasin Ozdemir¹, Ozgen Kilic-Erkek¹, Emine Kilic-Toprak¹, Egem Burcu Tuzcu¹, Ibrahim Turkcu² and Melek Bor-Kucukatay¹

¹ Pamukkale University, Faculty of Medicine, Department of Physiology, Denizli, Turkey

² Pamukkale University, Faculty of Medicine, Department of Emergency Medicine, Denizli, Turkey

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

Hilal Üstündağ¹, Esra Şentürk² and Murat Şentürk³

¹ Artvin Coruh University, Faculty of Health Sciences, Artvin, Turkey

² Ağrı İbrahim Çeçen University, School Of Health, Ağrı, Turkey

³ Ağrı İbrahim Çeçen University, Faculty of Pharmacy, Ağrı, Turkey.

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

Duygu Şahin and Asuman Gölgeci

Erciyes University, Faculty of Medicine, Department of Physiology, Kayseri, Turkey

Aim: It is aimed to investigate whether exercise has a positive effect on the adverse effects of MK-801.

Methods: With ethics committee approval (EÜHADYK: 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

Yıldırım Kayacan¹, Ayhan Çetinkaya², Hayrullah Yazar³ and Yücel Makaracı¹

¹ Ondokuz Mayıs University, Faculty of Yaşar Doğu sport Sciences, Coaching Education Department, Samsun, Turkey

² Abant İzzet Baysal University, Faculty of Medicine, Department of Physiology, Bolu, Turkey

³ Sakarya University, Faculty of Medicine, Department of Medical Biochemistry, Sakarya, Türkiye

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

Selma A. Vardar¹, Zeynep B. Doganlar², Oktay Kaya¹, Pinar Tayfur¹, Necdet Sut³, Meryem A. Merakli² and Oguzhan Doganlar²

¹ Department of Physiology, Trakya University Medical Faculty, Edirne, Turkey

² Department of Medical Biology, Trakya University Medical Faculty, Edirne, Turkey

³ Department of Biostatistics, Trakya University Medical Faculty, Edirne, Turkey

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

Hüseyin Meşe¹ and Asuman Gölgeci²

¹ Erciyes University, Institute of Health Sciences, Faculty of Medicine, Physiology Graduate Program, Kayseri, Turkey

² Erciyes University, Medical School, Department of Physiology, Kayseri, Turkey

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).

PC128

Investigation of the Relationships Between Knee Osteoarthritis and Obesity via Untargeted Metabolomics Analysis

Onur Senol¹, Köksal Gündoğdu², Gülşah Gündoğdu³ and Fatma Demirkaya Miloğlu¹

¹ Atatürk University, Faculty of Pharmacy, Department of Analytical Chemistry, Erzurum, Turkey

² Department of Orthopedics and Traumatology, Erzurum Regional Training and Research Hospital, Erzurum, Turkey

³ Atatürk University, Faculty of Medicine, Department of Physiology, Erzurum, Turkey

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

Nesibe Kaya and Sami Aydoğan

Erciyes University, Faculty of Medicine, Department of Physiology, Kayseri, Turkey

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 ± 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)

Mustafa Saygın¹, Önder Öztürk², Taner Gonca² and Hamit Yaşar Ellidağ³

¹ Suleyman Demirel University, Faculty of Medicine, Department of Physiology, Isparta, Turkey

² Isparta City Hospital, Isparta, Turkey

³ Antalya Education and Research Hospital, Antalya, Turkey

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 ± 13.52 years and a BMI of 26.10 ± 12.73 . IMA, Albumin and IMAR index control group, mild OSAS, moderate OSAS and severe OSAS groups were found 0.62 ± 0.02 , 0.61 ± 0.04 , 0.060 ± 0.03 , 0.61 ± 0.03 ; 4.2 ± 0.30 , 4.19 ± 0.35 , 4.13 ± 0.27 , 4.07 ± 0.29 ; 0.14 ± 0.01 , 0.014 ± 0.01 , 0.014 ± 0.01 , 0.015 ± 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

Ethem Gelir

Hacettepe University, Faculty of Medicine, Department of Physiology, Ankara, Turkey

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

Melike Şahiner¹, Fehime Aksungar² and Levent Altıntaş¹

¹ Acıbadem Mehmet Ali Aydınlar University, Faculty of Medicine, Department of Medical Education, İstanbul, Turkey

² Acıbadem Mehmet Ali Aydınlar University, Faculty of Medicine, Department of Medical Biochemistry, İstanbul, Turkey

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

Arzu Yalçın¹, Ülker Yağcı¹, Rahime Aslankoç¹, Adnan Karaibrahimoğlu², Nurhan Gümral¹ and Mustafa Saygın¹

¹ Süleyman Demirel University, Faculty of Medicine, Department of Physiology, Isparta, Turkey

² Süleyman Demirel University, Faculty of Medicine, Department of Biostatistics and Medical informatics, Isparta, Turkey

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.