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## PS020

### Influence of energy drinks on hemodynamic parameters in young healthy adults – Randomized double-blind placebo controlled cross-over study

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**Aim:** Assessment of the influence of single dose of energy drink on blood pressure, heart rate, ECG, cardiac output and vascular compliance in healthy volunteers.

**Introduction:** An energy drink (ED) is a type of beverage containing stimulant drugs, caffeine, taurine, which is marketed as providing mental and physical stimulation. The popularity of product is increasing especially among teenagers and young adults. Some research suggest that its consumption may have negative effect on cardiovascular system.

**Methods:** A randomized double-blind placebo controlled cross-over study was conducted on 18 healthy volunteers (7 female, 11 male, mean age  $23.67 \pm 1.19$ ). Subjects received: 500 ml of energy drink containing 160 mg of caffeine, 2 g of taurine and 50 mg of guarana or 500 ml of placebo. Participants drank beverages in random order during two different meetings. Drinks did not differ in taste, smell and color. In all participants before and after consumption of a drink following procedures were performed: peripheral and central systolic and diastolic blood pressure (SBP and DBP) measurement, ECG recording, echocardiography, and pulse wave velocity analysis – in the same sequence and time intervals for every participant.

**Results:** ED consumption was related to significant increase of SBP in 75 min of observation compared to placebo ( $\Delta$ SBP for ED  $5.7 \pm 10.2$  mmHg vs  $-0.3 \pm 7.2$  mmHg for P,  $p=0.03$ ). ED caused increase in central SBP ( $107.8 \pm 13.2$  vs  $115.6 \pm 12.1$  mmHg,  $p=0.0005$ ), and central DBP ( $73.9 \pm 11.9$  vs  $78.1 \pm 10.2$  mmHg,  $p=0.02$ ). However comparison between placebo and ED revealed no significant differences in these parameters. The ECG parameters (HR, PQ, QRS and QTc intervals, axis of P wave, QRS complex, T wave) did not reveal significant differences between groups. There were no differences in echocardiographically determined cardiac output and LVEF.

**Conclusion:** Single dose ED consumption increases peripheral and central SBP. This effect is probably mediated by vascular wall properties and not by cardiac performance.

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## PS055

### Analysis of genetic polymorphism 4a/b of the eNOS gene in infertile men

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**Aim:** The aim of our study was the analysis of genetic polymorphism 4a/b of the eNOS gene in infertile men with idiopathic infertility, correlation of genotype and phenotype in infertile men and comparing the results of testing of genetic polymorphism 4a/b with the results from the control group.

**Introduction:** Male infertility of unknown etiology represents a common medical and social problem, in whose basis lies a combination of genetic and environmental factors. Several recent studies have pointed to the possible connection of polymorphisms in eNOS gene and idiopathic male infertility.

**Methods:** The study included 50 infertile men with idiopathic infertility and 50 fertile controls. 4a4b polymorphism was detected by polymerase chain reaction (PCR).

**Results:** 4b4b genotype was detected in 27 (54%) patients and 36 (72%) controls, 4a4b genotype in 21 (42%) patients and 13 (26%) controls and 4a4a genotype detected in 2 (4%) patients and 1 (2%) control group participant. 4b allele frequency was 75% in the patient population and 85% in the control population, and frequency of allele 4a was 25% with patients and 15% in the control group. There was no statistically significant difference in the distribution of genotypes ( $p=0.062$ ) nor alleles ( $p=0.111$ ) between these two populations. Comparing 4a/b genotypes and serum concentration of FSH within patient group, we've detected a highly significant correlation ( $p<0.001$ ), where all carriers of 4b4b genotype had physiological concentration of serum FSH, while most of 4a4a and 4a4b carriers had higher serum FSH values.

**Conclusion:** Per our results VNTR (4a/b) is not connected to idiopathic male infertility in Serbian men, but they did show a highly significant correlation between serum FSH concentration and 4a/b genotype of infertile men.

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## PS115

### Intravenous iron treatment effect to patients on hemodialysis



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**Aim:** To evaluate the coherence between intravenous iron therapy and the inflammatory indicators to patients on hemodialysis.

**Introduction:** when the kidney function is failing, the number, of patients who has a final stage kidney disease with anemia, is increasing. One of the most important reasons of anemia is iron deficiency. The iron treatment may be intravenous or oral. Though the oral treatment is cheaper, it may cause gastrointestinal disorders. Intravenous iron therapy has a better tolerance, but earlier studies had showed that it increases the risk of infections to patients on hemodialysis.

**Methods:** The retrospective study included 33 hemodialysis patients who undergone the intravenous therapy during the 2016-10 and 2016-12 in Vilnius university hospital. The absolute numbers of neutrophils and lymphocytes, C-reactive protein and procalcitonin were assessed before the treatment with intravenous iron and a month after it.

**Results:** we analyzed 13 men and 20 women, the mean age 59 years, the mean creatinine  $760 \mu\text{mol/l}$ , the mean hemoglobin  $105 \text{g/l}$ . By the test of Wilcoxon signed rank the means of neutrophils and C-reactive protein increased after the start of the treatment with iron (the mean of C-reactive protein increased



from  $12.8 \pm 12.96$  to  $27.4 \pm 41.17$ ;  $p=0.07$ ; the mean of neutrophils increased from  $4.45 \pm 1.52$  to  $6.86 \pm 12.11$ ;  $p=0.59$ ). The *T*-test showed that the means of procalcitonin increased from  $0.21 \pm 0.07$  to  $0.23 \pm 0.08$ ,  $p=0.04$ , the mean of lymphocytes increased from  $1.35 \pm 0.54$  to  $1.54 \pm 0.62$ ,  $p=0.1$ . Pearson correlation coefficient showed statistically insignificant positive correlation between the dose of medication and variation of procalcitonin.

**Conclusion:** The study has showed that inflammatory indicators increased after the intravenous iron therapy to patients on hemodialysis.

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### PS038

#### Distribution and quantification of elements of the enteric nervous system in the distal rectum of neonates and infants



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**Aim:** Analysis of variations in the ENS of distal rectum in neonates and infants under the age of 6 months, with no previous history of intestinal dysmotility.

**Introduction:** The enteric nervous system (ENS) consists of numerous ganglia along the gastrointestinal tract. The most common disorder of ENS is Hirschsprung's disease (HD). Diagnostic problems may occur due to insufficient knowledge of the normal distribution of ganglion cells (GC) in the distal rectum.

**Methods:** The study analyzed ENS of distal rectum in autopsy samples of infants. The sections were stained with hematoxylin and eosin (H&E) and immunohistochemistry using the MAP-2 antibodies. All sections were analyzed at three levels: the level of anorectal junction (ARJ0), at 1 cm (ARJ1) and 2 cm (ARJ2) proximal to the ARJ0. We analyzed number of ganglia and GC, their distribution and thickness of the bundles of nerve fibers (BNF).

**Results:** GC were found at ARJ0 mainly within BNF of the intramuscular zone. Number of GC within BNF of intramuscular zone were lower at ARJ2 than ARJ1 (H&E:  $p=0.021$ ; MAP-2:  $p=0.017$ ). Number of GC in submucosal ganglia were significantly higher in ARJ1 and ARJ2 compared to ARJ0. In myenteric ganglia the number of GC were higher at ARJ1 compared to ARJ0 (H&E:  $p=0.002$ ; MAP-2:  $p=0.014$ ). Number of GC were significantly higher at ARJ2 compared to ARJ1 only in MAP-2 staining ( $p=0.009$ ). In submucosal plexus we observed higher number of ganglia at ARJ1 and ARJ2 ( $p=0.014$ , both) compared to ARJ0 at MAP-2. In myenteric plexus there were higher number of ganglia at ARP1 compared to ARP0 (H&E:  $p=0.006$ ; MAP-2:  $p=0.014$ ). Individual thicker BNF were found in submucosa.

**Conclusion:** In distal rectum of neonates and infants there are significant variations in number of ganglia in the submucosal plexus up to ARJ2 and in myenteric plexus up to ARJ1.

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### PS220

#### Inflammatory bowel diseases: Nutritional status and its significance for the course of the disease



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**Aim:** The aim of the study was to evaluate the association between the Body Mass Index(BMI) and the disease course of IBD patients.

**Introduction:** Inflammatory Bowel Disease(IBD) may lead to the underweight and malnourishment. However, the number of overweight and obese patients increases. Excess body weight connected with a pro-inflammatory state can modify the disease course.

**Methods:** Medical records from the University Hospital in Cracow Electronic System were screened from August 01, 2015 to December 31, 2016 in search of patients diagnosed with IBD. Data regarding the disease extension, occurrence of intestinal and extra-intestinal complications, number of days spent in the hospital annually and type of treatment was collected. The results were analyzed in the groups based on BMI (1 < 18.5; 2: 18.5–25; 3 > 25 kg/m<sup>2</sup>).

**Results:** 150 patients with Crohn's disease(CD) and 151 with ulcerative colitis(UC) were included. The median number of days spent in the hospital annually was significantly higher in the underweight group (13(IQR:11) vs 7(IQR:17) vs 7(IQR:12);  $p<0.01$ ). Overweight patients were less likely to receive anti-TNF or immunosuppressive treatment [anti-TNF (1:35% vs 2:38.36% vs 3:18.29%; 1 vs 3;  $p=0.02$ ; 2 vs 3;  $p<0.01$ ); immunosuppressive (1:40.00% vs 3:23, 17%;  $p=0.03$ )]. Patients with BMI > 25 kg/m<sup>2</sup> developed fistulas and bowel strictures less often [fistulas (1:33.33% vs 2:27.04% vs 3:12.20%; 1 vs 3:  $p<0.01$ ; 2 vs 3;  $p<0.01$ ); strictures(1:25% vs 2:22, 64% vs 9.76%; 1 vs 3:  $p=0.01$ ; 2 vs 3:  $p<0.01$ )]. Underweight UC patients had more extensive disease [left sided (1:25% vs 2:52.63% vs 3:49.02%; 1 vs 2:  $p=0.02$ ; 1 vs 3:  $p=0.04$ ); pancolitis (1:58.33% vs 2:26.32% vs 3:31.37%; 1 vs 2:  $p<0.01$ ; 1 vs 3:  $p=0.02$ )].

**Conclusion:** Overweight seems to be associated with a milder clinical course of the disease in IBD patients. It is related to lower incidence of intestinal complications among CD and to less extensive intestine involvement in UC patients.

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### PS023

#### Influence of glycoregulation and chronic degenerative complications of diabetes on bone mineral density



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**Aim:** The aim of this study is to determine the correlation between duration of diabetes, glycoregulation and chronic degenerative complications of diabetes, on one side, and bone mineral density, on the other side.