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 ± 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 (ΔSBP for ED 5.7 ± 10.2 mmHg vs −0.3 ± 7.2 mmHg for P, p = 0.03). ED caused increase in central SBP (107.8 ± 13.2 vs 115.6 ± 12.1 mmHg, p = 0.0005), and central DBP (73.9 ± 11.9 vs 78.1 ± 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.

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 μmol/l, the mean hemoglobin 105 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 by 10.9 μg/l and of neutrophils by 487 per microliter).