POTENTIATED BLOOD PRESSURE RESPONSES TO ENERGY DRINK INTAKE IN CAFFEINE NAÏVE HEALTHY ADULTS: A DOUBLE BLIND RANDOMIZED CONTROLLED STUDY

Poster Contributions
Poster Hall B1
Saturday, March 14, 2015, 3:45 p.m.-4:30 p.m.

Session Title: Hypertension Potpourri
Abstract Category: 22. Prevention: Hypertension
Presentation Number: 1141-134

Authors: Anna Svatikova, Naima Covassin, Krishen Somers, Filip Soucek, Tomas Kara, Lukas Ruzek, Jan Bukartyk, Mayo Clinic, Rochester, MN, USA

Background: Energy drink consumption is widespread and rising among young adults. We and others have previously shown that energy drink consumption increases blood pressure, although the reported blood pressure increases among individuals are variable. Previous exposure to caffeine may be implicated in these differential responses. We hypothesized that drinking a commercially available energy drink leads to more accentuated blood pressure response among caffeine naïve adults, compared to regular caffeine users.

Methods: We studied 25 healthy, normotensive subjects (14 males, age 29±1 years) in a two-day, randomized, double-blind, placebo-controlled, crossover study. Detailed history regarding daily caffeine use was recorded. On one experimental day, subjects consumed a can (473 ml) of commercially available Rockstar energy drink and on the other day a placebo drink, in random order. Blood pressure and heart rate were recorded before and 30 minutes after energy drink consumption, and were compared between caffeine naïve subjects (n=12, consuming <160 mg of caffeine per day) and regular caffeine users (n=13, consuming ≥160 mg of caffeine per day).

Results: Compared to the placebo drink, Rockstar energy drink significantly increased blood pressure in caffeine naïve subjects (systolic: 2.1±0.9% vs. 5.8±0.9% (P=0.009); diastolic: -2.9±1.6% vs. 5.3±1.5% (P=0.002)). In caffeine users, both placebo and Rockstar increased blood pressure (systolic: 4.9±1.3% vs. 6.3±1.3% (P=NS); diastolic 3.8±1.8% vs. 8.1±1.8% (P=NS)). Heart rate increased similarly among groups. Overall, the blood pressure increase was more than doubled in caffeine naïve individuals after drinking Rockstar energy drink.

Conclusion: In young adults not used to caffeine, energy drink consumption leads to a greater surge in resting blood pressure compared to regular caffeine users. Variability in caffeine sensitivity may help explain the heterogeneity in blood pressure responses to caffeinated energy drinks, and may contribute to the development of cardiovascular consequences triggered by energy drinks.