Acute Effects of Energy Drink on Cardiovascular Function and Electrocardiographic Parameters among Healthy Young Adults

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Background: Energy drinks are consumed by young adults at an alarming rate despite reported association of energy drinks to arrhythmias. The purpose of this study was to determine if consumption of energy drink among healthy young adults was associated with any acute cardiovascular physiologic effects as measured by blood pressure, heart rate and electrocardiographic (ECG) parameters that are markers of increased arrhythmia risk.

Method: A total of 103 healthy young adults were randomized to either an energy drink or placebo. Heart rate, blood pressure and ECG were taken immediately before, thirty minutes, one hour and two hours after consumption of the assigned beverage. P wave dispersion (PWD), P wave variability, QT interval, corrected QT interval (QTc), RR interval, QRS duration and morphology, and the presence of ST changes, T wave inversions, Atrial premature complexes and Ventricular premature complexes (PVC) were accounted for.

Results: Systolic and diastolic blood pressure were increased in the treatment compared to placebo group at thirty minutes, one hour and two hours post energy drink consumption. One subject had frequent PVCs at two hours. The PWD were significantly longer in the treatment group at thirty minutes.

Conclusion: Results suggest that acute ingestion of energy drink can cause systolic and diastolic BP elevation. No significant arrhythmia was observed in our study.

Keywords: energy drink, ECG, arrhythmia