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## Case Report

## Death of a young man after overuse of energy drink

**Abstract**

A 28-year-old-man admitted to emergency department with ventricular tachycardia. Patient had drunk 3 cans of 250-mL energy drink 5 hours before the basketball match; he had palpitation and nausea before the match. After 30 minutes of the match, during the break, patient lost his consciousness. On admission, normal cardiac rhythm was achieved by cardioversion, and the patient was hospitalized and died on the third day. Energy drinks generally contain caffeine, taurine, various vitamins, glucose, and herbal extracts such as guarana and ginseng. Especially in high doses, caffeine can cause palpitations and supraventricular and ventricular arrhythmia. Energy drink consumers should be informed about their severe adverse effects in case of overuse.

Nowadays, interest to energy drinks progressively increased. The main consumers are young, athletes, and students. Most of the consumers use energy drinks involuntary and unaware of their severe adverse effects in overdose. Herein, we reported a 28-year-old-man who was consumed an excess amount of energy drink.

A 28-year-old-man was admitted to the emergency department with cardiac arrest. The patient had drunk 3 cans of 250-mL energy drink 5 hours before the basketball match; he had palpitation and nausea before the match. After 30 minutes of the match, during the break, the patient lost his consciousness, and in 15 minutes, he was brought to the emergency department. In his medical history, there was no any chronic disease or medication. He did not use cigarette, alcohol, addictive drug or anabolic steroids. In his family history, there was no any early death or coronary artery disease. He was regularly consuming the same energy drink 1 in a day for 7 months. The caffeine of a single can of the used energy drink was 80 mg/250 mL (32 mg/100 mL).

On admission, he was unconscious and not breathing, his heart was not beating, and ventricular tachycardia rhythm was seen on the monitor. The patient was intubated, and by biphasic cardioversion with 200 J, normal cardiac rhythm was achieved. In his transthoracic echocardiographic examination, cardiac functions were normal, there was no any cardiac wall motion abnormalities, hypertrophy was seen in the left ventricle and anteroseptal part of the heart, there was no any valvular abnormalities, and there was no any pulmonary congestion finding. Laboratory results were as follows: pH 7.12; pCO<sub>2</sub> 21.7 mm Hg, PO<sub>2</sub> 111.6 mm Hg, HCO<sub>3</sub> 15.3 mmol/L, troponin-I >50 ng/mL, D-dimer 16.889 mg/L, and glucose 234 mg/dL.

In his neurologic examination, there was no any pathological reflex, Glasgow Coma Scale was 3, pupils were isochoric, and light reflex was normal. Brain computed tomography finding was normal.

The patient is hospitalized in the coronary intensive care unit. Coronary angiography was not performed. In 3 days of follow up,

there was no any electrocardiographic change. On the third day, the patient died after a sudden cardiac arrest.

Energy drink use is 30% to 50% in young population, and the frequency increases rapidly [1]. Energy drinks generally contain caffeine, taurine, various vitamins, glucose, and herbal extracts such as guarana and ginseng. Adolescents and children are not regular users of caffeine, and they do not have pharmacologic tolerance, so they are more prone to caffeine intoxication [1].

Caffeine inhibits phosphodiesterase and adenosine receptors that cause positive inotropic effect; also, it causes an increase in intracellular calcium and an increase in sensitivity of the myoflaments to calcium [2–4]. Especially in high doses, these effects of caffeine lead to palpitations and arrhythmias such as atrial fibrillation and supraventricular and ventricular ectopy [5]. The inotropic effects of caffeine increased by the positive chronotropic effects of guarana, which contains caffeine, teobromine, and theophylline [1].

Berger et al [6] reported ventricular fibrillation after overconsumption of energy drink in a 28-year-old healthy young man who was discharged healthily after 6 days. Kaoukis et al [7] reported reverse Takotsubo cardiomyopathy associated with the consumption of an energy drink. Benjo et al [8] reported left main coronary artery acute thrombosis related to energy drink intake. Unfortunately, our patient was not so lucky; we thought that the 15-minute delay after syncope could be the main effect on death. Because on admission, the cardiac rhythm was ventricular tachycardia, we achieved normal cardiac rhythm, but the patient did not turn to conscious state and the Glasgow Coma Scale was 3.

In conclusion, energy drink consumers should be informed about their severe adverse effects in case of overuse. In case of cardiac dysrhythmia, early intervention will decrease mortality and morbidity.

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