A rare cause of fatal cardiac arrhythmia: Inhalation of butane gas

Utuku Pamuk1, Hazım Alper Gürsu1, Serhat Emeksiz2, Yasemin Özdemir-Sahan1, İlker Çetin1

Departments of 1Pediatric Cardiology and 2Pediatric Intensive Care, Ankara Children’s Hematology, Oncology Training and Research Hospital, Ankara, Turkey. E-mail: hagursu@yahoo.com.tr

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Butane gas, especially available in lighters, is commonly misused among adolescents and its side effects are rarely observed but serious. A 14-year-old male was brought to our emergency department. The electrocardiographic (ECG) examination showed biphasic T waves in leads V4-V6, and long QTc at 481 ms. Echocardiographic study showed left ventricular systolic dysfunction. Troponin I level was found to be high at 9.1 ng/ml. Taking into consideration the patient’s history, clinical and laboratory findings, ventricular fibrillation and myocardial injury resulting from butane gas inhalation was diagnosed.

Key words: cardiac arrest, echocardiography, myocard.
Discussion

Volatile drug use for pleasure is common among young people. Butane gas is abundant in many legal products and is easily reachable. It can result in sudden death and serious side effects. Its addiction is common all over the world. Preceded by cigarette and marijuana it is a frequently abused substance.

Various factors create risks for volatile drug use such as problematic family relationships and low socioeconomic status.1,2 Our patient was in a risky group because of his age and socioeconomic status. In his medical history, it was revealed that he had had a habit of inhaling butane gas before.

The inhalation of lighter gas can result in ventricular fibrillation. There are cases in which ventricular fibrillation develops after the inhalation of butane gas in existing literature.3 Sen et al.,4 reported an 18-year-old male with ventricular fibrillation after the inhalation of butane gas. Butane gas instantly passes into the blood after its inhalation. It can cause fatal tachyarrhythmia’s by increasing the sensitivity of heart to catecholamine’s.4 It also leads to myocardial infarction by vasoconstriction in coronary arteries. Our patient was considered to have myocardial injury leading to elevation of troponin I level, left ventricular dysfunction and ventricular fibrillation. There have been two cases reported in the literature with myocardial injury and ventricular fibrillation after inhalation of butane gas as in our patient.5,6 Our patient’s ECG showed prolonged QTc that was thought to have developed by the effect of hypoxia.

The habit of butane gas use can be minimized among young people by eliminating risk factors. It can cause serious and fatal effects. When myocardial infarction and life threatening arrhythmias are diagnosed in adolescents, butane gas inhalation as an underlying reason should be taken into account in patients with positive risk factors.

REFERENCES