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Heart connection of the mind medication

Anuradha Kolluru,¹ Preetham Kumar,² Manreet Kanwar,¹ Tejwant Singh¹

¹Division of Cardiology, Department of Internal Medicine, St. John Hospital and Medical Center, Detroit, Michigan, USA;

²Department of Internal Medicine, St. John Hospital and Medical Center, Detroit, Michigan, USA

Correspondence to Anuradha Kolluru, anuradha.kolluru@gmail.com

DESCRIPTION

A young teenager with no known medical history presented to the emergency department (ED) with abrupt onset of palpitations and dizziness. She later had a generalised tonic colonic seizure, and a bout of vomiting containing pills. She admitted to have had an overdose of

bupropion pills. A pill count was performed and her total dose ingestion was calculated to be 3.6 g.

A 12-lead ECG showed sinus tachycardia and diffuse ST segment elevation in leads V1–V6, I and aVL, with ST segment depression in leads II, III and aVF (figure 1). Echocardiogram revealed normal left ventricular function

Figure 1 A 12-lead ECG showed sinus tachycardia and diffuse ST segment elevation in leads V1–V6, I and aVL, with ST segment depression in leads II, III and aVF.

Figure 2 Complete resolution of ST segment elevation.

without evidence of any segmental wall motion abnormalities. Her laboratory work up including cardiac biomarkers was all within normal limits and urine drug screen was negative for cocaine or any other controlled substances. She was treated with supportive care including sodium bicarbonate and intravenous fluids with complete resolution of ST elevations (figure 2).

Our patient had ST elevations on her ECG as a result of bupropion overdose. Bupropion is structurally related to amphetamine and it primarily blocks the reuptake of dopamine and norepinephrine. The major adverse event associated with bupropion is seizure. Cardiac manifestations include sinus tachycardia, prolongation of QTc interval and non-specific intraventricular conduction delay. Blockade of sodium channels depresses the upslope of phase 0 of the action potential, which results in QRS prolongation.¹ There has been only one case report showing the combined use of pseudoephedrine and bupropion and its association with coronary vasospasm and ST elevation.² There were 13 articles describing bupropion overdose in 116 patients on literature review. Only three patients exhibited cardiotoxicity following acute ingestion; two of these patients had also ingested other medications.

All three patients experienced sinus tachycardia and conduction delays (widened QRS complex and/or prolonged QTc interval), but none of these delays progressed to a life-threatening arrhythmia. All patients recovered, with resolution of cardiotoxicity within 2–4 days following ingestion.³

Our case is the first to show isolated bupropion overdose, manifesting as ST segment elevation. The ST changes resolved spontaneously with supportive measures. This highlights the need for more vigilance on the cardiac manifestations of bupropion, which is being prescribed far more frequently for smoking cessation.

Competing interests None.

Patient consent Not obtained.

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