Abstract

Supraventricular tachycardia is a dysrhythmia originating at or above atrioventricular node and defined by narrow complex tachycardia. There are numerous etiologies of SVT, including sinus tachycardia, atrial tachycardia, atrial fibrillation/flutter or multifocal atrial tachycardia. Medications, caffeine, alcohol, or stress can trigger SVT. Among medications, misoprostol has potential adverse effect of sinus tachycardia. The incidence of SVT triggered by misoprostol is unknown, but this case provides a valuable example that there could be a causal relationship between misoprostol and SVT.

Case Presentation

A 26-year-old female G1P0100 with past medical history of gastritis and history of palpitations 10 years ago with negative cardiac workup who presented to the emergency department (ED) with complaints of palpitations, shortness of breath, abdominal pain, and nausea. She had been worsening over the past day. She was admitted to the critical care unit on amiodarone drip, diltiazem drip for better rate control, and scheduled digoxin pushed every 6 hours.

In the ED, EKG (figure 1) showed supraventricular tachycardia (SVT) with heart rate (HR) of 242 beats per minute (bpm). Tropin I was 0.02ng/mL (0.04-0.4ng/mL) and B-Type Natriuretic Peptide (BNP) was 353pg/mL (<100pg/mL). Patient was given adenosine 6mg, 12mg, and 12mg but SVT persisted. She was sedated with ketamine and received synchronized direct current cardioversion with 50Joules (J), 100J and 150J but the SVT persisted. She was then given an additional 18mg of adenosine but the SVT persisted still. The patient was then started on an amiodarone drip with bolus and verapamil 5mg which broke the SVT. Subsequent EKG (figure 2) showed a new tachycardia at HR 133bpm with alternating narrow complex and wide complex. Patient was transferred to our hospital for escalation of care with possible electrophysiology study.

After transfer, the patient arrived with EKG showing SVT with a ventricular rate of 223bpm. Her blood pressure (BP) was 109/69mmHg. Patient was given 1 gram (g) of magnesium followed by procainamide infusion which was discontinued when her BP dropped to 78/50mmHg. Next, verapamil 5mg was given which converted the patient to a narrow complex with distinct p-waves, 2-1 conduction to the ventricles and HR of 91bpm (figure 3). Patient’s HR started to increase so she was started on a diltiazem drip which decreased her HR to the 130s. Transesophageal echocardiogram showed EROA 0.7cm with global hypokinesis, moderate-severe mitral regurgitation, and physiologic pericardial effusion without tamponade secondary to tachycardia-induced cardiomyopathy. Patient was admitted to the critical care unit on amiodarone drip, diltiazem drip for better rate control, and scheduled digoxin pushed every 6 hours.

In the electrophysiology lab the patient was found to have atrial tachycardia localized to the right atrium crista terminalis which was ablated, and inappropriate cardiac tachycardia with HR of 113bpm.

Discussion

It is often difficult to determine the exact trigger of an episode of SVT. In this case, misoprostol is a possible etiology that may have triggered the episode of SVT but we believe the recent administration of misoprostol is the key contributing factor. The known adverse effect of sinus tachycardia from misoprostol is rate control, but we believe the recent administration of misoprostol is the key trigger for the episode of SVT.

There is limited research conducted on cardiac outcomes after administration of misoprostol for medically induced abortions. A retrospective analysis of a group of women with heterogeneous cardiac disorders undergoing induced abortion showed no adverse effects related to administration of misoprostol and misoprostol in the first or second trimester. This study included cardiac diseases such as congenital heart disease, cardiomyopathy, and rheumatic valve disease. (8) This patient was found to have an incidental finding of patent foramen ovale on echocardiogram, which may cause her heart to be susceptible to sustaining an arrhythmia as seen in this case. The temporal association with recent misoprostol administration and resistant SVT suggest misoprostol could be the triggering factor for the administration of SVT.

The cardiac risk associated with the use of misoprostol for medically induced abortions is still largely unknown. Although this patient had a good outcome after cardiac ablation, more research is needed to truly understand the risk of misoprostol use for medically-induced abortions.

References