Successful Sedation of a Patient with Previous Takotsubo Cardiomyopathy (Broken Heart Syndrome) in an Ambulatory Setting

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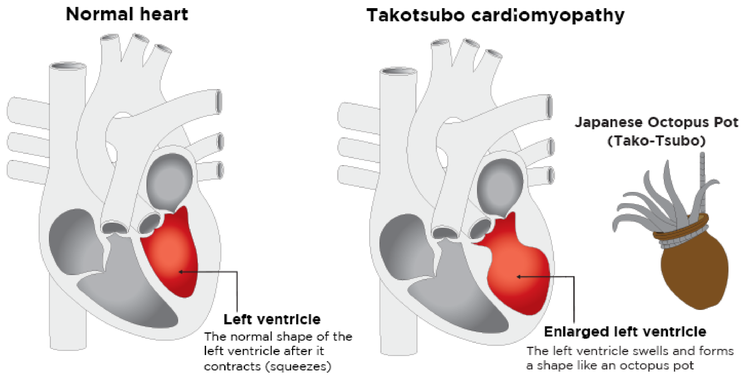
Introduction

Also known as broken heart syndrome, takotsubo cardiomyopathy (TCM) is transient left ventricular dysfunction experienced in the absence of coronary artery disease. Most commonly, the apex of the left ventricle balloons outward during systole and this resembles the shape of a Japanese octopus trap, Takotsubo. Since stressors are often a trigger, catecholamines are implicated but there is not a full understanding of the pathophysiology, which affects management, especially preoperatively. The recurrence rate of takotsubo cardiomyopathy is 1-2%. Even though this risk is low, awareness is key to prevent and treat the condition.

Diagnosis and Management

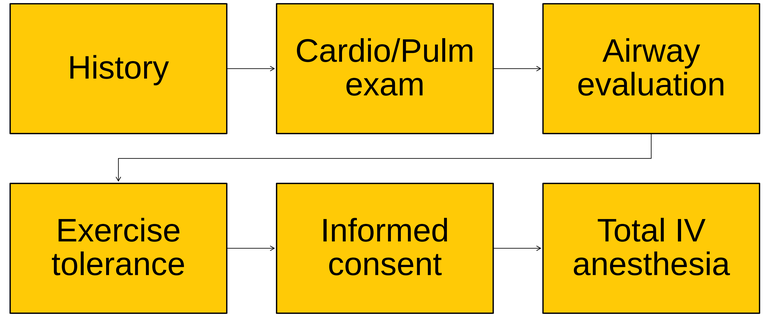
Perioperative takotsubo cardiomyopathy can present similarly to a myocardial infarction with acute substernal chest pain, dyspnea, and/or syncope. Diagnostic criteria for TCM includes: transient left or right ventricle regional wall motion abnormalities, new but reversible electrocardiogram (EKG) changes (i.e. ST-segment elevation), absence of atherosclerotic coronary artery disease (CAD), elevated brain natriuretic peptide, elevated cardiac troponin levels, and recovery of ventricular systolic function 3-6 months later.

Management of TCM includes stopping the procedure (if possible), invasive monitoring (a-line or central line and transesophageal echocardiogram), consider patient observation in ICU, supportive care (medications like vasopressors, inotropes, etc, as well as oxygen, and assistive ventilation as needed), anticoagulation, and aspirin. If the patient is hemodynamically stable, a prophylactic beta blocker, an ACE inhibitor/ARB, and possibly a diuretic would be prescribed.



Case Study

A 63-year-old woman had a history of takotsubo cardiomyopathy and ejection fraction (EF) of 25% in 2011 after significant work stress. She presented asymptomatically in 2021 at an outpatient GI center for a screening colonoscopy as dictated by age related screening guidelines. She had not been seen previously by anesthesia for this procedure. Upon further patient interview, the patient revealed her current EF was normal, estimated to be 60%, as of her last echocardiogram in 2020. The anesthesiologist verified exercise tolerance with greater than or equal to 4 mets and verified the echo. The day of the procedure and during the procedure, the patient's EKG remained normal. From a cardiovascular and hemodynamic perspective, there were concerns that the physiological stress of the procedure and use of general anesthesia could trigger another episode of takotsubo cardiomyopathy.



If patient fails the assessment process, the patient would be delayed or referred to the hospital

Procedure and Outcome

The colonoscopy was performed under sedation with solely propofol and with no oral/nasal airway, laryngeal mask airway (LMA), or endotracheal tube (ET). There were no changes in the approach to her anesthesia care compared to a woman who had not had takotsubo cardiomyopathy. The patient did not receive any anxiolytics prior to the procedure. The procedure was performed at the outpatient GI center across the street from the hospital; the procedure was minor, and the facility had the staff, equipment, and medications to handle any situation. The patient had a good outcome from her colonoscopy.

References

The National Heart Foundation of New Zealand https://www.heartfoundation.org.nz/your-heart/heart-conditions/takotsubo-cardiomyopathy. Accessed May 11, 2021.