

Sessions 2025

View Abstract

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TITLE: Brash Syndrome Requiring Permanent Pacemaker: A Case Report

PRESENTATION TYPE: Any Format

CURRENT CATEGORY: 22.122 Clinical Case: Critical Care Cardiology

AUTHORS (FIRST NAME, LAST NAME): Nilay R. Bhatt¹, Yves Najm Mrad¹, Shivam Gupta³, Curtis Dickey²

INSTITUTIONS (ALL): 1. Internal Medicine, HCA Houston Clear Lake, Webster, TX, United States.

2. Cardiac Critical Care, HCA Houston Clear Lake, Webster, TX, United States.

3. Friendswood High School, Friendswood, TX, United States.

Abstract Body (Do not enter title and authors here): Introduction:

Bradycardia, Renal failure, Atrioventricular (AV) nodal blockade, Shock, and Hyperkalemia (BRASH) syndrome is a rare reversible clinical condition that can be life-threatening through a vicious cycle of bradycardia, exacerbated by AV nodal blocking agent use, hyperkalemia and renal failure. We report a case that was refractory to vasopressor treatment, medical therapy and transvenous pacemaker for which a permanent pacemaker was needed.

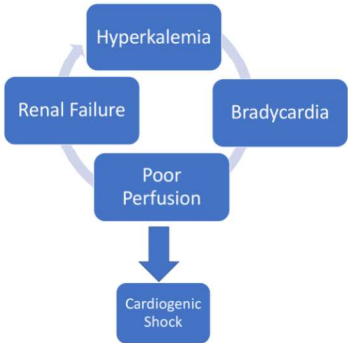
Case Presentation:

We report a 64-year-old female patient with a medical history of Chronic Kidney Disease Stage IIIb, Diabetes Mellitus Type II, Hypertension and coronary artery disease with multiple coronary artery bypass grafts (CABG), who presented to the emergency department complaining of dizziness and lightheadedness for the past 12 hours. Upon presentation, patient was hypotensive, bradycardic, hyperkalemic and with acute kidney injury, raising suspicion of BRASH syndrome. Treatment resolved the patient's condition except the bradycardia which eventually needed a permanent pacemaker insertion. Bradycardia in BRASH syndrome, an already rare condition, necessitating permanent pacemaker insertion, and not resolving by stopping amiodarone and metoprolol, is not commonly reported.

Discussion:

AVNB agent, amiodarone and metoprolol, caused bradycardia which decreased cardiac output and renal blood flow. The subsequent acute kidney injury led to decreased clearance of metoprolol, amiodarone and worsening hyperkalemia. This has resulted in a further decrease in cardiac output which has put the patient in a continuous vicious cycle until she reached cardiogenic shock. Hence, rapid diagnosis and correct management with medical therapy, vasopressors and temporary pacemaker is necessary to reverse and stop the cycle. Nevertheless, a non resolving bradycardia may need a permanent pacemaker insertion as in our case.

KEYWORDS: Amiodarone, Beta-blocker, Atrioventricular node, Pacemaker, artificial, Kidney.



BRASH Syndrome vicious cycle

Abstract Graphic/Image Description: The diagram visually represents the pathophysiologic cycle of BRASH syndrome. It highlights the interconnected relationship between Bradycardia, Renal Failure, and Hyperkalemia, which collectively contribute to Poor Perfusion. This impaired perfusion further exacerbates the cycle by worsening renal function and bradycardia, ultimately progressing to Cardiogenic Shock. The circular flow emphasizes the self-perpetuating nature of the syndrome, while the downward arrow from "Poor Perfusion" to

"Cardiogenic Shock" signifies clinical deterioration if the cycle is not interrupted., No image, No image

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