

## **"The Delta Wave Dilemma: Managing Supraventricular Tachycardia in Wolff-Parkinson-White Syndrome".**

*J. Hidzir<sup>1</sup>, Shonita Das<sup>1</sup>, Noor Muhammad Azlan Shah<sup>2</sup>*

*<sup>1</sup>Emergency and Trauma Department, Hospital Shah Alam, Selangor*

*<sup>2</sup>Department of Medicine, Hospital Shah Alam, Selangor*

### **Introduction:**

Wolff-Parkinson-White (WPW) syndrome is a congenital abnormality in which an accessory atrioventricular (AV) pathway allows conduction from the atria to the ventricles, bypassing the normal AV pathway through the Bundle of His. These abnormal pre-excitations can present with regular narrow complex tachycardia and can be associated with malignant arrhythmia, resulting in sudden death. We present a case where features of pre-excitation were detected on an ECG, with successful management of the supraventricular tachycardia (SVT) using AV nodal blocking agents such as adenosine.

### **Case description:**

A 38-year-old gentleman with no known medical illness presented with palpitations and chest discomfort. He was afebrile with a blood pressure of 118/62. His pulse was tachycardic, with a rate of 180 beats per minute, and auscultation of the heart revealed rapid heartbeats. Lung auscultation was normal. An electrocardiogram (ECG) showed narrow complex tachycardia. Carotid massage and modified Valsalva maneuver failed to revert the arrhythmia. He was given a rapid push of intravenous (IV) adenosine 6 mg, and a subsequent ECG showed the presence of a delta wave. He was then admitted to the Cardiology Care Unit (CCU) for resolved supraventricular tachycardia (SVT) with WPW syndrome, precipitated by unstable angina.

### **Discussion:**

This case is a typical presentation of SVT managed with IV adenosine, after which delta waves were detected in the ECG, suggesting Wolff-Parkinson-White syndrome. The downside of IV adenosine or other medications such as beta-blockers, calcium channel blockers, digoxin, and amiodarone is that they can cause conduction via the accessory pathway, leading to a rapid ventricular rate and subsequent cardiovascular collapse. Therefore, the best treatment is synchronized cardioversion. It is crucial to look for any abnormalities in the ECG after a successful reversion to avoid using any of these medications as the second-line treatment.

### **Conclusion:**

Adenosine can still be the agent of choice as the first-line drug for most narrow complex tachycardias, even though it can cause pre-excitation atrial fibrillation, which can be fatal in a patient with WPW.

### **Keywords:**

Wolff-Parkinson-White syndrome, Supraventricular Tachycardia, Delta wave.

(300 characters including spaces, without authors, affiliations, and title)

I hereby agree and permit my abstract to be edited by the scientific committee of EMAS 2024, if deemed necessary and to be published in the conference proceedings shall it be accepted.