AV Node Dysfunction in Mobitz type I and its Clinical Manifestations

Elizabeth Marcella
Karolina Alferinda
Hans Nuari
Carol Natasha
Joey Martinus Sidarta
Vito Anggarino Damay

Introduction: Heart obstruction has a better prognosis with early recognition and appropriate management. Unlike type II, even though Mobitz type I is often asymptomatic and rarely progresses into full AV obstruction, in the case of myocardial ischemia or myocarditis, it may result in clinical deterioration due to a reduction of cardiac output.

Methods: A 42-yo female was admitted to the Heart Department due to frequent loss of consciousness since she was 12, which had considerably worsened in the last 3 weeks before admission. She would often lose consciousness after standing for too long under heat or after 15 minutes of stomachache, with the feeling of extreme heart rate, lethargy, darkening sight, and cold sweat as pre-determining symptoms. The patient would usually regain consciousness after 15 minutes, with the latest episode being 3 days ago. The patient had undergone Holter test 9 months prior with resulting in infrequent premature atrial complex and normal ECG. Upon inspection, vital signs were recorded with the blood pressure of 120/80mmHg, pulse rate of 81x/minute, respiratory rate of 18x/minute, and body temperature of 36.6ºC. ECG was performed and sinus tachycardia was found, with a PR interval of 0.16 seconds, left axis deviation, poor R wave progression, right ventricle hypertrophy, QT interval of 0.32 seconds, and inverted T wave in V5 and V6. An electrophysiology test was done, and the AV node dysfunction was found.

Result: Syncope can be defined as a temporary loss of consciousness due to cerebral hypoperfusion. One of the causes being a decrease in cardiac output due to heart abnormalities. The obstruction of the heart happens when impulse from the atrium to the ventricle is interrupted due to anatomical or functional abnormalities. PR interval can be used to measure conduction from the atrium to the ventricle, including atrial depolarization (P wave) and subsequent conduction within AV nodes, His-bundles, and Purkinje fibers. Normal PR interval ranges from 120 to 200 milliseconds. The lengthening of the PR interval suggests a delay in conduction from the atrium to the ventricle, which most commonly happens in the AV node and is classified as the first degree of heart obstruction. The second degree of heart obstruction indicates intermittent conduction from the atrium to the ventricle (Mobitz type I/Wenckebach and Mobitz type II), where P wave fails to reach the ventricle.

Conclusion: PR interval can indicate heart obstructions. The management of Mobitz type I varies in severity and symptoms and the knowledge should be mastered by staff to deliver the appropriate treatment strategies.