Cardiac conduction disorders: What is heart block and how is it treated?

Remonte George*

Department of Biomedical Research, Institute of Molecular Biology and Biotechnology, Ioannina, Greece

Abstract

The human heart is a complex organ that beats rhythmically to pump blood throughout the body. The heart's rhythmic contractions are regulated by the electrical impulses that travel through the heart's conduction system. If this electrical system is disrupted, it can cause a cardiac conduction disorder, such as heart block.

Keywords: Cardiac conduction disorders, Heart block, AV node, Bundle of his, Electrical signals.

Introduction

Heart block is a condition where there is a disruption in the electrical impulses that travel through the heart's conduction system. This disruption can cause the heart to beat too slowly, too quickly, or irregularly. Heart block can occur at any age and can range from mild to severe [1].

Types of heart block

First-degree heart block: This is the mildest form of heart block, and often goes unnoticed. In this type of heart block, there is a delay in the conduction of the electrical impulse, but it still reaches the ventricles and results in a normal heartbeat.

Second-degree heart block: This type of heart block occurs when some of the electrical impulses fail to reach the ventricles.

Third-degree heart block: This is the most severe form of heart block, where none of the electrical impulses can reach the ventricles. The ventricles then rely on their own pacemaking ability, which results in a slower and less efficient heartbeat [2].

Causes

Heart block can be caused by a variety of factors

- ✓ Congenital heart defects
- ✓ Aging
- ✓ Heart disease
- ✓ High blood pressure
- ✓ Cardiac surgery
- ✓ Certain medications, such as beta-blockers or calcium channel blockers
- ✓ Electrolyte imbalances, such as low potassium or magnesium levels

The treatment for heart block depends on its severity and underlying cause. In some cases, no treatment is necessary, especially for mild forms of heart block. However, if heart block is causing symptoms or is severe, treatment may be needed.

Certain medications can help regulate the heart's rhythm and improve conduction. These include beta-blockers, calcium channel blockers, and anti-arrhythmic medications [3].

A pacemaker is a small device that is surgically implanted under the skin of the chest. It sends electrical signals to the heart to regulate the heart's rhythm and can be programmed to address specific types of heart block [4].

In some cases, heart block may require surgery, such as a bypass or valve replacement surgery. This is typically reserved for more severe cases of heart block.

Certain lifestyle changes, such as quitting smoking, exercising regularly, and maintaining a healthy diet, can help manage heart block [5].

Conclusion

Heart block is a cardiac conduction disorder that can disrupt the heart's electrical impulses and cause a range of symptoms. It is important to understand the different types of heart block and their causes, as well as the available treatment options. If you are experiencing symptoms of heart block, it is essential to seek medical attention from a healthcare professional.

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***Correspondence to:** Remonte George, Department of Biomedical Research, Institute of Molecular Biology and Biotechnology, Ioannina, Greece, E-mail: george@remonte.gr

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