

ISCHEMIC HEART DISEASE AND MODERN TREATMENT TECHNOLOGIES

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<https://doi.org/10.5281/zenodo.15259334>

Abstract

This article discusses ischemic heart disease (IHD) as one of the most common cardiovascular diseases. The causes, mechanisms of development, and modern diagnostic and treatment methods are examined. Today, special attention is paid to innovative technologies in diagnostics. Such medical advances increase treatment efficiency and improve prognosis for patients.

Keywords: Ischemic heart disease, atherosclerosis, coronary angiography, magnetic resonance imaging, artificial intelligence, minimally invasive surgery, stenting, gene therapy, cell therapy, telemedicine, cardiovascular diseases, ischemic heart disease treatment.

Introduction

Ischemic heart disease (IHD) is a pathology that arises due to insufficient blood supply to the heart muscle. The main cause of the disease is atherosclerosis, which leads to the narrowing of the coronary arteries. IHD is one of the leading causes of death worldwide, making its diagnosis and treatment a crucial issue in medicine.

Causes of Ischemic Heart Disease

Several factors contribute to the development of IHD:

Atherosclerosis – blockage of coronary arteries by fatty deposits.

Hypertension – increases the workload on the heart.

Diabetes mellitus – negatively affects blood vessels.

Smoking and poor diet – damage the cardiovascular system.

Stress and lack of physical activity – impair normal heart function.

Main Symptoms of Ischemic Heart Disease

Chest pain or discomfort (angina pectoris)

Shortness of breath and fatigue

Dizziness and weakness

Pain in the arm, shoulder, or jaw

Cold sweats and drop in body temperature

Types of Ischemic Heart Disease

1. Angina pectoris – a painful syndrome caused by narrowing of the coronary arteries. It has the following types:

Stable angina – occurs during physical exertion or stress.

Unstable angina – occurs suddenly, even at rest, and increases the risk of heart attack.

Vasospastic angina (Prinzmetal angina) – occurs due to coronary artery spasms.

2. Myocardial infarction – death of part of the heart muscle due to complete blockage of a coronary artery.

3. Ischemic cardiomyopathy – heart failure resulting from ischemic damage to the heart muscle.

4. Sudden cardiac death – a condition caused by sudden coronary artery blockage.

Modern Diagnostic Methods

Today, innovative methods are used to diagnose IHD:

Coronary angiography – the primary method for assessing coronary artery condition.

Magnetic resonance imaging (MRI) – provides a detailed view of heart tissues.

CT angiography – scans arteries for diagnosis.

Telemedicine and artificial intelligence – enable remote patient monitoring.

Treatment Methods for Ischemic Heart Disease

Modern medicine offers several innovative approaches for treating IHD:

1. Pharmacological Therapy

Beta-blockers and ACE inhibitors – control blood pressure.

Antiplatelet and anticoagulant drugs – prevent blood clot formation.

2. Surgical Methods

Angioplasty and stenting – widen narrowed arteries.

Coronary artery bypass grafting (CABG) – restores blood supply in severe cases.

3. Gene and Cell Therapy

New technologies for restoring damaged heart cells.

4. Telemedicine

Remote monitoring and consultation for patients.

Conclusion

Ischemic heart disease is a serious condition, and its diagnosis and treatment remain critical areas in modern medicine. New technologies, including artificial intelligence, gene therapy, and telemedicine, are improving treatment efficiency. These advances contribute to better quality of life for patients in the future.

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