MYOCARDIAL INFARCTION: CAUSES, SYMPTOMS, DIAGNOSIS, AND TREATMENT METHODS

Scientific Advisor: **Ibodulla Tursinmetov**
Faculty of Treatment No. 2
Student of Group 117 - 'A':
Fayziyeva O'g'ilxon Amrulloyevna

Abstract

This article provides detailed information about the causes, risk factors, clinical signs, diagnostic methods, and modern treatment approaches for myocardial infarction. It also discusses post-infarction rehabilitation and preventive measures to avoid the disease. The article is intended for medical students, physicians, and a wide audience interested in heart health.

Keywords: Myocardial infarction, heart attack, atherosclerosis, thrombus, coronary artery, ECG, angiography, rehabilitation, heart diseases, prevention.

Introduction

Myocardial infarction is an acute stage of myocardial ischemia characterized by the cessation of blood flow to the heart when its blood supply is disrupted. If blood flow is not restored within fifteen minutes, part of the heart muscle dies (necrosis). This dead tissue in the heart is called a myocardial infarction. Necrosis can be extensive or localized. Depending on the location, there are anterior, lateral, and interventricular infarctions. In men under 60, myocardial infarction is five times more common than in women of the same age, due to the early development of atherosclerosis in men.

Causes

The main and most common cause of myocardial infarction is a disruption in the blood flow in the coronary arteries, which supply the heart muscle with blood and oxygen. This disruption is often caused by atherosclerosis, during which atherosclerotic plaques form on the artery walls. Other causes include:
- Ischemic heart disease
- Diabetes, hypertension
- Any stage of obesity
- Stressful situations
- Addiction to nicotine and alcohol

Symptoms of Myocardial Infarction

Symptoms develop gradually rather than immediately:
- Angina pectoris
- Severe chest pain with a burning sensation, radiating to the arms, shoulders,

stomach, lower jaw, and other parts

- Pale skin, cold and clammy sweat

- Arrhythmia

- Nausea, vomiting

- Fear, anxiety, feeling of impending death

- Necrotic damage to heart tissues can lead to heart failure, low blood pressure, shortness of breath, swelling in the arms and legs. Symptoms may subside during the plaque formation phase.

Diagnosis

Modern diagnostic methods used for identifying myocardial infarction include:

- Electrocardiography (ECG): detects changes in heart's electrical activity

- Cardiac markers (troponin, CK-MB): indicate heart muscle damage

- Echocardiography: assesses contraction ability and structural changes

- Coronary angiography: shows arterial blockage, aids treatment planning

Treatment

Prompt assistance in case of infarction is vital. Treatment methods include:

Pharmacological:

- Aspirin: reduces blood clotting

- Nitrates: reduce heart workload

- Beta-blockers: slow heart rate

- ACE inhibitors: lower blood pressure, protect heart muscle

- Statins: lower cholesterol

Invasive:

- Percutaneous coronary intervention (angioplasty + stenting): opens blocked arteries

- Coronary artery bypass surgery: creates an alternative route for blood flow

Rehabilitation

Rehabilitation is necessary for recovery and preventing future infarctions:

- Physical rehabilitation: heart-safe exercises

- Continuous medication

- Dietary changes (low salt and fat)

- Psychological support and stress control

- Complete cessation of smoking and alcohol

- Regular medical checkups

Prevention

To prevent myocardial infarction:

- Healthy diet: more vegetables, fruits, fish, grains

- At least 30 minutes of physical activity daily

- Maintain a healthy weight

- Quit smoking

- Control blood pressure, sugar, and cholesterol levels
- Learn stress management techniques

Conclusion

Myocardial infarction is one of the most dangerous and life-threatening conditions of the cardiovascular system. It occurs when blood supply to the heart muscle is suddenly blocked and, if not treated in time, can lead to serious complications or death. Modern diagnostic and treatment methods help reduce the consequences. However, prevention, control of risk factors, a healthy lifestyle, and regular check-ups are key. Early diagnosis and proper treatment play a crucial role in saving lives. Additionally, individuals must not neglect their health as chronic stress can severely affect the heart and lead to serious illnesses.

References

1. Mirzakarimov M.M., Karimov Sh.K. 'Cardiology', Tashkent: 'Tibbiyot', 2020.
2. Harrison's Principles of Internal Medicine, 21st Edition. McGraw Hill Education, 2022.
3. Braunwald E. 'Heart Disease: A Textbook of Cardiovascular Medicine', 11th Edition, Elsevier, 2019.
4. Task Force of the European Society of Cardiology (ESC). '2023 ESC Guidelines for the management of acute coronary syndromes', European Heart Journal, 2023.
5. Kasani K.R., Movahed M.R. 'Risk factors and outcomes in acute myocardial infarction', Journal of Clinical Medicine Research, 2021.
6. Ministry of Health of the Republic of Uzbekistan. 'Methodological Guide on Prevention of Cardiovascular Diseases', Tashkent, 2022.