



**TREATMENT OF MYOCARDIAL INFARCTION IN MODERN
MEDICINE.**

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ABSTRACT

The purpose of this article is to study the methods of treatment of myocardial infarction in modern medicine and to evaluate its practical importance and effectiveness. Pharmacological and invasive approaches to the diagnosis and treatment of myocardial infarction, as well as analysis of the role of modern medical technologies and medical devices .

Key words

Myocardial infarction, transmural infarction, subendocardial infarction, subepicardial infarction, intramural infarction, EKG *, CAG **, AKSH ***.

Introduction: Medical theory of myocardial infarction. Myocardial infarction is a necrosis of the myocardium due to blockage of the coronary arteries by a thrombus. This disease is more common in older patients. This is because:

1. Biochemical changes of blood related to age and tendency to join .
2. Changes in the blood vessels of the heart as a result of age - related sclerosis
3. - related changes in hemodynamics.

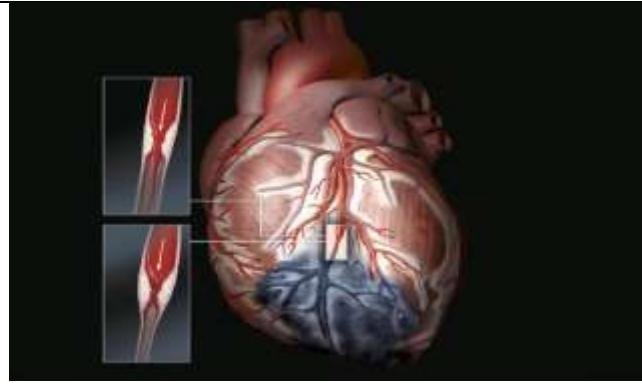


Figure 1. Manifestation of myocardial infarction .

* EKG - Electrocardiography

** KAG - Coronary angiography.

*** AKSH - Aortic Coronary Bypass

Myocardial infarction factors can be divided into two groups:

- Coronary - atherosclerosis of blood vessels and the development of thrombosis in them;

- Coronary - non-atherosclerotic damage of blood vessels;

The role of risk factors in the origin of myocardial infarction is great, they are as follows:

- Male gender (men are more affected than women);
- Age (after the age of 40, the pain from the disease increases);
- Familial anamiosis;
- Arterial hypertension;
- Dyslipoproteinemia (increased amount of total cholesterol, triglycerides in the blood);

- High body mass - obesity;

- Diabetes;

- Hypodynamia;

- Harmful habits: drinking alcohol, smoking;

- Stress;

- Hyperuricemia.

MI differs according to pathomorphology:

1. Transmural infarction;

2. Subendocardial infarction;

3. Subepicardial infarction;

4. Intramural infarction;

Materials and methods: Myocardial infarction is diagnosed based on the following criteria:

1. Clinical symptoms;

2. ECG results;
3. Biochemical methods.

Based on the analysis of examination methods, the following treatment methods are prescribed to the patient:

1. Conservative (pharmacological) treatment;
2. Through the use of surgical methods;
3. Through rehabilitation.

Diagnosis: methods of accurate diagnosis of myocardial infarction.

If the patient has a myocardial infarction, he should be taken to the hospital urgently. In the case of myocardial infarction, the tissues of the myocardial layer of the heart are destroyed very quickly, and the more time is lost in this case, the more cardiomyocytes die, and the disease can cause serious conditions.

Symptoms: This method is defined in a question-and-answer manner. Sometimes, if the patient is unconscious or unable to answer the questions due to severe pain, the patient's companion will need to answer the questions.

Pain: Pain can be observed in the patient's heart area, upper stomach area, left shoulder, left shoulder blade and left neck due to irradiation. It is also important that we determine the duration and nature of the pain. Because by knowing the duration of pain, MI is compared with other heart diseases. The nature of the pain is also different, it can be burning, burning and heaviness in the chest.

Nausea and vomiting: observed in some patients. The reason for this is: the autonomic nervous system is affected in patients with myocardial infarction.

Shortness of breath: This is caused by blood pooling in the heart chambers as a result of reduced heart contractions. This, in turn, causes blood to clot in the left pulmonary veins that bring blood to the heart. As a result, the liquid part of the blood is absorbed into the lungs and water accumulates in the lungs, causing shortness of breath.

Dizziness and headache: The reason for this is: the blood supply to the central nervous system is disturbed as a result of a sharp decrease in the number of heart contractions.

EKG: one of the most important methods in the diagnosis of myocardial infarction. EKG is used to assess the bioelectrical state of the heart myocardium and to describe the depolarization and repolarization processes in cardiomyocytes.

Depending on the changes in the electrocardiogram, myocardial infarction can be divided into 4 periods. Very sharp, sharp, medium sharp, scar formation. But these periods may not coincide with the course of the clinical picture. With the help of EKG, we can determine the type, stage and area of the heart of myocardial infarction.

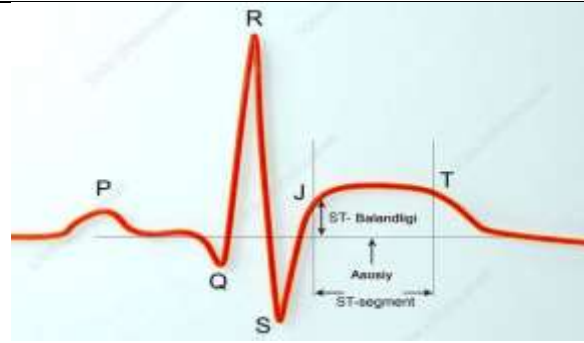


Figure 2

Cardiogram representing myocardial infarction.

Ultrasound method: Using this method, we can detect hypokinesia, akinesia, dyskinesia in the areas of heart ventricles with impaired blood flow, scarring, and necrosis. This method is important in diagnosing the volume of heart ventricle in systole, diastole, thickness of heart walls, changes in its movement, behavior of valves, thrombus inside the heart.

Blood analysis: special biochemical changes occur inside the cell in MI. This causes the cell membrane to break down. As a result, proteins contained in cardiomyocytes are released into the blood. In MI, the following proteins are detected in the blood:

- Troponin-T and Troponin-I proteins;
- MB fraction of Creatinine Kinase;
- Myoglobin protein.

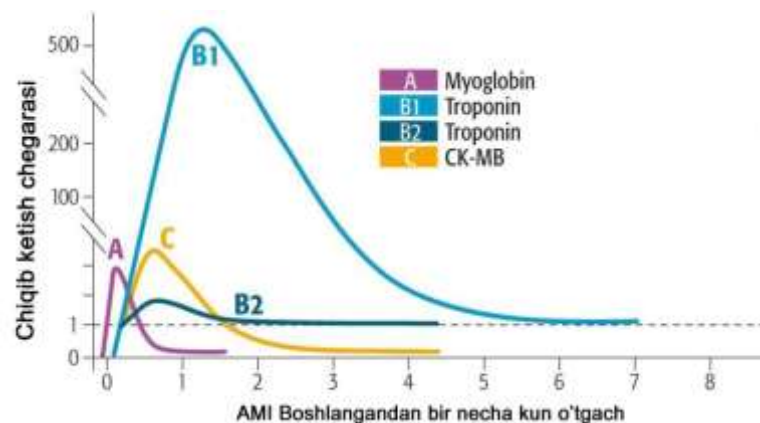


Figure 3

Blood analysis: an increase in the amount of certain proteins in the blood.

Asymptomatic type of myocardial infarction: Patients sometimes do not know that they have experienced a myocardial infarction. For another reason, a change (scar) characteristic of a myocardial infarction is found when examined in the EKG. Sometimes the clinical signs of myocardial infarction are very rare. As

always, patients cannot remember that there was pain in the area of the heart, short-term shortness of breath, and unconsciousness . Later, when examined on an EKG, a myocardial infarction is detected.

Other symptoms of the disease may be shortness of breath, muffled heart sounds, tachycardia, less bradycardia, cardiac arrhythmias, etc.

Treatment: If a patient is suspected of having a myocardial infarction, we must take immediate treatment measures:

Treatment methods can be divided into two groups:

● **Conservative - treatment with drugs.**

As the patient undergoing MI has severe pain, he is first given narcotic - analgesics, mainly Morphine . Morphine reduces pain and discomfort in the patient. If the patient's saturation is less than 90%, we should connect him to an oxygen device. Then we give the patient Aspirin to reduce the process of thrombus formation. Then we can use the following groups of drugs to treat patients in hospital conditions:

1. β -adrenoblockers: Reduces the number of heart contractions.
2. Nitrates (nitroglycerin): Vasodilation - dilates blood vessels.
3. Anticoagulants (warfarin, heparin): Anticoagulants.
4. Statins : Control the synthesis of cholesterol and reduce its amount in the blood.
5. AAF inhibitors: reduction of arterial blood pressure and pathological changes of the heart.

● **Surgical method.** This method includes minimally invasive surgical methods as well as traditional surgical methods.

1. KAG - Coronary Angiography. This method involves assessing the condition of the coronary arteries. In this case, the coronary vessels are examined using X-rays. Since blood vessels are x-ray negative organs, contrast agents are injected into the blood vessels. With the help of these substances, changes in blood vessels are detected.

2. Percutaneous coronary procedure - endovascular surgical method. In this method, we use a special catheter. A catheter is often passed through the femoral artery to the coronary arteries. Atherosclerotic plaques and thrombus formed in the vascular cavity stop the blood flow in the next part. In this case, the catheter inserted into the coronary artery enters the vessel space where atherosclerotic plaques and thrombus have formed and compresses it to the roof of the vessel devoid. As a result, blood flow is restored. This method is called angioplasty. A mesh frame made of metal can be used to eliminate blood clots in the coronary arteries . This method is called stenting.

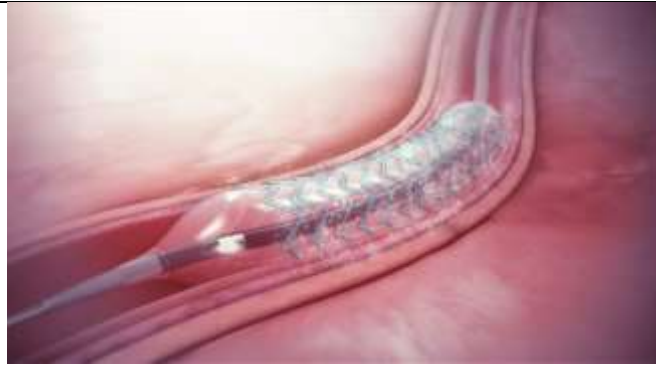


Figure 4.

Stenting: A metal mesh framework used to remove blood clots from coronary arteries .

3. AKSH - Aortic Coronary Bypass. It is a traditional surgical method. In the AKSH method, the blood flow is restored by creating special anastomoses in the blocked blood vessel. As an anastomosis, we can use a part of the mammary arteries, wrist arteries, and a part of the large subcutaneous vein under the skin of the thigh, which is located on the inside of the front wall of the chest.

Conclusion: The methods of treating myocardial infarction in modern medicine have made great progress in increasing efficiency and safety. The combination of pharmacological, invasive, surgical and surgical approaches is important in improving the quality of life of patients and accelerating the recovery process after the disease. In addition, the results of the study showed that early diagnosis and prompt treatment significantly reduce the number of deaths and complications associated with myocardial infarction. Therefore, it is important to refer patients to early diagnosis and prompt treatment.

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