# Coronary Heart Disease

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## ABSTRACT

The article covers the etiology, pathogenesis, classification, diagnosis, clinical picture and treatment of coronary heart disease, provides a literature review. Cardiovascular disease (CVD) represents the leading cause of death among women as well as men. The number of deaths due to CVD in women are greater than in men. There are significant gender-related differences concerning CVD.

## KEYWORDS

Coronary heart disease, cardiovascular disease, ischemic heart disease, stress angina, myocardial infarction, stage, treatment, b-blockers

## INTRODUCTION

Ischemic heart disease is a pathological condition that is characterized by an absolute violation of the blood supply to the myocardium, due to damage to the coronary arteries. At the moment, all over the world, cardiovascular diseases are in first place in terms of morbidity and mortality, among this nosology are common: coronary heart disease (IHD), chronic heart failure (CHF), myocardial infarction (MI), arterial hypertension (AH).

Ischemic heart disease is the leading cause of death and disability. Mortality from ischemic heart disease (IHD) of the heart at the age of 25-34 years, is registered 10: 100,000 cases, and at the age of 55-64 years 1000: 100,000. In the Russian Federation, mortality from ischemic heart disease is much higher than in Europe and America, it is associated with the effectiveness of treatment, both surgical and therapeutic.

As a rule, men get sick much more often, than women. IHD its clinical manifestations occur when the degree of stenosis coronary arteries are 50% or more. Major developmental role other than stenosis coronary arteries, such factors play, emit modifying factors and non-modifying factors, modified ones include eating high-calorie and rich in fats, frequent alcohol consumption, smoking, physical inactivity, psycho emotional stress, non-modifying factors include concomitant diseases: bronchial asthma ( BA), chronic obstructive lung disease (COPD), hypothyroidism, diabetes mellitus, cholelithias is age (over 55 years), abdominal obesity (BMI = 26), male

gender, genetic predisposition.

IHD is a very common disease, one of the leading causes of death, as well as temporary and permanent disability of the population in developed countries of the world. In this regard, the problem of ischemic heart disease occupies one of the leading positions among the most important medical problems of the XXI century.

In the 1980s, there was a declining trend in coronary artery disease mortality, but still in developed European countries it accounted for half of all deaths, while an unequal distribution among the contingent of people remained. different genders and ages. In the United States, in the 1980s, the mortality rate for men aged 35-44 was 60 per 100,000 population, and the proportion of men and women who died at that age was about 5: 1. By age 65-74, the overall mortality rate from CHD in both sexes exceeded 1,600 per 100,000 population, and the ratio of deaths between men and women in this age group decreased to 2: 1.

The fate of patients with coronary artery disease, which is a significant part of the contingent observed by physicians, depends largely on the adequacy of outpatient treatment, quality and timeliness of diagnosis of these clinical forms of the disease requiring emergency care. or emergency hospitalization of the patient.

According to European statistics, IHD and cerebral stroke account for 90% of the cardiovascular system , which characterizes IHD as one of the most common diseases.

Angina is chest tightness, tightness, pressure, or pain. This occurs when a portion of the heart muscle receives less oxygen than normal. Angina is a symptom, not a disease. This usually happens when one or more coronary arteries become narrowed or blocked due to ischemia. This is often a symptom of cardiovascular disease (CHD).Angina on its own is not life-threatening, but it can mimic the symptoms of a heart attack and is a sign of heart disease. If angina comes on suddenly, does not improve, or does not respond to rest or medication, seek medical attention.

### Stable angina

Stable angina occurs when the heart is working harder than normal, such as during exercise. Usually this takes about 5 minutes.It has a typical pattern and can be experienced by a person for months or years. Rest or medication often relieves symptoms.

### Unstable angina

Unstable angina is irregular and usually occurs during rest. This is mainly caused by atherosclerosis, which prevents blood from reaching the heart.

The pain lasts for more than 5 minutes and may worsen over time. Rest and medication alone cannot improve symptoms.

Unstable angina may indicate a risk of heart attack. Anyone suffering from sudden angina should seek emergency care.

**Microvascular** angina can occur with ischemic microvascular disease (MVD). It affects the smallest coronary arteries.

In addition to chest pain, a person may experience the following:

• Fatigue and low energy

• Sleep problems

• Shortness of breath

Microvascular angina is more persistent than stable angina. This usually lasts more than 10 minutes and sometimes more than 30 minutes.

### Angina variant

Angina variant is rare. Doctors sometimes call it Prinzmetal angina, and it can develop when the body is at rest, often at midnight or early in the morning.

This occurs when a spasm occurs in the coronary arteries. Possible stimuli include hypothermia, stress, medication, smoking, or cocaine use. This is a chronic condition, but medications can help manage it.

Myocardial infarction (MI), commonly known as a heart attack, occurs when blood flow decreases or stops reaching part of the heart, causing damage to the heart muscle. , arm, back, neck or jaw, most often it appears in the center or left side of the chest and lasts more than a few minutes, the discomfort can sometimes feel like heartburn, other symptoms may include shortness of breath, nausea, fainting. feeling cold sweat or tired. About 30% of people have atypical symptoms. Women often present without chest pain and, conversely, feel neck pain, arm pain or fatigue. About 5% of people over 75% have a history of symptoms with little or no symptoms; MI can cause heart failure, heart attack, cardiogenic shock, or cardiac arrest.

The most common cause of myocardial infarction is coronary artery disease. Risk factors include high blood pressure, smoking, diabetes, lack of exercise, obesity, low blood cholesterol, unhealthy diet, and excessive alcohol consumption. Complete occlusion of a coronary artery due to ruptured atherosclerotic plaque is usually the main mechanism of MI. Less common coronary artery spasms in myocardial infarction, which can be caused by cocaine, significant emotional stress (commonly known as Takotsubo syndrome or broken heart syndrome), a very cold, etc. electrocardiograms (EKG), blood tests, and coronary angiography. An ECG that records

the electrical activity of the heart can confirm ST-segment elevation MI (STEMI) if ST-segment elevation is present. Common blood tests include troponin and less creatine. kinase MB.

Treatment of myocardial infarction is very important over time. Aspirin is an immediate treatment for suspected myocardial infarction. Nitroglycerin or opioids can help with chest pain; however, they do not improve overall results. Supplemental oxygen is recommended for patients with low oxygen levels or shortness of breath, and treatment for STEMI is aimed at restoring blood flow to the heart and includes opening the arteries and stenting or thrombolysis of subcutaneous coronary interventions (PCI).

If the block is relieved with medication, people with ST-segment elevation myocardial infarction (STEMI) are given blood thinning heparin, which provides additional PCI for those at high risk. Coronary artery bypass grafting (CABG) may be recommended instead of angioplasty for people with multiple ischemic heart disease and diabetes. After myocardial infarction, usually in combination with long-term treatment with aspirin, beta-blockers and statins, lifestyle changes are recommended.

In 2015, there were approximately 15.9 million myocardial infarctions worldwide, more than 3 million people had elevated ST-segment elevation, and more than 4 million people were diagnosed with STEMI. STEMI is twice as common in men as in women, and each has nearly a million people. In developed countries, the risk of death in people with STEMI is about 10%.

Age-specific MI rates declined globally in the 1990s and 2010s. In 2011, myocardial infarction was one of the five most expensive hospitalizations in the United States, with an estimated $ 11.5 billion in hospital admissions. Heart attack occurs when the heart muscle does not have enough blood or oxygen, such as when a blood clot develops from plaque in one of the coronary arteries. The formation of a blood clot is called coronary thrombosis. This clot, if it is big enough, can stop the supply of blood to the heart.

Symptoms of a heart attack include:

- Chest discomfort
- Mild or crushing chest pain
- Coughing
- Dizziness
- Shortness of breath
- A gray pallor in the face
- General discomfort
- Panic
- Nausea and vomiting
- Restlessness
- Sweating
- Clammy skin

The first symptom is usually chest pain that spreads to the neck, jaw, ears, arms, and wrists, and possibly to the shoulder blades, back, or abdomen. Changing position, resting, or lying down is unlikely to bring relief. The pain is often constant but may come and go. It can last from a few minutes to several hours. A heart attack is a medical emergency that can result in death or permanent heart damage. If

a person is showing symptoms of a heart attack, it is vital to call the emergency services immediately.

Medications that people can take to reduce the risk or effects of CHD include:

Beta-blockers: Your doctor may prescribe beta-blockers to reduce blood pressure and heart rate, especially among people who have had a heart attack.

Nitroglycerin fragments, sprays or tablets: It dilates the arteries and reduces the heart's need for blood, as well as relieving chest pain.

Angiotensin-converting enzyme inhibitors: They lower blood pressure and help slow or stop the development of CHD.

Calcium channel blockers: they dilate coronary arteries, improve cardiac circulation and reduce hypertension.

Statins: This can have a positive effect on CHD results. Although a 2019 study found that taking statins did not reduce the risk of death from CHD, they did prevent the development and reduce the risk of non-fatal heart attacks. However, they may not be effective for people with cholesterol diseases such as hyperlipidemia.

In the past, some people have used aspirin to reduce the risk of CHD, but current guidelines only recommend it for people at high risk for heart attack, stroke, angina, or other cardiovascular diseases. This is because aspirin is a blood thinner that increases a person's risk of bleeding.

Now doctors are advising to focus on lifestyle strategies such as adopting a healthy diet and exercising moderately and intensely on a regular basis. These strategies can reduce the risk of atherosclerosis.

**Surgery**

The following surgical treatments can open or replace blocked blood vessels if they are too narrow or the symptoms do not respond to medication:

Laser surgery: This involves creating several very small holes in the heart muscle. These stimulate the formation of new blood vessels.

**Coronary bypass surgery**: The surgeon uses a blood vessel in another part of the body to create a graft that bypasses the blocked artery. The graft can originate from the leg, for example, or from an internal thoracic wall artery.

Angioplasty and stent placement: The surgeon inserts a catheter into the narrowed portion of the artery and passes the deflated balloon through the catheter to the affected area. As they inflate the balloon, it squeezes the fat deposits into the artery walls. They may leave a stent or mesh tube to help keep the artery open.

In rare cases, a person may need a heart transplant. However, this is only possible if the heart is severely damaged and treatment fails.

**Treatment**

Modern approaches to the treatment of coronary artery disease include

1.  Correction of significant risk factors through state educational programs to form the level of information content of the population about risk factors; by the formation of the priority of a healthy lifestyle; -on training the algorithm of actions in case of emergency conditions.

2. Identification and formulation of medical treatment for people with high and very high cardiovascular risk. Treatment of patients with stable angina pectoris stress is aimed at: elimination, reduction of symptoms of the disease, primarily angina attacks, increasing tolerance to physical activity, improved prognosis of the disease and prevention of unstable angina pectoris, MI and sudden death.

Non-drug methods include surgical myocardial revascularization - coronary artery bypass grafting, balloon angioplasty with stenting of the coronary arteries. Decision, which method to choose depends on the choice to lay down. doctor,

X-ray endovascular surgeon, cardiovascular surgeon, taking into account the total risk of complications, the state of the myocardium, coronary arteries,concomitant diseases of the patient.

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