

ETIOLOGY OF ALCOHOLIC CARDIOMYOPATHY DISEASE AND THE ANATOMICAL DISORDERS THAT OCCUR IN IT

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Annotation: Alcoholic cardiomyopathy is a lesion of the heart muscle, which is formed against the background of excessive consumption of alcoholic beverages, is manifested by a variety of morphological, functional, and clinical disorders. Patients complain of pain behind the sternum, shortness of breath, swelling, cold of the lower extremities. It is possible to develop heart failure, deadly rhythm disorders, and thromboembolism. Alcoholic cardiomyopathy is diagnosed by ECG, Echo-KG, radiography. Treatment is conservative, with irreversible changes in the organ, a heart transplant is indicated.

Key words: Echo-KG, radiography, alcoholic cardiomyopathy.

Alcoholic myocardial damage is a common cause of cardiomyopathy. Occurrence is determined by the prevalence of alcoholism in the population. The disease develops more often in middle-aged people who regularly consume alcohol for a long time. Among the patients, there is a predominance of males. The probability of pathology increases with smoking, stress, and other factors that contribute to the occurrence of heart and vascular diseases. Alcoholic cardiomyopathy accounts for at least 30% of cases of dilated cardiomyopathy.

The main etiofactor is prolonged consumption of a large amount of alcoholic beverages, usually in the equivalent of 100 ml of pure ethanol every day for 10-20 years (according to statistics, in Russia the average annual alcohol consumption per person is from 11 to 14 liters or about 35-40 ml per day). The disease is diagnosed in 50% of chronic alcoholics. Factors that contribute to the development of cardiomyopathy include hereditary predisposition, immune disorders, poor nutrition, chronic stress, overwork, and smoking.

First of all, toxic products of alcohol metabolism, mainly acetaldehyde, have a negative effect on the myocardium. This substance is formed by liver cells after the breakdown of ethanol and then enters the bloodstream. Reaching the heart, it causes structural and functional disorders: it negatively affects the reproduction of contractile proteins of the heart muscle, reduces its strength, disrupts the metabolism inside cardiomyocytes (transport of lipids, potassium, calcium). Metabolic disorders and electrolyte balance disorders cause arrhythmias, decreased functional activity of the heart, and the development of fibrotic changes. There is evidence that acetaldehyde affects the synthesis of certain compounds, in particular, it stimulates the production of pro-inflammatory cytokines and proteins that can provoke an autoimmune response. In addition, if the blood content is high, ethanol and various substances added to alcoholic beverages — metal impurities (for example, cobalt), dyes, and preservatives-can directly have a toxic effect on the heart.

Classification

Systematization of types of alcoholic cardiomyopathy is carried out taking into account the peculiarities of clinical symptoms, the degree of severity of certain manifestations. The division is rather arbitrary, since the signs of the disease differ in variability — symptoms corresponding to different types of the disease can be detected in one patient. There are four forms of pathology::

- **Classic.** The clinical picture is dominated by heart failure. When alcohol consumption is stopped, there is a positive clinical and echocardiographic dynamics, the longer the period of abstinence lasts – the better the patient's condition becomes. Resumption of treatment leads to a rapid deterioration of the condition, the reappearance and aggravation of symptoms.
- **Pseudo-ischemic.** The main manifestation is stabbing or aching pain in the cardiac region in the presence of ECG changes characteristic of coronary heart disease. Cardialgia occurs after drinking alcohol, is not associated with physical exertion, and is not stopped by nitroglycerin. The severity of symptoms gradually progresses.
- **Arrhythmic.** The clinic is dominated by cardiac arrhythmias. In 20% of patients, atrial fibrillation is detected, less often extrasystole, tachycardia, flutter or atrial fibrillation are detected. A feature of arrhythmias of alcoholic etiology is their occurrence after a massive intake of ethanol-containing beverages. Arrhythmias can be the first and often only symptom of cardiomyopathy.
- **Mixed version.** Combines the manifestations of all previous variants of myocardial damage. It is considered the most unfavorable, since the symptoms mutually aggravate each other, which significantly worsens the prognosis of the disease. In 30-40% of patients with this type of cardiomyopathy, ECG shows signs indicating a predisposition to severe ventricular arrhythmias, sudden cardiac death.

Symptoms of alcoholic cardiomyopathy

The onset of the disease is characterized by non-specific manifestations that occur due to functional disorders of various organs and systems 4-5 years after the systematic use of large volumes of alcoholic beverages. Patients complain of rapid fatigue after minor physical exertion, weakness, drowsiness, increased sweating. With intense exercise, prolonged pain in the chest, in the back of the head is possible. Rhythm disorders are represented by extrasystole, tachycardia, and a feeling of heart failure. Vegetative disorders include feeling hot, shaking hands, redness of the face, agitation or lethargy. Usually, symptoms appear the day after an alcoholic excess. During the period of abstinence from alcohol, the intensity of manifestations decreases. Symptoms may persist for up to 10 years.

With continued systematic consumption of ethanol-containing beverages, myocardial hypertrophy develops, which is quickly replaced by dilation. The heart chambers expand, their contractility decreases, which causes heart failure, stagnation of blood in the small and large circulatory circles. There is constant shortness of breath, attacks of suffocation at night, swelling of the lower extremities, cough (dry or with a small amount of light sputum) are added to the clinical picture of the disease. Cyanosis, cold hands and feet may be detected.

In the absence of treatment, irreversible structural changes in internal organs develop against the background of cardiomyopathy. Due to circulatory disorders, kidney function is disrupted, toxic metabolic products accumulate in the body, which negatively affect the activity of the central nervous system and internal organs. Damage to the nervous system leads to encephalopathy, which is manifested by a decrease in cognitive functions, unmotivated aggression, bitterness,

uncertain gait, and sleep disorders. At the end stage, there are severe disorders of the nervous system, the progression of heart, kidney and liver failure, leading to the death of the patient.

Complications

With alcoholic myocardial damage, there is a high risk of complications, including life – threatening ones. The most common consequence is a critical rhythm disorder — ventricular fibrillation, which is characterized by ineffective contractions and leads to cardiac arrest without medical assistance. Against the background of functional insufficiency of the heart muscle, the movement of blood in the chambers slows down, its rheological properties are disturbed, and the probability of thromboembolic complications with the development of stroke, myocardial infarction, acute renal failure, and necrosis of various parts of the gastrointestinal tract increases.

Diagnostics

Diagnosis of this pathology is carried out by a therapist or cardiologist. Since patients often hide the fact of alcohol abuse, if they suspect cardiomyopathy of alcoholic origin, they interview relatives of patients, and if they identify the appropriate etiology, they prescribe a consultation with a narcologist to choose the optimal tactics for treating addiction. The list of diagnostic measures includes:

- **Objective examination.** There may be restless or inhibited behavior, cyanosis of the fingertips, nose, ears, and upper chest. Palpation shows increased sweating, swelling and cooling of the extremities, swelling and pulsation of the neck vessels. An increase in the size of the heart during percussion indicates hypertrophy or dilation of its chambers. Auscultation is used to detect pathological noises that are characteristic of structural changes in the myocardium and valves.
- **Electrocardiography.** It is a basic instrumental method of research, allows you to identify rhythm disorders, get data on organic myocardial damage, and suggest its toxic etiology. ECG can be supplemented with daily Holter monitoring. In the absence of contraindications, bicycle ergometry is prescribed.
- **Echocardiography .** It is used to assess the condition of the coronary arteries and valvular apparatus, detect hypertrophy and dilation of the myocardium, reduce blood flow rate, and determine the pressure in the chambers. It is used for differential diagnosis of cardiomyopathy and pericarditis.
- **Radiography of the OGK.** Chest X-rays show signs of enlargement of the heart chambers, less often dilatation of the ascending aorta. The technique is used to clarify the condition of other large vessels, identify pathological formations. Based on the pictures, you can suspect valve defects.

Differential diagnosis of cardiomyopathy of alcoholic etiology is performed with diseases with a similar clinical picture: angina pectoris, coronary heart disease, myocardial infarction, dissecting aortic aneurysm, pleurisy, pneumonia. Other types of cardiomyopathy are excluded: restrictive, hypertrophic, arrhythmogenic right ventricular dysplasia.

Treatment of alcoholic cardiomyopathy

Complex therapy of the disease includes stopping the use of ethanol-containing beverages, fighting heart failure, correcting metabolic disorders, and restoring the functions of other organs. A positive effect of the course of treatment is possible at an early stage of the disease in the absence of irreversible disorders. In the later stages, continuous medication is necessary. There are the following areas of treatment for cardiomyopathy::

- Changing your lifestyle. It provides for a complete refusal of alcohol, the exclusion of smoking. A diet with a large amount of protein, salt and fat restriction is prescribed. Preference is given to steamed, stewed or boiled dishes, meals are served in small portions 4-6 times a day. The daily fluid intake is no more than 1.5 liters. Sufficient physical activity, healthy sleep, and stress reduction are important.
- Drug therapy. It is the basis of treatment of the disease, provides for the use of several groups of drugs that are prescribed individually, taking into account the symptoms. Antihypertensive drugs are used to normalize blood pressure, antiarrhythmics are used to prevent rhythm disorders, diuretics are used to eliminate edema, and statins are used to lower blood cholesterol. In severe cases, the treatment plan is supplemented with cardiac glycosides to stop tachyarrhythmia attacks, antiplatelet agents and anticoagulants to prevent thromboembolic complications.
- Surgical intervention. In case of ineffectiveness of conservative therapy, rapid progression of alcoholic cardiomyopathy with a high risk of dangerous complications, the question of heart transplantation is considered. The method provides a high 10-year survival rate (about 75%), is used in a satisfactory condition of the body, the absence of gross mental and intellectual disorders. The disadvantages of the technique are traumatic, high cost, and a shortage of donor organs.

Prognosis and prevention

In the early stages of the disease, if you completely stop drinking alcohol and start treatment in a timely manner, the prognosis is favorable. With the development of irreversible changes in the heart muscle, there is a significant reduction in life expectancy. Prevention of cardiomyopathy is not only a medical, but also a social task. It includes measures to combat alcoholism: informing the population about the basic principles of a healthy lifestyle, limiting advertising of alcoholic beverages and their distribution among young people at the legislative level. Preventive measures also involve informing the public about the consequences of prolonged alcohol intoxication, its impact on the heart, other organs and systems.

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