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LIVER CIRRHOSIS - AS A FACTOR OF DEVELOPMENT OF HEART FAILURE

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Summary. In clinical and instrumental examination of 98 patients with cirrhosis of the liver by means of Echo-CG in M-regimen, in 85,0% of cases damage to the heart was revealed. The basis of damage to the heart was presented by hypertrophy of the left ventricle and myocardial dystrophy that resulted in disturbance of contractive function, diastolic and systolic dysfunction. Damage to the heart in its turn contributed to the development of chronic cardiac insufficiency and increase of portal hypotension degree.

Key-words: cirrhosis of the liver, systolic and diastolic dysfunction, cirrhotic cardiomyopathy.

Cirrhosis of the liver is still considered a serious problem due to its high prevalence among the population, high rates of disability, and the fact that treatment is not always effective. It is known that cirrhosis of the liver is accompanied by the development of necrosis, apoptosis, connective tissue reaction and portal hypertension (Sadovnikova II, 2012; Babajanov A.X., 2014). In the disease, portal hypertension and associated hemodynamic changes lead to disorders of all organs (M.F. Osipenko, E.A. Bikbulatova., 2007).

Damage to the cardiovascular system is accompanied by metabolic-type disorders of the heart muscle and is described as 'cirrhotic cardiopathy' ('myocardial dystrophy') (World Meeting of Gastroenterologists, Montreal-2005).

The study of systolic and diastolic dysfunction of the heart in cirrhosis of the liver is of great importance in the early detection of the consequences of the disease and the implementation of the necessary treatment. However, scientific research to address this problem is still insufficient, a one-sided approach to the treatment of the disease is observed, and treatment in many treatment facilities is limited to the recommendation of hepatoprotectants and diuretics.

The purpose of the work. To study the role of cardiac damage, as well as systolic and diastolic dysfunction in the course and progression of the disease in patients with cirrhosis of the liver.

Materials and methods. In the therapy department of the clinic of the Samarkand State Medical Institute 59 patients with cirrhosis of the liver (60.2%) - cirrhosis of viral etiology, 34.7% of 34 patients - cryptogenic cirrhosis, 5 patients (5.1%) - cirrhosis of toxic etiology) clinical, laboratory, and instrumental examinations were performed. In our surveys, the majority of men were 55 people (56.1%) and women were 43 people (43.9%). The mean age of patients with viral cirrhosis was 40.5 ± 1.9 years, cryptogenic cirrhosis was 52.3 ± 2.7 years, and toxic liver cirrhosis was 56.6 ± 7.5 years. In general, of the patients in our follow-up, 11 patients (11.2%) were diagnosed with Child A stage A disease, 43 patients with stage B (43.8%), and 44 patients with stage C (44.9%).

Special screening methods included the detection of patients' specific complaints of heart damage and the symptoms of heart damage, as well as the history of heart damage and liver cirrhosis. The physical examination of the heart consisted of a fall of the heart area, determination of the relative and absolute limits of the heart, blood pressure, and pulse.

Instrumental examinations of the chest revealed left ventricular hypertrophy, cardiomegaly, signs of pulmonary embolism, electrocardiography - arrhythmias and conduction disorders, hypertrophy of the heart wall, diffuse-dystrophic,

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hypoxic changes in the myocardium. In the assessment of the functional status of the heart in patients with cirrhosis of the liver was performed ExoKG examination in the M and V regimens. Ultrasound of the heart showed left ventricular systolic measurement (KSR) and diastolic measurement (KDR), pulse volume (FV,%), muscle fiber contraction rate (V_{cfo} / c), left ventricular systolic and diastolic volume (KSO, i KDO v cubic cm) measured.

Systolic function index - left ventricular systolic volume and size, pulse volume, diastolic function index - left ventricular diastolic size and volume were determined. Echocardiographic examination also made it possible to detect dilatation of the heart cavities, hypertrophy of the walls, hypokinesia or hyperkinesia, condition of the heart valve apparatus, and condition of cardiac contractility.

For the control group, the results of examinations of 20 healthy people were taken into account. The obtained results were evaluated by the method of variational statistics. The arithmetic mean, its square root error, was determined by the moment method. The reliability criterion (t) of the obtained results was analyzed by the reliability level (R). The statistical checks used the "Statistics-2012" software of the R-IV personal computer.

Obtained results and analysis. Objective examination of the heart in patients with cirrhosis of the liver allowed to detect heart-specific symptoms in 4.4-58.3% of cases. Clinical symptoms of heart damage in cirrhosis of the liver are pain in the heart area, palpitations, a feeling of cardiac arrest, and swelling. Objective examination revealed paleness of the skin and visible mucous membranes, a shift of the relative border of the heart to the left, a diurnal size of the heart more than 15 cm. There was also a decrease in pulse tension, tachycardia and suffocation of heart tones.

These clinical symptoms indicate that the damage to the heart is not only functional in nature, but also dystrophic and ischemic damage to the heart muscle.

Using radiological examination, various changes in the heart were detected in 61 patients (62.24%). In 50 patients (51.0%) left ventricular dilatation, in 12 patients (12.24%) - dilatation of both ventricles, in 61 patients (62.24%) - cardiothoracic index greater than 40%, in 25 patients (25.5%) - flattening of the aortic arch, in 44 patients (44.8%) - a decrease in cardiac contractility, in 17 patients (17.34%) - an increase in ventricular contractility.

Cardiac rhythm-specific ECG examination revealed signs of automatism, excitability, and conduction disturbances in 71 patients, representing 72.44%. Automatism was observed in 37 patients (37.7%), sinus bradycardia in 8 patients (8.1%), and sinus arrhythmia in 5 patients (5.1%). Disorders of excitability - ventricular extrasystole was observed in 12 patients (12.2%), supraventricular extrasystole in 5 patients (5.1%), tremor arrhythmia in 6 patients (6.1%). Grade I atrioventricular block from conduction impairment was reported in 3 patients (3.1%), and left ventricular block in the left leg was reported in 10 patients (10.2%).

ECG examination revealed signs of myocardial dystrophic damage in 35 people (35.7%): decreased RS-T segment, flattening or negativity of the T tooth at I, II, III, aVL, aVF, V3, V4, and V5 connections. Symptoms of myocardial ischemia were noted on the ECG - a decrease in the S-T segment and a change in the T wave (in 28 patients - 28.6%).

S-T segment depression (signs of anterior wall ischemia) in I, aVL connections - 10 (10.2%), S-T segment depression (signs of posterior wall ischemia) in II, III, aVF connections - in 12 patients (12.24%).

ExoKG examination showed signs of heart damage in 85 patients (86.7%). In patients with statistically significant values of left ventricle such as last systolic (115%), last diastolic volume (117%), last systolic volume (143%) and last diastolic volume (128%) (KSR, KDR, KSO, KDO) compared to healthy people increase was specific ($R < 0.05$; $R < 0.02$). These indicators are signs of severe damage to the heart muscle in the disease and profound changes in hemodynamics. Heart rate was averaged $52.3 \pm 5.4\%$ and a statistical decrease of 1.28 times was recorded in healthy individuals ($R < 0.02$).

In 13 of the examined patients (13.26%) the volume of the stroke is more than 60% (normal), in 41 patients (41.8%) - 59-50% (decreased rate of contraction), in 27 patients (27.5%) - 49 -40% (obvious sign of heart failure), in 16 patients

(16.3) - less than 40% (sign of severe heart failure). Patients were also characterized by a decrease in the contractile activity of the heart - a decrease in the rate of circulatory contraction of muscle fibers (V_{cfo} / c).

In addition, symptoms of cardiac wall hypertrophy (40 patients, 40.8%), including left ventricular posterior wall and interventricular barrier hypertrophy (65 patients, 66.3.0%), left ventricular dilatation

(18 patients, 18.3%), wall hypokinesia (15.3% in 15 patients), and increased cardiac contractility (20 patients, 20.4%) were detected.

Thus, targeted clinical, radiological, ECG and ExoKG examinations in patients with cirrhosis of the liver allow to detect heart damage in 85.0% of cases. The basis of heart damage is the development of left ventricular hypertrophy and myocardial dystrophy. This results in a decrease in myocardial contractility, systolic and diastolic function. Heart damage in turn leads to chronic circulatory disorders, exacerbates portal hypertension, exacerbates liver cell insufficiency, is a major cause of hepatorenal syndrome, and worsens the overall condition of patient

The use of potassium supplements, α -adrenoblockers, APF-inhibitors in the treatment of cirrhosis of the liver to improve the functional status of the heart and prevent heart damage is pathogenetically important in the treatment of heart damage.

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