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## COURSE OF MYOCARDIAL INFARCTION IN YOUNG PATIENTS WITH ARTERIAL HYPERTENSION

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**Abstract.** Arterial hypertension (AH) is the main risk factor (RF) for the development of cardiovascular diseases throughout the world. Almost 95% of patients have essential hypertension. In the structure of mortality from various cardiovascular diseases, including hypertension, 54% is myocardial infarction (MI). At present, widespread AH and MI among the working population, early disability, reduced life expectancy, and low adherence to treatment are alarming.

**Key words:** arterial hypertension, myocardial infarction, young age, risk factor.

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**Introduction.** Despite the successes of modern medicine, one of the most important problems both in Russia and in most European countries remains a high level of disability and premature death of patients who have had myocardial infarction (MI) and associated heart failure (HF), including among young patients. The course of myocardial infarction in young patients is characterized by a number of researchers as “malignant”. This is due to a very high level of prehospital mortality, reaching, according to some authors - 47.8%, as well as the more frequent development of postinfarction chronic heart failure, which leads to

disability, an increase in medical and social problems and is the main cause of death in the first years after MI. In this regard, the study of the problems of prevention, timely diagnosis and treatment of myocardial infarction in young people is extremely relevant.

The aim of the work was to study the prevalence, features of the course of myocardial infarction, the use of antihypertensive and lipid-lowering therapy at the prehospital and hospital stages in young patients with essential hypertension.

**Material and methods.** The materials of the case histories of 50 patients with hypertension and myocardial infarction at the age of 30-45 years (mean age  $41.2 \pm 3.8$  years) who were treated in

the cardiac resuscitation department of the Bukhara branch of the RSCEH from 2014 to 2016 Pearson and the binary logistic regression method.

**Research results and discussion.** Among all hospitalized patients, patients with hypertension and myocardial infarction of young age accounted for 1.14% in 2014, 1.8% in 2015, and 0.97% in 2016. All patients were male. AH of II degree (32%) and III degree (36%) were mainly encountered. The majority of patients (48%) were admitted within the first 6 hours after the onset of pain. Among RF, smoking (90%) prevailed, hypercholesterolemia - HCS (70%) and burdened heredity (50%). Metabolic syndrome was observed in 30% of patients. The average cholesterol level (CL) on admission was  $6.17 \pm 1.38$  mmol / L. In 68% of patients, the development of MI was preceded by angina pectoris. Primary MI was in 82% of patients. By localization, anterior MI prevailed (44%). In 84% of patients, the anginal variant of myocardial infarction was revealed. According to the ECG shape, QS-MI was most often detected (68%). Complications of myocardial infarction were observed in 92% of patients. The

development of recurrent myocardial infarction was associated with the degree of AH (CC = 0.3;  $p < 0.05$ ). The level of total cholesterol was higher in patients with previous angina pectoris (CC = 0.04;  $p < 0.05$ ). Smoking directly led to the development of aortic atherosclerosis (CC = 0.34;  $p < 0.05$ ). Ejection fraction (EF) of the left ventricle (LV) less than 45% was detected in 10% of patients, the left atrial diameter 4.0 cm or more - in 62%, the thickness of the interventricular septum 1.1 mm or more - in 72%, walls JIJ 1.1 mm and more - in 58%. Aortic atherosclerosis was diagnosed in 66% of patients. Ultrasound of the neck vessels was performed in 12% of patients, of which 16.7% had atherosclerotic plaques in the common carotid artery (CCA), and 83.3% had CCA bends. Before MI, 82% of patients were not taking antihypertensive drugs. In the hospital, 98% of patients underwent standard therapy, 2% did not receive  $\beta$ -blockers due to obliterating atherosclerosis of the vessels of the lower extremities. Thrombolysis was performed in 48% of patients, no complications were observed. Only 12% of patients received statins before hospitalization

and in the acute period of myocardial infarction. All of these patients took atorvastatin (atoris, KRKA, Slovenia). By the method of binary logistic regression, it was revealed that with a probability of 93% statins were not received by patients with grade III hypertension who did not use antihypertensive drugs, patients with HCS, with previous angina pectoris, recurrent MI, ejection fraction less than 45%, and aortic atherosclerosis.

The significant prevalence of both untreated and inadequately treated hypertension is the main factor determining the development of complications, including myocardial infarction. Young patients with hypertension complicated by myocardial infarction accounted for more than 1% of all admitted patients.

According to the literature, the presence of any of the main RF (smoking, diabetes mellitus, HCS) is associated with an additional risk of MI. The combination of three main RF increases the risk of MI by up to 53%. Among the patients we examined, 90% had one RF and 30% had a combination of three main RF. According to a number of studies, violations of the lipid composition of

the blood can affect the regulation of blood pressure through endothelial dependent vasodilation and the secretion of vasoactive substances. Among the examined patients, 70% had HCS, 66% had aortic atherosclerosis. The risk of developing cardiovascular complications increases even with high normal blood pressure values. According to our data, the development of recurrent myocardial infarction at a young age directly depends on the degree of hypertension: 18% of patients underwent recurrent myocardial infarction. The need to achieve blood pressure control, maintaining it at the target level is currently beyond doubt, since the risk of developing cardiovascular complications decreases when blood pressure is less than 140/90 mm Hg. More than 50% had myocardial wall hypertrophy, left atrial dilatation, and 10% had LV systolic dysfunction. Only 14% of patients took antihypertensive drugs on a regular basis before the development of myocardial infarction, and 4% did not regularly. The effectiveness of statins in reducing mortality and the incidence of cardiovascular complications in patients with coronary artery disease

has long been proven. In particular, atorvastatin used by the examined patients reduces the number of primary events and significantly reduces the frequency of angina attacks. The high results of treatment are explained by the ability of statins to give not only anticholesterolemic, but also many other, so-called pleotropic effects. The results of clinical studies have confirmed the safety and good tolerance of atorvastatin. In our study, only 12% of patients before and during myocardial infarction continued to take the drug at a dose of 10 mg / day. The reasons why patients did not receive statins are likely to be varied and not only dependent on the patient. In our work, it was found that these drugs were not taken by precisely those patients for whom statins were especially indicated.

**Conclusion.** 1. Myocardial infarction in young patients with essential arterial hypertension proceeds according to the classical anginal variant, with frequent complications in the form of rhythm disturbances, against the background of a remodeled myocardium, with QS-infarction prevailing.

2. Complicated myocardial infarction in young patients is facilitated by

numerous risk factors, lack of treatment for arterial hypertension (86%), low frequency of statins (12%).

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