



## CLINICAL AND DIAGNOSTIC FEATURES OF MYOCARDIAL INFARCTION IN YOUNG PATIENTS IN EMERGENCY MEDICINE

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### Abstract

We analyzed 40 case histories of young patients (under 45 years old) with myocardial infarction. It was revealed that the most common risk factors were obesity disorders, lipid metabolism, smoking. More than half of the young patients did not have a history of coronary heart disease. The main variant of the course is anginal, according to the depth of the lesion - large-focal. Complications of patients and the cause of mortality were identified.

**Keywords:** myocardial infarction, clinical course, young patients, myocardial revascularization.

### Introduction

Despite the success of modern medicine, one of the most important problems both in Uzbekistan and in most European countries remains a high level of disability and





sudden death of patients who have had myocardial infarction (MI) [1,12] and associated cardiac insufficiency (CI), including among young patients [9,11]. The course of myocardial infarction in young patients is characterized by scientists as "malignant" [4,5]. 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 CI, and is the main cause of death in the first years after myocardial infarction [3,4]. In this regard, the study of the problems of prevention, diagnosis and treatment of MI in young people is extremely important.

Purpose of the study: Analysis of risk factors, clinical picture and course of myocardial infarction in young people ( $\leq 45$  years old).

### **Materials and Methods**

We retrospectively analyzed 40 case histories of patients aged 30 to 45 years (mean age  $41 \pm 3.7$  years) with a diagnosis of myocardial infarction who were hospitalized at RSHTEIMSF in 2018-2019. 52% of patients developed a large-focal infarction, 30 (28%) - a small-focal one. Among the patients we examined, patients with primary MI (74.4%) predominated, repeated MI was observed only in men (5.6%). The most common were inferior (37.3%) and anterior (31.8%) localization of the lesion, MI with extension to the lateral wall (27.2%). During the analyzed period, hospital mortality was 0.8% (2 patients). All patients underwent clinical examination: taking anamnesis; inspection; laboratory tests: UAC, OAM, blood glucose, biochemical blood test (KFKMV, KFK, troponins, total bilirubin, AST, ALT); instrumental methods of ECG examination on admission and again with a clinical picture; echocardiography (echocardiography); chest x-ray (if indicated). All patients during hospitalization received standard MI therapy, which included nitrates,  $\beta$ -blockers, angiotensin-converting enzyme inhibitors, anticoagulants, antiplatelet agents, and cardioprotectors. Thrombolytic therapy was carried out in the presence of indications and the absence of contraindications. In cases of development of complications of myocardial infarction, they were treated.

### **Results**

The study revealed that the most common risk factors were: male gender - 76.3%, lipid metabolism disorders - 66.3%, smoking - 68.4%, obesity - 44.9%; 46.7% of young patients had a burdened hereditary history. In the case histories, information about the lifestyle of patients (physical inactivity), adherence to a balanced diet (sufficient consumption of fruits and vegetables, alcohol abuse, increased salt intake), the presence of psychosocial stress was not recorded, which, according to recent studies,





have a significant effect on the development of myocardial infarction [2, 6]. 68.2% of patients on admission to the hospital had a state of moderate severity, severe - 4.6%. 84.4% of patients had the classic anginal form of myocardial infarction; in 2.7% - arrhythmic, in 0.8% of cases - cerebrovascular, abdominal and painless variants of the course. In 75% of patients, coronary heart disease (CHD) had myocardial infarction, 10.4% of the patient had angina pectoris, and 5.5% had postinfarction cardiosclerosis. Among concomitant diseases, arterial hypertension prevailed - 35.5%, chronic obstructive pulmonary disease - 14.9% and type 2 diabetes mellitus - 8.8%. 23.4% of patients were admitted to a hospital later than 12 hours from the onset of a painful attack, despite the presence of typical anginal pains. According to EchoCG data, the analyzed patients showed dilatation of the cavities of the left atrium and left ventricle, and a reduced ejection fraction (Table 1). It was also found that in 72 (66.6%) patients, the contractile function of the heart in the form of hypokinesis or akinesis was impaired, in 40.2% of patients - regurgitation of degree 2 or more on the mitral valve, in 8.4% - on the tricuspid valve, in 6, 5% - on the aortic. Signs of pulmonary hypertension were observed in 5 (4.7%) patients.

Table 1 Echocardiography indices in the studied patients  
Echocardiography indices in the studied patients

ECG indicators	AMI patients (n = 40)	Normal values
AO	3,66 ± 0,37	2.8-3.7 cm
LA	3,85 ± 0,38	2.4-3.6 cm
RV	2,19 ± 0,29	1.8- 2.6 cm
ESS LV	3,93 ± 0,9	До 3.7 cm
EDS LV	5,50 ± 0,68	до 5.5 cm
IVS	0,99 ± 0,20	0.7-1.1 cm
DPW LV	0,96 ± 0,16	0,8-1,1 cm
EF	54,8 ± 7,78	55 and more%

Note: AO - the size of the aorta, LA - the size of the left atrium, RV - the size of the right ventricle, ESS LV - the end systolic size of the left ventricle, EDS LV - end diastolic size of the left ventricle, IVS - the size of the interventricular septum, DPW LV - dimensions of the posterior wall of the left ventricle, EF - ejection fraction.

Among the complications of myocardial infarction, rhythm and conduction disturbances prevailed - 17.8%: supraventricular rhythm disturbances (paroxysms of atrial fibrillation - 5.7%, supraventricular extrasystole - 3.5%), ventricular rhythm disturbances (ventricular extrasystole - 4.7%, ventricular tachycardia - 1.9%, ventricular fibrillation - 0.9%), AV block 2-3 degrees - 1.8%. Acute heart failure was



observed in 14% of cases, of which 4.6% developed cardiogenic shock, less often acute LV aneurysm with thrombosis of its cavity (12.1%) and postinfarction angina pectoris (9.3%). Thrombolytic therapy (TLT) was performed in 40.3% of patients (effective TLT - 33.7%), Coronary angiography was performed in 2% of patients, of whom percutaneous transluminal coronary angioplasty (PTCA) was performed in 42.3% (including 7.8% of those rescuing), 25% - a planned PTCA was recommended in the city of Samarkand Regional Cardiological Dispensary, in 27, 9% - no hemodynamically significant stenoses were detected, 5.7% did not reveal atherosclerotic vascular lesions. Intrahospital mortality - 2 patients. The patient's death was caused by acute widespread recurrent recurrent myocardial infarction with spread to the posterior apical and anterolateral regions of the left ventricle, complicated by stent thrombosis, acute left ventricular failure, pulmonary edema. In connection with the "rejuvenation" of myocardial infarction, high mortality of young patients with MI, it is necessary to develop preventive care for young patients by informing the population about the issues of primary prevention of cardiovascular diseases, as well as percutaneous coronary interventions and thrombolytic therapy at the regional level.

## Conclusions

1. In 76% of the studied young patients, the first display of coronary artery disease was myocardial infarction. 2. For young patients (78%), macrofocal myocardial infarction is more typical. 3. More than half of the patients (68.8%) underwent reperfusion therapy, which makes it possible to count on improved clinical outcomes and prognosis in young patients with myocardial infarction.

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