

Features of myocardial infarction in young patients.

Irkabaeva Malika M., Martynov Alexey U.

RUDN University

Department of hospital therapy with courses of endocrinology, hematology and CLD

Introduction: At present, 10 to 18% of all myocardial infarctions occur before the age of 45. [1] Among young patients, myocardial infarction is increasingly common with intact or mildly obstructed coronary arteries.

Object: To study the risk factors and clinical course of myocardial infarction(MI) with and without obstruction of the coronary artery in patients under 45 years old.

Materials and methods: The study included 110 patients with acute myocardial infarction. The patients were divided into 2 groups. The first group included 70 patients with myocardial infarction with obstructive coronary artery disease(MI-CAD), the second group included 40 patients with myocardial infarction without coronary artery obstruction (MINOCA). The age of patients in the first group was from 28 to 45 years (mean age 40.5 years), in the second group from 29 to 44 years (mean age 38.6 years). All patients underwent troponin test, ECG, ECHO-KG, coronary angiography to establish the diagnosis and select the most appropriate treatment tactics. The heart structural and functional parameters were also assessed.

Results: According to the data achieved, in MINOCA group ST-elevation myocardial infarction (STEMI) was diagnosed in 29 patients (72%), non-ST-elevation myocardial infarction (NSTEMI) in 11 patients (28%). In MI-CAD group 36 patients (51%) had STEMI, 34 patients (49%) NSTEMI. The average duration of the chest pain in patients in the MINOCA group was 40 minutes; in the MI-CAD group - 1 hour. The average time from the onset of the chest pain to seeking medical aid was 15 hours in the group of patients with MINOCA, probably due to less manifested chest pain, and 6 hours in patients of the MI-CAD group. The most common localization of myocardial infarction in patients of both groups was anterior myocardial infarction: 23 (57.5%) in MINOCA, 38 (54,2%) in MI-CAD. Transmural myocardial infarction was identified in 17 patients (24%) with MI-CAD, in 9 patients (22%) with MINOCA.

Classical risk factors such as arterial hypertension, diabetes mellitus, obesity in the group of patients with MI-CAD were verified – in 46 patients (66%), in the group of patients with MINOCA – in 21 patients (52%). Arterial hypertension - in 41 patients (58%) with MI-CAD, in 21 patients (52.5%) with MINOCA; diabetes mellitus - in 10 patients with MI-CAD (14.2%), in 2 patients with MINOCA (5%). In both groups, there was a predominance of male patients: 65 (93%) men and 5 (7%) women in the MI-CAD

group, 35 (87%) men and 5 (13%) women in the MINOCA group. Long-term smoking history was in 46 patients (66%) with MI-CAD (PY score 20 pack/years), and in 19 (47%) patients with MINOCA (PY score 16 pack/years). Among female patients, long-term smoking history acknowledged in 5 patients (100%) of the MI-CAD group and in 4 (80%) patients of the MINOCA group. Among male patients, long-term smoking history was in 49 patients (75%) of the MI-CAD group and in 22 patients (62%) of the MINOCA group.

The number of patients who chronic alcohol intoxication did not differ significantly in both groups; alcohol abuse documented in 14 patients (20%) of the MI-CAD group and in 10 patients (25%) of the MINOCA group.

The most common comorbidities are chronic gastritis, gastric and duodenal ulcers: 10 patients (25%) in the MINOCA group and 12 patients (17%) of the MI-CAD group; chronic bronchitis, COPD, bronchial asthma in 10 patients (25%) of the MINOCA group and in 21 patients (30%) of the MI-CAD group.

Psychoemotional stress as a trigger for the development of myocardial infarction identified in 7 patients (17%) of the MINOCA group and in 2 patients (3%) of the MI-CAD group.

MI complications were observed in 15 patients (21.4%) of the MI-CAD group and in 10 patients (25%) of the MINOCA group: acute heart failure in 8 patients (20%) with MINOCA, in 12 patients (17%) with MI-CAD; left ventricle post-infarction aneurysm - in 2 patients (5%) with MINOCA, in 3 patients (4.2%) with MI-CAD.

The average length of stay in the hospital patients with MI-CAD is 6.8 ± 4 days; patients with MINOCA is 6.5 ± 3 days.

Conclusions: Patients with MINOCA, in comparison with patients with MI-CAD, were characterized by a lower incidence of classical risk factors for CHD. A history of myocardial infarction, diabetes mellitus, arterial hypertension occurred more frequent in patients of the MI-CAD group. Male gender is the main non-modified risk factor in both groups. Smoking is the main modifiable risk factor in both groups with total predomination among female patients. STEMI was a main form of MI in MINOCA patients .

Due to the less severity of the chest pain in patients with MINOCA, time to seek medical attention was two time longer in this group that in patients with MI-CAD.

References:

Nathaniel R. Smilowitz, Asha M. Mahajan, Matthew T. Roe, Anne S. Hellkamp, Karen Chiswell, Martha Gulati, Harmony R. Reynolds. Mortality of Myocardial Infarction by Sex, Age, and Obstructive Coronary Artery Disease Status in the ACTION Registry–GWTG (Acute Coronary Treatment and Intervention Outcomes Network Registry–Get With the Guidelines) *Circulation: Cardiovascular Quality and Outcomes* December 2017 Vol 10, Issue 12.