Features of the Hospital Course Myocardial Infarction in Patients with Disorders of Carbohydrate Metabolism

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ABSTRACT

To study the clinical course of acute myocardial infarction (MI) with ST segment elevation and features of inpatient treatment in patients with diabetes mellitus diabetes and without it.

Material and methods: 83 patients admitted to hospital in 2014 were included. Patients were divided into two groups depending on the presence or absence of carbohydrate metabolism disorders: group 1 (patients with type 2 diabetes; n=38) and group 2 (patients without carbohydrate metabolism disorders; n=45). We studied the initial clinical, demographic and laboratory-instrumental characteristics of patients, as well as the features of inpatient treatment.

Results: In group 1, compared with group 2, arterial hypertension was significantly more often recorded (73.7% vs. 49%; $p<0.05$), patients in group 1 had higher class of acute heart failure according to the Killip classification at admission (1.46±0.6 vs. 1.23±0.57; $p<0.05$). STEMI in patients of group 1 by 12% more often complicated by the development of acute aneurysm of the left ventricle ($p<0.05$). The duration of inpatient treatment of patients in group 1 was longer (18±4.1 vs. 16±3.6 days; $p<0.05$).

Conclusion. Only 21% of diabetic patients hospitalized for STEMI received adequate treatment for coronary heart disease, and a quarter of this group did not have adequate therapy for diabetes. Patients with DM had a higher incidence of in-hospital complications of STEMI and a longer duration of inpatient treatment.

Keywords: Myocardial Infarction, Diabetes Mellitus, Hospital Prognosis.

Results of researches devoted to the problem study of the clinical features of acute coronary conditions in combination with diabetes mellitus (DM) show the existence of a fairly close relationship between the course and outcome, in particular, myocardial infarction (MI) and the level of hyperglycemia as at the stationary stage, and during a long period of observation. According to the American Heart Association, patients with diabetes are at risk of developing MI was twice as high as in individuals with normal glycemic status, while the former were also characterized by lower survival.

The foregoing determines the need to continue research aimed at identifying features of the course of MI depending on the presence of carbohydrate metabolism disorders for subsequent optimization of the prevention of early complications.The purpose of the study: to study the clinical course of MI with ST segment elevation (STEMI) and features of inpatient treatment in patients with and without DM.

Diagnosis of type 2 diabetes was established by anamnestic as well as on the basis of medical records. Diabetes mellitus was diagnosed for the first time during the hospital period on the basis of repeated determinations of fasting glucose, glycated hemoglobin (HbA1C), as well as the results of a glucose tolerance test. Treatment of patients in a hospital was carried out in accordance with the recommendations of the Russian Society of Cardiology. Additional hypoglycemic therapy was selected/corrected hospital endocrinologist.

According to the results of the standard ECG in the vast majority of patients in both groups sinus rhythm was recorded as baseline. In 2 (4.5%) patients of group 2, STEMI was complicated by the development of paroxysmal ventricular tachycardia (VT) with narrow QRS complexes. However, it is noteworthy that the ventricular cardiac arrhythmias (couplets, group ventricular extrasystoles, unstable paroxysms ventricular tachycardia) were 2.5 times more common in patients with STEMI and DM. In the conducted earlier studies have proven the effect of hyperglycemia on electrophysiological processes in patients with heart disease.

AT within 3-12 months after coronary angiography, 1001 patients were examined, of which 526 suffered from DM. Turbulence was analyzed heart rate and T wave alternation as powerful predictors, including fatal arrhythmia in patients with coronary artery disease. A significant prevalence of violations of these parameters was noted in the group of patients with coronary artery disease and DM (58% vs 24%; $p<0.001$) and ejection fraction (EF) LV <50% [13]. On transgenic mouse models P.J. Morrow et al. (2011) using implantable ECG telemetry, they tried to explain the cause of arrhythmias in hyperglycemia.

Conclusion: Thus, it is noted that a rather small proportion of patients with diabetes before hospitalization due to STEMI received adequate treatment for coronary artery disease and diabetes. The presence of concomitant diabetes aggravates the course of STEMI, which is manifested by a more severe class of AHF and more frequent development of complications in the acute period of MI. The negative effect of hyperglycemia was accompanied upward trend in hospital mortality of patients with STEMI and an increase in the length of stay of patients in the hospital.

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