

with the thickness of the intima-media complex), as well as a significant negative relationship between the product of the concentration in the peripheral blood of calcium and phosphorus and the degree of endothelium dependent vasodilation ( $r=-0,49$ ,  $p<0,05$ ).

**Conclusion.** CKD stage 5 and programmed hemodialysis is associated with pronounced remo-

deling of the vascular wall, manifested in the progression of atherosclerotic lesions, calcium accumulation and impaired endothelial function – a decrease in endothelium-dependent vasodilatation correlated with the degree of secondary hyperparathyroidism.

## EXPERIENCE IN THE TREATMENT OF PATIENTS WITH CHRONIC HEART FAILURE

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**The purpose of study:** to evaluate the effectiveness of Ivabradine in the treatment of patients with chronic heart failure (CHF).

**Material and methods of research.** 95 patients with moderate and severe CHF and left ventricular (LV) systolic dysfunction were examined and treated. Patients were randomized into 2 groups: 1st-50 people (mean age –  $69\pm3,1$  years), 2nd – 45 people (mean age –  $67\pm3,3$  years). All patients received  $\beta$ -blockers for at least a month before admission to the hospital. Patients of the 1st group from the first day of treatment to the basic therapy were added Ivabradine 5 mg  $\times$  2 times/day, and the 2nd group continued treatment with  $\beta$ -blocker (Bisoprolol – 5 mg/day). The dose of Ivabradine in the first group was increased to 7,5 mg 2 times a day, if the heart rate was  $\geq 60$  per minute. The effectiveness of treatment was evaluated on 3 days, at discharge (10–14 days) and after 4 weeks (according to complaints, heart rate and Echocardiography).

**Results.** The initial heart rate was  $85,7\pm4,1$  and  $86,3\pm3,2$  beats per 1 min in the first and second groups, respectively. On the 3rd day of treatment, the target heart rate (50–60 beats per minute) was achieved in 18 (36%) patients of the first and 12 (27%) of the 2nd group, on the 10–14 day of treatment in

44 (89%) and 30 (68%), and after 4 weeks in 46 (92%) and 34 (77%) patients, respectively ( $p<0,02$ ). The decrease in the heart rate in the Ivabradine group on the average was 16,8 beats/min in comparison with the heart rate at the time of inclusion in the research. It is interesting to note that in patients with the highest baseline heart rate (average 85–90 beats/min) there was a maximum decrease in heart rate during reception of Ivabradine. In the group of Ivabradine there was an improvement in the functional class of heart failure by NYHA in 16 (33%) patients compared with 11 (26%) in the group with  $\beta$ -blocker. In patients treated with Ivabradine, echocardiography improved in dynamics: the left ventricular ejection fraction increased from  $30,9\pm2,5\%$  to  $38,6\pm1,4\%$  ( $p<0,05$ ), while in patients treated with Bisoprolol, this figure changed only from  $31,7\pm2,1\%$  to  $34,7\pm2,2\%$ .

**Conclusion.** The addition of Ivabradine to basic therapy in patients with CHF and LV systolic dysfunction leads to a decrease in clinical symptoms and an effective reduction in heart rate. This leads to an improvement in the contractility of the myocardium of the left ventricle, and, as a consequence, coronary blood flow. Ivabradine is effective and safe in patients with moderate to severe CHF.

## EFFECT OF HIGH DOSES OF ATORVASTATIN ON INDICES OF LEFT VENTRICULAR SEGMENTAL CONTRACTILITY DURING STRESS ECHOCARDIOGRAPHY WITH DOBUTAMINE IN ACUTE MYOCARDIAL INFARCTION

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**The aim** of the study was a comparison of the effect of early administration of high-dose atorvastatin (80 mg / day) and low dose (20mg / day) for acute myocardial infarction with elevation ST (AMI+ST) on myocardial stunning and regional contractility left ventricle (LV).

**Material and methods.** 164 patients with AMI+ST (age  $55,8\pm0,6$  years) were examined. Patients underwent reperfusion (thrombolysis) within 6 hours. In the 1st group included 82 patients

treated with atorvastatin 20 mg, in the 2 nd – 82 patients treated with atorvastatin 80 mg per day appointed for admission to the clinic, regardless of the lipid profile.

**Results.** In the low doses of dobutamine stress echocardiography (LDSE) in the  $3,88\pm0,14$  segments of 1 group and  $4,2\pm0,16$  segments of the 2 groups increased contractile function, as in these segments has taken place stunned myocardium (reversible myocardial dysfunction). Other segments when

administered dobutamine did not respond (irreversible dysfunction). Irreversible dysfunction was detected in  $2,2 \pm 0,1$  segments (atorvastatin 20 mg/day and  $1,6 \pm 0,1$  segments in Group 2 segments (atorvastatin 80 mg/day). Number of dobutamine responsive segments (segments with reversible dysfunction) in patients group 2 were higher than in the group 1 ( $p < 0,05$ ). Wall motion abnormality index (WMAI) during LDSE significantly decreased to  $1,25 \pm 0,03$  and  $1,17 \pm 0,03$

( $p < 0,01$ ) in the groups 1 and 2, respectively. Significant reduction of WMAI noted in patients treated with atorvastatin 80 mg/day ( $p < 0,05$ ).

**Conclusion.** Using of high doses of atorvastatin (80mg/day) in patients with AMI+ST helps to limit myocardial necrosis by decreasing ischemic and reperfusion injury of the myocardium and affects the formation of stunned myocardium, which is reversible dysfunction and improved LV regional contractility.

## FUNCTIONAL STATE OF LEFT VENTRICULAR IN DIFFERENT METHODS OF RESTORATION OF CORONARY BLOOD FLOW IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION WITH COMPLICATED ACUTE INSUFFICIENCY WITH INSUFFICIENCY

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**Relevance.** Over the past decade it has increased the share of endovascular treatment of coronary heart disease (CHD) in the world. The choice of this treatment strategy of CHD, to counterbalance the surgical treatment in combination with conservative therapy caused the immediate efficacy and safety of the endovascular procedure to achieve adequate restoration of coronary blood flow in the majority of cases. Primary endovascular restoration of coronary blood flow has several advantages over thrombolytic therapy. There is evidence that reperfusion of the myocardium using the endovascular procedure is more than 95% of patients with acute ST-segment elevation myocardial infarction (STEMI), then thrombolytic therapy restoration of blood flow is achieved only 70–75%.

Endovascular method promotes effective limitation of the size of the damaged myocardium in the early stages of the onset of the disease, prevents the development of residual stenosis in the infarct-related artery (IRA) and pathological remodeling of the left ventricle (LV) and as a result, leads to a reduction not only in-hospital mortality, but and improved survival of patients in distant periods.

After the restoration of blood flow in some way in the area of the IRA is a change in contractility parameters, the geometry of the myocardium and central hemodynamics in general, which in turn determine the future course of the disease and the tactics of treatment. Today, in connection with the development and widespread use of modern methods of restoring coronary blood flow in AMI+ST, great attention is paid to the prevention of early pathological LV remodeling, which allows to influence the prognosis and survival of patients.

**Introduction (goals/objectives):** The goal of the study is to compare the indices of contractility and diastolic myocardial dysfunction in patients with acute myocardial infarction complicated by acute cardiac

failure after endovascular intervention and thrombolytic therapy.

**Material and methods:** The study included 48 patients with acute myocardial infarction with ST-segment elevation (AMPST) up to 6 hours from onset of the disease. The mean age of patients was  $48.9 \pm 2$  years. All patients are divided into 2 groups: Group I included 26 patients with STEMI and ST who underwent initial endovascular procedure (angioplasty and stenting) during the first 6 hours; the second group included 22 patients with AMPST who received thrombolytic therapy in the first 6 hours from the onset of a myocardial infarction with a positive effect. All patients underwent echocardiographic and doppler echocardiographic examinations on the 1st and 7th day of the course of acute myocardial infarction.

**Results:** On the first day of the course of acute myocardial infarction, the most favorable type of left ventricular diastolic dysfunction developed in the first and second groups of patients was the slowing down of relaxation (group E/AI  $0,9 \pm 0,05$ , E/AI group  $1 \pm 0,05$ ). Then, on the 7th day of the study, the pseudonormalization of the diastolic filling of the left ventricle (E/AI of the group  $1,4 \pm 0,08$ , ( $p_1 < 0,001$ ) is recorded in the I group of patients. However, already by 1 day of myocardial infarction, more pronounced violation of segmental contractility of the left ventricle is recorded in II group of patients: The index of disturbance of segmental contractility of the myocardium (INSSM) of the I group is  $1,2 \pm 0,04$  ( $p_1 = 0,001$ ), group II INSSM  $1,6 \pm 0,04$  ( $p_2 < 0,001$ )).

**Conclusion:** Patients with effective thrombolytic therapy, in contrast to patients with primary endovascular intervention, have an unfavorable prognosis in the development of early pathological left ventricular remodeling and heart failure, which is confirmed by a high index of disturbance of segmental contractility of the left ventricular myocardium and the formation of a restrictive type of diastolic left ventricular dysfunction.