

6. CLINICAL CHARACTERISTICS OF PATIENTS WITH HEART FAILURE WITH MILDLY REDUCED LEFT VENTRICULAR EJECTION FRACTION AFTER CARDIAC SURGERY

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Introduction. Heart failure (HF) with mildly reduced left ventricular ejection fraction (LVEF) remains a grey area among chronic HF phenotypes with a substantial overlap of clinical characteristics, risk factors, patterns of cardiac remodelling and outcomes. Moreover, the peculiarities of the evolution of these patients after heart surgery remain little known.

Aim of study. Our purpose was to study the features of the evolution of patients with HF with mildly reduced LVEF after heart surgery.

Methods and materials. Our research included 126 consecutive patients with chronic HF who underwent cardiac surgery (62.2±8.5 years, 67.5%- men, duration of monitoring in hospital- 20.4±5.8 days). Subjects were divided into 3 groups according to the HF phenotype assessed at the preoperative stage: HF_rEF - patients with HF with reduced LVEF, HF_mrEF- HF with mildly reduced LVEF, HF_pEF- HF with preserved LVEF. All patients were investigated by transthoracic echocardiography (EchoCG) and serum level of N-terminal pro-B type natriuretic peptide (NT-proBNP) was assessed. For statistical analysis we used the parameters: arithmetic mean with standard deviation, t-Student test for paired samples, ANOVA procedure.

Results. Before heart surgery patients with HF_mrEF constituted 24.8%, while 23.9% of subjects had HF_rEF and 51.3%- HF_pEF. Patients with HF_mrEF presented with old myocardial infarction (46.4%), LV aneurysm (7.4%), atrial fibrillation (46.4%), severe mitral and tricuspid valve regurgitation (50.0% and 40.7%), EchoCG signs of pulmonary hypertension (PH) (57.2%). In HF_mrEF group isolated valvular correction (35.7%) and combined surgery (coronary artery bypass grafting+valvular correction- 39.3%) predominated, in contrast to HF_rEF group, where 70 % underwent combined surgery, while 80% of patients with HF_pEF had isolated valvular correction or coronary bypass grafting, $p < 0.001$. In the early stage after heart surgery, 31.5% of patients had HF_mrEF, 45.9%- HF_pEF and 22.5%- HF_rEF. After surgery, in the HF_mrEF group LVEF exceeded 50% in only 22.2% of patients and in others 22.2% LVEF became below 40%, $p < 0.001$. At the same time, in 37% of patients with HF_rEF LVEF became within the range of 40-50%, although none reached the level $> 50%$, while in 24.5% of patients with HF_pEF LVEF decreased below 50%. The elevation of NT-proBNP level was appreciated in 87.5% of patients with HF_mrEF with a mean value of 5183.1±1627ng/ml that was significantly higher than in the other groups, $p < 0.05$ (HF_rEF- 4134.9±1389ng/ml, HF_pEF-2855.2±1305ng/ml). PH suggestive EchoCG signs were found more frequently in patients with HF_mrEF (40%, $p < 0.01$, PSAP-35.7±11.1mmHg), compared to those with HF_rEF (29.2%, PSAP-33.9±7.5mmHg) or HF_pEF (7.2%, PSAP-28.8±7.36mmHg).

Conclusion. Early after heart surgery, patients with HF_mrEF appear to have a less favourable evolution than those with HF_rEF and HF_pEF, with a lower rate of subjects with improved LVEF, higher NTproBNP values and more commonly detected EchoCG signs of PH.