

# DYNAMICS OF ULTRASOUND PARAMETERS OF DIASTOLIC AND SYSTOLIC CARDIAC FUNCTION IN COPD PATIENTS WITH CONCOMITANT CORONARY HEART DISEASE, DEPENDING ON MAINTENANCE THERAPY OF COPD AND THE PRESENCE OF PULMONARY REHABILITATION

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## Abstract

*The aim* was to study the dynamics of ultrasound parameters of diastolic and systolic cardiac function in patients with chronic obstructive pulmonary disease (COPD) and concomitant coronary heart disease (CHD), depending on maintenance therapy of COPD and the presence of pulmonary rehabilitation.

*Materials and methods.* 131 patients (101 men and 30 women) with COPD and CHD (stable angina pectoris) were examined; mean age was  $64,57 \pm 9,3$  years. Patients were divided into 4 subgroups: 1A — patients on pulmonary rehabilitation (PR) program, receiving long-acting  $\beta_2$ -agonists (LABA); 1B — patients, receiving only LABA; 2A — patients on PR program, receiving long-acting muscarinic antagonists (LAMA) and 2B — patients, receiving only LAMA. Along with the general clinical examination, according to COPD guidelines, patients underwent echocardiography at the beginning of the study and after 12-month course of treatment.

*Results and discussion.* Significant differences were found between the subgroups of patients who received pharmacotherapy with PR in terms of the number of moderate and severe exacerbations per year ( $0,66 \pm 0,04$  vs  $1,01 \pm 0,06$ ,  $p < 0,05$ ). A correlation was revealed between the use of PR and the frequency of COPD exacerbations ( $r = 0,35$ ,  $p = 0,02$ ). In patients on PR program there was no deterioration of cardiac hemodynamics. There was a significant improvement in diastolic function of the right ventricle (RV) in the group of patients who received PR and LAMA. In those patients who did not perform the PR exercises, an increase of RV end diastolic volume, RV hypertrophy and deterioration of the RV diastolic function were revealed. The priority of the combined use of PR and long-term treatment with LAMA in patients with COPD and concomitant CHD compared with bronchodilator treatment alone was determined.

**Key words:** COPD, CHD, diastolic and systolic function of the heart, pulmonary rehabilitation.

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