

## EFFECT OF SEVERITY OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE ON THE RIGHT VENTRICULAR SYSTOLIC FUNCTION

Marija Marinković<sup>1</sup>, Hristina Jovanović<sup>2</sup>, Nemanja Nikolić<sup>3</sup>, Tamara Nikolić<sup>2</sup>, Marija Topalović<sup>1</sup>, Borislav Božanić<sup>1</sup>, Velimir Perić<sup>4</sup>, Nikola Petković<sup>5</sup>, Jasmina Jocić<sup>6</sup>, Milica Ćosić<sup>7</sup>, Tomislav Kostić<sup>8</sup>, Tatjana Pejčić<sup>1</sup>

According to the World Health Organization, the most common complication of chronic obstructive pulmonary disease (COPD) is chronic pulmonary heart disease (*cor pulmonale chronicum*). It represents myocardial hypertrophy of the right ventricle, dilatation and insufficiency of the right ventricle occurring as a result of changes in lung function/structure in the absence of left heart disease. The gold standard in detecting changes in right heart function in patients with COPD is an echocardiographic examination. The primary goal of this research was to determine the influence of the severity of COPD on the values of the right ventricular systolic function parameter, and the secondary goal of this research was to determine the frequency of tricuspid regurgitation in relation to the degree of COPD. For a detailed assessment of the systolic function of the right ventricle, which is important for the objectives of the study, the following parameters were performed: The fractional area change (FAC) of the right ventricle and tricuspid annular plane systolic excursion (TAPSE) in 44 patients with COPD which were divided into four groups according to the global initiative for obstructive lung disease (GOLD) criteria. There was no statistically significant difference between the groups for anthropometric indicators and FEV1 values (%) ( $p > 0.05$ ).

The Kruskal–Wallis test shows that the TAPSE index and FAC values are significantly higher in patients with severe and very severe COPD ( $p < 0.05$ ). The results of our research show that echocardiographic parameters of the right ventricle such as TAPSE and FAC are very important for assessing its systolic function and that these values decrease proportionally with the progression of the COPD disease.

*Acta Medica Medianae* 2024; 63(1): 64-72.

**Key words:** chronic obstructive pulmonary disease, tricuspid annular plane systolic excursion index, fractional area change