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Title: The evaluation of local right ventricle contractility in patients with COPD

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Body: The aim of this study to estimate the possibilities of tissue Doppler (TDI) in patients with COPD. Is known that the violations of the contractile activity of the right ventricle (RV) in patients with lung diseases leads to the formation of right heart failure, pulmonary hypertension and remodeling the right cameras. Materials. We studied 15 patients with stage 2 and 3 COPD, mean age 67 ± 6.7 years. Right heart function was studied by echocardiography with tissue Doppler analysis. Results. The evaluation of TDI found that the velocity of movement of the lateral part of tricuspid annulus (TA) in patients with COPD averaged 7.2 ± 2.1 cm/s, that indicating the presence of RV dysfunction. The ratio of peak velocities of TA, estimated by pulsed mode TDI represented an average 0.71 ± 0.23 . This is indicative of RV diastolic dysfunction in these patients. Systolic displacement myocardium of RV (lateral part of the TA, basal segment of RV free wall) using tissue tracking in average composed 8-11 mm, timing shift of the basal and middle segments of the of RV free wall, assessed by tissue synchronization imaging in average composed 9-12 ms. All of this violations were more expressed at stages 3 of COPD. Systolic displacement amplitude of different myocardial segments of RV decreased from basal to apical segments (as in a normally functioning heart), but the average values were lower in patients with stage 3 COPD and depend on the severity of pulmonary hypertension. Conclusion. Thus, the use of echocardiography with TDI can detect violations of RV myocardial already at stage 2 disease. This may contribute to the timely correction treatment for patients with the emerging secondary cor pulmonale.