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The predictive value of eosinophil levels on structural and functional changes in the left ventricle in COPD combined with hypertension

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Abstract

Background: Half of deaths in patients with COPD are due to a cardiovascular event. Eosinophils are fibrogenic and powerful sources of growth factors, cytokines, other mediators that contribute to the myocardial tissue regeneration.

Aim: To analyze the blood eosinophil count (EOS), C-reactive protein (CRP), complement C3 (CC3) in patients with COPD combined with hypertension (HT) depending on the left ventricular (LV) geometry and diastolic dysfunction (DD).

Methods: In total, 60 COPD patients (GOLD 2, group B) in remission with HT stage II 56,02±5,60 y.o. (50 m, 10 f) were monitored. Systolic function was preserved in all patients. We divided them into 2 groups depending on LV geometry: adverse (n=44) and favorable (n=16). Grade III LVDD wasn`t registered. Grade II found only in adverse LV geometry group. CRP, CC3 in serum were measured using the ELISA method.

Results: In patients with adverse LV geometry, compared to favorable, EOS was lower -128,00 (84,00; 194,00) cells/μL vs. 207,50 (94,50; 300,00) cells/μL, p=0,067; CRP was greater - 9,19 (8,00; 11,64) mg/l vs. 6,44 (6,00; 6,93) mg/l, p<0,001; CC3 was lower - 1,28 (0,90; 1,69) g/l vs. 1,90 (1,25; 2,13) g/l, p=0,005. ROC analysis found predictive validity for Grade II LVDD with EOS ≤ 120 cells/μL with a sensitivity - 73,7%, a specificity - 68,3%, the AUC was 0,678 (p=0,023); found a trend for LV geometry with EOS ≤ 215 cells/μL with a sensitivity - 84,1%, a specificity - 50,0%, the AUC was 0,656 (p=0,086).

Conclusions: Higher CRP, lower CC3 found in adverse LV geometry group. Reliable prognostic validity was found for Grade II LVDD with EOS ≤ 120 cells/μL in moderate COPD combined with HT stage II.

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