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Title: Systemic inflammation in patients with chronic obstructive pulmonary disease

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Body: COPD is considered a systemic disease with chronic inflammation, predominantly in distal respiratory tract with the development of bronchial remodeling and reduction of pulmonary function. One of lipid mediators with important role in resolution of inflammation is lipoxin A4 - an eicosanoid derived from arachidonic acid. In order to study the severity of systemic inflammation, we assessed level of lipoxin A4 in blood plasma. Were examined 64 patients with COPD stage II-III without exacerbation, mean age 54,2 ± 1,3 yrs, 91.7% male, disease duration 12,4 ± 1,0 yrs, mean FEV1 64,2 ± 4,5%, smoking index - 15,8 ± 2,7 yrs, dyspnea by mMRC 2,1 ± 0,1 pts, CAT score - 23,2 ± 0,7 pts. In COPD patients lipoxin A4 level was 1,62 ± 0,09 ng/ml, whereas in healthy individuals it was 0,38 ± 0,75 ng/ml, $p < 0.05$. In patients with stage III COPD lipoxin level was higher than in patients with stage II - 1,75 ± 0,10 ng/ml vs 1,63 ± 0,08 ng/ml, which indicates an increase of inflammation severity in the progression of the disease. The correlation analysis showed a direct relationship of lipoxin A4 level and leukocytes (r=0,66), granulocytes in the peripheral blood (r=0,34), total cholesterol (r=0,40) and HDL cholesterol (r=0, 39), level of total protein (r=0,34), and its inverse relationship with 6MWT distance (r=-0, 41). All correlations were significant with $p < 0.05$. Thus we have shown the presence of active and intense persistent systemic inflammatory process in the patients with COPD, as evidenced by the level of lipoxin A4. Determination of lipoxin A4 in blood plasma of COPD patients may be one of the markers of systemic inflammation activity, and its normalization can be a promising area of rehabilitation of COPD patients.