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ESTIMATION OF THE INFLUENCE OF DIFFERENTIATED THERAPY ONTHE STATE OF EICOSANOIDS IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE COMBINED WITH CORONARY HEART DISEASE

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Topicality. Frequent combination of chronic obstructive pulmonary disease (COPD) and coronary heart disease (CHD) determines the relevance of further investigations of the general pathogenic mechanisms of their comorbidity and methods of effective correction of the revealed violations.

The aim of the work was to study the effectiveness of the complex treatment with the addition of omega-3 polyunsaturated fatty acids and L-arginine to the basic therapy on the content of eicosanoids - leukotriene B_4 (LTB_4) and thromboxane A_2 (TxA_2) (the stable metabolite B_2) in the blood serum of patients with COPD combined with CHD.

Material and methods. The study included 37 patients aged (54.6 ± 3.3) years with exacerbation of COPD (clinical group B, GOLD II) associated with CHD (stableangina, II functional class), which were divided into subgroups A and B depending on the content of treatment.

Medical therapy of patients in subgroup A consisted of the basic means according to the protocols for the treatment of both diseases; subgroup B patients additionally received omega-3 polyunsaturated fatty acids (PUFA) and L-arginine medications.

In all patients, in addition to routine examination, the levels of leukotriene B_4 and thromboxane A_2 (the stable metabolite B_2) were determined in the blood serum and urine by the immunoassay method with certified reagents in the dynamics of in- patient treatment.

Results. In patients with exacerbation of COPD associated with coronary artery disease, we registered the excess concentration of LTB_4 (subgroup A – 6678.0±375.4 pg/ml and subgroup B – 6659.2±388.4 pg/ml)and TxB_2 (subgroup A – 3382.3±290.8 pg/ml and subgroup B – 3356.4±328.2 pg/ml) in the blood serum by
20.3 and 22.1 times respectively ($p < 0.001$), compared with normal ranges (LTB_4 –

329.4±31.6 pg/ml, TxB_2 – 152.4±19.2 pg/ml).

Effect of complex treatment with the inclusion of omega-3 PUFAs and L- arginine to the basic therapy was realized in the more significant decrease in the blood serum concentration of both eicosanoids was achieved in comparing with usingonly the basic treatment. The content of TxB_2 in the serum decreased compared to theprevious in 2.7 times up to average level 1238.3 ± 126.3 pg/ml, while in subgroup A this decrease was less significant – in 1.7 times only. The concentration of TxB_2 in the serum of patients of subgroup B did not reach the norm and remained higher in almost 13 times ($p < 0.001$), although it was lower than the same indicator in subgroup A in 1.6 times ($p < 0.05$). The level of LTB_4 in the serum of patients of subgroup B decreased from baseline up to 1648.2 ± 168.3 pg/ml or in 4.0 times ($p < 0.001$) and remained almost in 5.0 times ($p<0,001$) higher than normal, but lower than similar in subgroup A, on average, in 1.4 times ($p < 0.05$). These effects were realized apparently due to the additional anti-inflammatory effect of omega-3 PUFA and L-arginine.

Conclusions. In patients with exacerbation of COPD associated with coronary heart disease, there is a significant increase in the concentration of LTB_4 and TxB_2 in the serum with the acceleration of their excretion with the urine.

Against the background of complex treatment with the inclusion of omega-3 PUFA and L-arginine in the basic therapy, a more significant decrease in the concentration of both eicosanoids in the serum of patients was achieved in comparingwith using only basic medications.

This may indicate a decrease in systemic inflammatory activity in such patients and could potentially reduce the likelihood of subsequent exacerbations and improve the prognosis for patients with this comorbidity.