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The significance of soluble molecules of cellular adhesion, nitric oxide metabolites, and endothelin-1 and their associations as markers of progression of inflammation in COPD

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Abstract

© 2017, Nizhny Novgorod State Medical Academy. All rights reserved. The aim of the investigation was to assess the significance of the content of metabolites of the nitric oxide, sICAM-1 and sICAM-3 in blood serum and in exhaled breath condensate, the serum level of endothelin-1 as systemic and topical markers of inflammation in patients with COPD, and their correlations with the parameters of lung ventilation function. Materials and methods. 91 patients with COPD, aged from 46 to 67, and 21 healthy, non-smoking volunteers took part in the study. The material for investigation was blood serum and exhaled breath condensate. Results. The severity of progression of COPD was linked with an increase in the serum content of sCD50, sCD54, ET-1, as well as in the concentrations of metabolites of nitric oxide in blood and in exhaled breath condensate. For the patients with COPD we determined the associations between the function of pulmonary ventilation and the levels of ET-1, sICAM-1, sICAM-3 and the value of ΣNO – 2 /NO – 3 . The resulting correlations between the concentration of soluble adhesion molecules, the values of nitrosative stress, and ET-1 level indicate that they are involved in the genesis of chronic inflammation in COPD patients.

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Keywords

Chronic obstructive pulmonary disease, COPD, Endothelin-1, ET-1, Exhaled breath condensate, Nitrosative stress, Soluble molecules of adhesion ICAM- 1 and ICAM-3

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