

STRUCTURAL AND FUNCTIONAL STATE OF BLOOD CELLS IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE, ASSOCIATED WITH ISCHEMIC HEART DISEASE

S.V. Shuper

Abstract

The aim of the study — to determine the structural and functional state of blood cells in patients with chronic obstructive pulmonary disease (COPD) associated with ischemic heart disease (IHD).

Material and methods. 92 patients ($54,4 \pm 3,1$ years old) with exacerbation of COPD (clinical group B, GOLD II), combined with IHD, stable angina pectoris FC II were allocated to the main group. 38 patients with COPD without IHD were distributed to the 1st group, 32 patients with IHD without COPD — to the 2nd group. The mean volume of erythrocytes, platelets, platelets volume distribution, the ratio of the large platelets number to the total platelet count, the functional activity of monocytes by their phagocytic index and number, the erythrocyte sorption capacity, spontaneous and ADP-induced platelet aggregation capacity were determined.

Results. In patients from the 1st group, significant changes in the structure and function of blood cells were the most prominent. The changes of erythrocytes were characterized by significant increase in the sorption capacity of their membranes compared to patients with COPD without IHD and IHD without COPD. In 1st group patients there were elevation of platelets size, the number of large platelets, PDW and P-LCR. Changes in the platelet structure were accompanied by an increased spontaneous and ADP-induced aggregation capacity, the most significant in patients from the 1st group.

Conclusions. Changes of platelets structure and function, along with increased erythrocyte membranes sorption capacity, are important prerequisites for the onset of hyper-aggregation syndrome in the association of COPD and IHD. The phagocytic activity of monocytes in patients from the 1st group, as well as in patients with COPD, significantly increased with the absence of such changes in patients with IHD. The structural and functional changes of blood cells can serve as a predictor for the progression of COPD associated with IHD.

Key words: COPD, IHD, erythrocytes, platelets, monocytes, structure and function.

Ukr. Pulmonol. J. 2018; 2:25–30.

Serhii V. Shuper

Yurii Fedkovich Chernivtsi National University

Department of physical rehabilitation and ergotherapy

Assistant of the Department, PhD

2, Kotsubinskogo str, Chernivtsi, 58012

Tel.: +38 095 103 26 27
