

THE USE OF LEUKOCYTE INDICES IN IMMUNOLOGICAL EVALUATION OF INFLAMMATORY ACTIVITY IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

E.M. Rekalova, O.R. Panasyukova, N.G. Koval

Abstract

Goal to determinate of informativeness content of leukocyte indices for evaluating the immunological activity of the inflammatory process in patients with chronic obstructive pulmonary disease (COPD) in remission using a hematology analyzer middle-class standards.

Materials and methods. The clinical and hematological examination was conducted in 58 patients with chronic obstructive pulmonary disease in remission stages and 17 blood donors with an automated count in venous blood number of leukocytes, absolute and relative number of lymphocytes, monocytes, granulocytes and based on this was calculated of leukocyte indices inflammatory activity: shift index of leukocytes (ISLK), modified Krebs index (IKm), lymphocyte granulocyte-index (ILG), index of ratio leukocyte and erythrocyte sedimentation rate (LESRRRI).

Results. In patients with COPD in remission found a significant increase of ISLK, IKm and LESRRRI ($p < 0.05$) – reflecting the activity of chronic inflammation. The LESRRRI has been increasingly reduced in 24% of patients ($p < 0.05$), and reflect a suppression of activity of white blood cells in the background of an ongoing inflammatory reaction. In 38 patients with severe course of COPD the ISLK was higher ($2,71 \pm 0,21$) c. u. than in 20 patients with mild and moderate COPD ($2,17 \pm 0,14$) c. u., $p < 0.05$; while higher value of ISLK determined in clinical group C (functionally severe pulmonary disorders, rare exacerbation of COPD) compared with group B (no severe pulmonary disorders, frequent exacerbations of COPD).

Conclusions. Calculation of leukocyte indices on the basis of total automated analysis of blood allows estimating the severity of inflammatory activity in patients with COPD in a phase of remission. Informativeness of the used leukocyte indices is approximately the same when assessing the inflammatory process and granulocytes activity in the dynamics of the immune response. Increasing the values of ISLK and IKm shows the activity of chronic inflammation and activation of granulocytes, and rising ISLK can also serve as an indirect measure of the functional severity of pulmonary disorders in COPD. Reducing the value of the index ratio of leukocytes and ESR below the reference values ($0.86-2.26$ c. u.) indicates the activity inflammatory due to lower activity of white blood cells in patients with chronic obstructive pulmonary disease in remission.

Key words: chronic obstructive pulmonary disease, leukocyte index, inflammation.

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E.M. Rekalova, Doctor of medical science

SO «National Institute of phthysiology and pulmonology named after F.H. Yanovskyi NAMS of Ukraine»

Amosova st., 10, Kyiv, Ukraine, 03680; tel.: +38 (044) 275-42-22; +38 (066) 138-61-49; e-mail: pulmonol@ifp.kiev.ua