

NEUTROPHILS TO LYMPHOCYTES RATIO IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE: CLINICAL SIGNIFICANCE

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Abstract

The diagnostic and prognostic value of the neutrophils to lymphocytes ratio (NLR) is under study in many diseases, including chronic obstructive pulmonary disease (COPD).

Aim: to evaluate the NLR levels and some related inflammatory, endogenous intoxication, immune system activity factors in COPD patients.

Methods: in 145 hospital patients with exacerbation of COPD there was studied NLR and its correlation with inflammatory, endogenous intoxication and immune system activity indices. Besides, in 417 hospital patients (anemia was diagnosed in 23,5 % of them) we conducted a retrospective analysis. Data were processed statistically, verified for distribution normality, presented as ($M \pm m$) under Gaussian distribution and as (median[lower;upper quartile]) for non-Gaussian; correlations estimated by Pearson (r) and Kendall (τ). Results were considered significant if p was below 0,05.

Results. The NLR level was significantly higher in patients with COPD exacerbation, than in healthy persons: $3,8[3,3;4,2]$ vs $1,9[1,5;2,2]$ and $3,32 \pm 0,14$ vs $1,80 \pm 0,46$ (both $p < 0,05$) and did not depend on patients' age, sex and body weight. Among the patients with COPD, the NLR was significantly higher in patients with anemia of chronic disease ($4,45 \pm 0,29$ vs $3,32 \pm 0,14$, $p < 0,05$) and with unfavorable adaptational reactions of distress. The NLR values correlated directly with tumor necrosis factor-alpha level, hematological indexes of inflammation and endogenous intoxication activity and correlated negatively with immune system activity indexes and index of adaptation. NLR level was elevated in patients with longer COPD history, presence of emphysema and restrictive lung function disorders.

Conclusions. The NLR is a simple informative indicator for inflammation activity, endogenous intoxication and the severity of restrictive lung function disorders in patients with COPD, which does not require extensive examination and may be recommended for practical use.

Key words: COPD, neutrophils to lymphocytes ratio, tumor necrosis factor alpha, inflammation, distress.

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