

Changes in integral hematological indices in patients with pulmonary tuberculosis after a coronavirus infection under the conditions of chronic stress caused by martial law

Yu.O. Matviienko, O.M. Rekalova, V.M. Zhadan, S.H. Yasyr, A.V. Taranenko, M.P. Budyonna

SI “National Scientific Center of Phthisiology, Pulmonology and Allergology named after F.G. Yanovsky of the NAMS of Ukraine”, Kyiv, Ukraine

Conflict of interest: none

OBJECTIVE. To study the diagnostic capabilities of integral hematological indices (IHI) in drug-sensitive tuberculosis (DSTB) after a previous coronavirus disease (COVID-19) under the influence of chronic stress caused by martial law.

MATERIALS AND METHODS. A retrospective analysis of the results of the examination of 66 patients with DSTB was conducted. All patients underwent a clinical and laboratory examination using standard methods and IHI was calculated using established formulas.

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RESULTS. The IHI changes were greatest in DSTB patients who did not have COVID-19. Prior COVID-19 resulted in decrease in the number of leukocytes (lymphocytes and granulocytes) and erythrocytes and changes in IHI associated with them. In patients who had COVID-19 against the background of martial law, the difference in the studied indicators indicated an even greater violation of immunological reactivity, mainly according to the $IAI_{sum.}$ and $II\ IA_{sum.}$ indices.

CONCLUSIONS. A comparative analysis of the calculated IHI showed that a more pronounced systemic inflammatory response in the form of tension of the nonspecific link of immunity (prevalence of granulocytes – increased RI_{GM}) with a predominance of its effector link (increased RI_{LM} due to lymphocytosis) is determined in patients with DSTB who did not have COVID-19. The transferred COVID-19 contributed to the suppression of the immunological response in patients with DSTB (increased LSI with the prevalence of granulocytes and a suppression of the lymphocytic-monocytic cell lineage). In patients who have had COVID-19 against the background of martial law, a deepening of immunological reactivity disorders (increased $IAI_{sum.}$ and $II\ IA_{sum.}$) with subsequent a strain on the nonspecific arm of the immune system (increased RI_{GM} , decreased RI_{LG}), increased reactivity of the microphage system (increased RI_{GM}), was determined. The highest diagnostic value according to the Youden index compared to other IHI have the $IAI_{sum.}$ and $II\ IA_{sum.}$.

KEY WORDS: integral hematological indices, COVID-19, drug-sensitive tuberculosis, stress, martial law.