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MEDICAL SCIENCES

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VALUE OF CLINICAL BLOOD ANALYSIS INDICATORS OF PATIENTS WITH COVID-19 INFECTION

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Introduction. Emerging in late 2019, the coronavirus disease (COVID-19) has quickly become global with extraordinary rates of morbidity and mortality. The World Health Organization defines COVID-19 as a severe acute respiratory syndrome caused by coronavirus type 2 (SARS-CoV-2). This is the third zoonotic coronavirus that has caused an epidemic in recent years. Bats can be considered the primary reservoir of infection, as the virus isolated from them has a high affinity to SARS-CoV-2. This type of coronavirus primarily affects the epithelium of the respiratory tract, entering the cells through interaction with the receptors of the angiotensin 2-converting enzyme.

The purpose of the work: to determine the peculiarities of the response of indicators of clinical blood analysis of patients in response to infection with COVID-19.

Materials and methods: The study was conducted at the Department of Infectious and Children's Infectious Diseases, Parasitology, Phthisiology and Pulmonology of the Kharkiv National Medical University and on the basis of the communal non-commercial enterprise (KNE) "Kharkiv Regional Infectious Hospital" of the Kharkiv City Council (KhCC) in the period 2020–2024. The necessary list of laboratory and instrumental methods was carried out on the basis of the KNE "Kharkiv Regional Infectious Disease Hospital" and on the basis of the laboratory

complex of the Kharkiv Regional Blood Service Center and the "Analytika" medical laboratory. The research was conducted in accordance with existing international and domestic bioethical norms and rules. Were examined 179 patients with coronavirus infection COVID-19 (according to ICD XI revision - code RA01.0 "COVID-19 identified") 20-88 years old, who were treated on the basis of KNE "Kharkiv Regional Infectious Disease Hospital" of KhCC in the period 2020-2021 (main group). Were examined and 42 people of the control group (practically healthy people who are blood donors), randomized by age and sex.

Results and discussion. According to the obtained results, a decrease in the average levels of the quantitative composition of erythrocytes (the levels of which were still within the physiological norm), hemoglobin indicators (the lower limits of the reference values were noted), hematocrit (the lower limits of the norm), leukocytosis, significant neutrophilia and lymphocytosis and monocytosis and significant excesses of erythrocyte sedimentation rate indicators. These features confirm the presence of a significant inflammatory reaction in response to infection with COVID-19 and indicate likely high discrepancies with the indicators of the control group, which were within the normative limits. So, probably, the values of clinical blood analysis among patients and persons of the control group were: respectively, erythrocytes – 4.38 ± 0.65 and 4.94 ± 0.52 $x10^{12}$/l ($p < 0.001$), hemoglobin – 127.6 ± 21,2 and 136.5 ± 11.8 g/l ($p = 0.009$), hematocrit – 0.37 ± 0.07 and 0.43 ± 0.03 ($p < 0.001$), leukocytes – 10.7 ± 7.32 and 5.9 ± 1.2 $x10^{9}$/l ($p < 0.001$), segmented neutrophils – 65.4 ± 14.8 and 78.5 ± 3.9% ($p< 0.001$), rod-nucleated neutrophils (unlikely) – 9 .03 ± 9.99 and 7.23 ± 2.87% ($p=0.252$), platelets – 226.1 ± 90.6 and 270.9 ± 26.5 $x10^{9}$/l ($p < 0.001$), lymphocytes – 20.24 ± 12.43 and 7.90 ± 2.4% ($p < 0.001$), monocytes – 6.60 ± 4.37 and 5.14±1.9% ($p = 0.036$) and the rate of erythrocyte sedimentation – 25.4 ± 14.9 and 2.50 ± 1.44 mm/h ($p < 0.001$).

Conclusions. Thus, it was determined that the infection of COVID-19 is accompanied by significant disorders of the indicators of clinical blood analysis of patients.