LEUKOGRAM OF EMPLOYEES OF THE STATE FIRE AND RESCUE SQUAD DURING THE COVID-19 PANDEMIC

Occupational diseases are the cause of reduced work capacity and job loss in many industries [1]. For firefighters, professional risks are often combined with a strong emotional load, which causes a stressful effect [2]. A recognized stressor is physical activity [3], firefighters must constantly maintain proper physical shape, their professional activities are characterized by regular training, enhanced physical activity accompany the performance of direct duties. In recent years, the COVID-19 pandemic has become an additional stress factor for the population [4]. According to the data of medical institutions, during this period the proportion of stress-induced depressive conditions increased significantly [2]. Accordingly, there is a risk of developing distress with negative health consequences. One of the leading biomarkers of stress load intensity is the immune system indicators, which simultaneously determine the health status of an individual [5].

We analyzed the indicators of the leukocyte formula and ESR in male employees of the state fire and rescue team who underwent professional examinations on the basis of the Municipal Non-Profit Enterprise "Cherkasy Central District Hospital" of the Krasnoslobodsky Village Council. Surveys were conducted in 2018 (benchmarks), 2020 and 2021 (pandemic period).

It was established that in 2018 the indicators of the leukocyte count and ESR of the examined were within the recommended homeostatic norm. In 2020, there was a statistically significant increase in the relative number of monocytes and erythrocyte sedimentation rate. The relative number of monocytes reached the upper limit of normal. In 2021, there was a statistically significant decrease in the relative number of monocytes and a trend towards a decrease in the erythrocyte sedimentation rate. The trend revealed in 2020 may be a sign of the mobilization of pro-inflammatory factors initiated by macrophages. Monocytes are precursors of macrophages. The dysregulated response of macrophages is often the result of severe viral infections, in particular, SARS-CoV [6]. Typical signs of a stressful situation characterized by a change in the ratio of lymphocytes and neutrophils [7] were not found.
The data obtained indicate that the employees of the State Fire and Rescue Squad are quite resistant to stress factors, the revealed changes in the leukogram are, apparently, the consequences of previous viral diseases. In 2021, pro-inflammatory factors return to normal values. Ukraine, guided by the recommendations of the WHO, complies with the European principles of health policy, analyzes the experience of other countries to improve working conditions in enterprises with harmful production factors [8]. The labor protection service of the state fire and rescue squad works at the proper level.

References: