



the driving factors that nowadays are relevant in Ukraine, and finally to launch a mechanism to reduce the incidence of active tuberculosis infection everywhere among children of all ages.

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PECULARITIES OF COMBINED EFFECT OF CHEMICAL AND PHYSICAL FACTORS ON PLASMA LIPID SPECTRUM OF RATS

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Introduction. The influence of modern production conditions, in particular, within machine-building industry, on occupational health has not been sufficiently studied. Thus there is high demand to evaluate the response of the organism to combined effect of industrial factors such as lubricating-cooling liquids (LCL) and electromagnetic radiation (EMR) which may lead to stress-condition. Atherosclerosis and cardiovascular diseases are the most common manifestations; therefore the change of plasma lipid spectrum should be carefully studied. Aim. Assess changes in lipid spectrum of blood serum under the combined effect of LCL "Typol" and EMR on laboratory animals via experiment.

Materials and methods. The experiment was conducted for 30 days on mature male rats divided into 4 groups: 1st – exposed to the LCL "Typol" (5000 mg/kg); 2nd - exposed to combined action of EMR (frequency 70 kHz, voltage 600 V/m) and LCL; group No.3 and No.4 – control samples (to 1st and 2nd groups respectively). Lipid spectrum was evaluated according to the content of total cholesterol, triglycerides, high, low and very low density lipoproteins (TC, TG, HDL, LDL, VLDL, respectively). Atherogenic index (AI) was also calculated. Biomaterial was gathered on the 5th, 15th, 30th days of the experiment. The statistical analysis was carried out via Student's t-test, $P < 0.05$.

Results. Group No.1 had no significant changes in lipid metabolism compared to control. However, an increase in TC, TG, LDL, VLDL and reduction of HDL were noted. By contrast, values of lipid profile in group No.2 were significantly changed. A verisimilar increase in TC content was revealed: from 1.70 ± 0.06 mmol/L on the 5th day - up to 2.83 ± 0.15 mmol/L on the 30th day; TG from 0.69 ± 0.3 mmol/L on the 5th day - up to 0.78 mmol/L on the 15th day and 0.76 mmol/L on the 30th day; LDL values increased from $2,16 \pm 0,06$ mmol/L on the 5th and 15th day up to $2,24 \pm 0,15$ mmol/L on the 30th day; VLDL – high on the 15th day: 0.16 ± 0.10 mmol/L, on the 30th day – 0.15 ± 0.01 mmol/L; AI had a maximum value – up to $5,79 \pm 0,35$ SU – on the 5th day, AI stayed at the level of 5.54 ± 0.45 SU on the 30th day. The HDL level significantly decreased, had value of 0.40 ± 0.01 mmol/L on the 5th day, 0.45 ± 0.01 mmol/L on the 15th day and 0.44 ± 0.02 mmol/L on the 30th day. From our point of view, such a pattern may be explained as an effect of trigger properties of the EMR and LCL leading to atherogenesis.



Conclusion. Changes of lipid spectrum in both experimental groups were characterized by increased levels of TC, TG, LDL, VLDL, HDL and AI. According to the study, the changes were more significant in the group exposed to combined effect. Such alterations strongly denote the negative influence of EMR combined with LCL on lipid metabolism in the body.