



EFFECT OF ETHYLTHIOSULFANYLATE ON HEMATOLOGICAL INDICATORS IN BLOOD OF RATS UNDER THE TOXIC EFFECT OF CHROMIUM (VI)

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Introduction

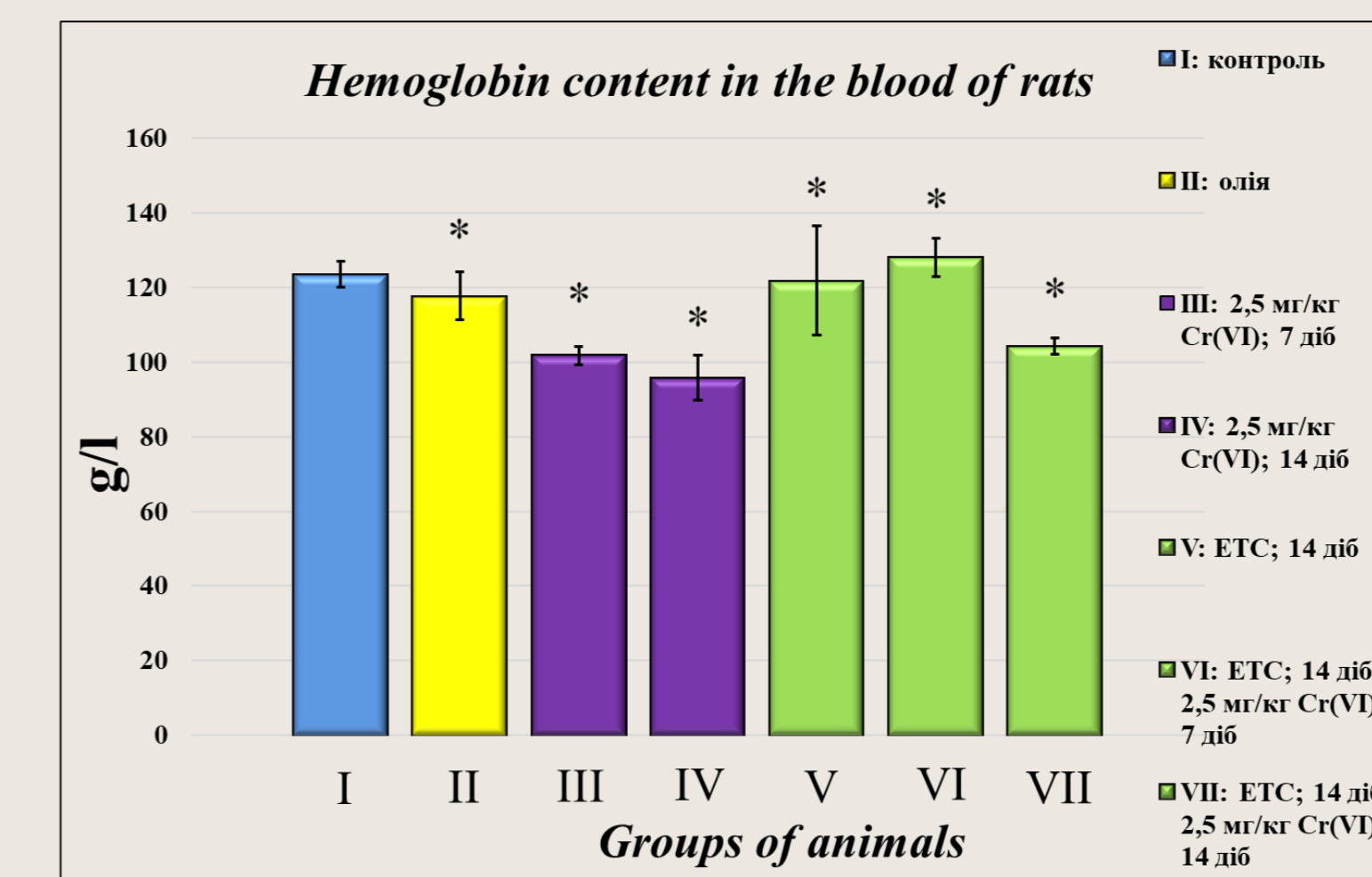
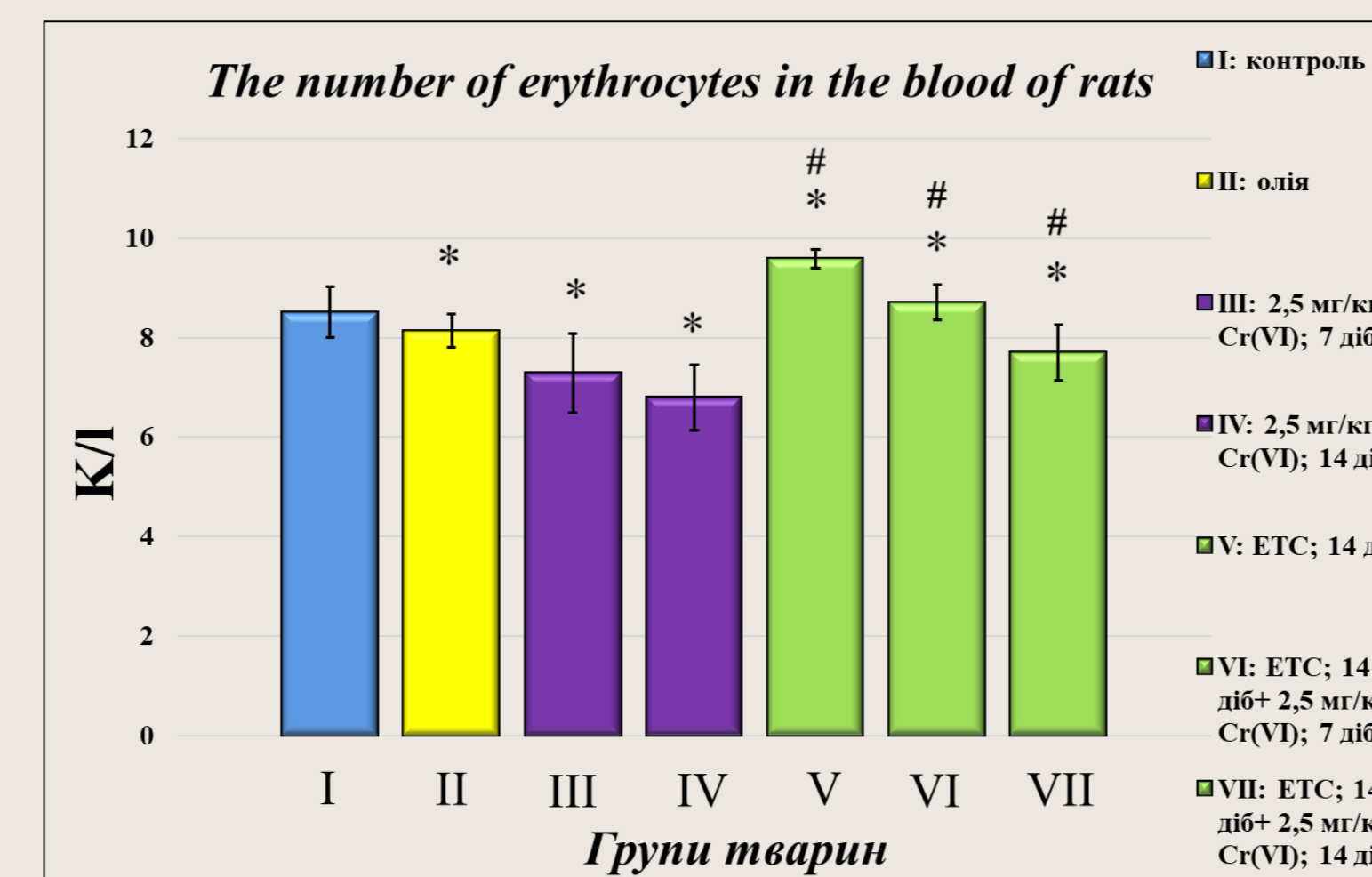
Cr(VI) is a toxic heavy metal, which can easily transport to the cytoplasm of the cells through the anionic channels in the plasma membranes. Cr(VI) generates reactive oxygen species (ROS) leading to oxidative damage of cell macromolecules and components. Cr(VI) action adversely affects erythropoiesis, respiratory function of the blood and puts a burden on the immune system. Therefore, the aim of our study was to investigate the influence of ethylthiosulfanylate on some hematological parameters of rats exposed to Cr(VI).

Material & Methods

White male Wistar laboratory rats were divided into 7 groups. Animals of group I were intraperitoneally injected with 150 μ l of physiological solution daily for 14 days. Rats II group received intragastric injection of 1 ml of oil daily for 14 days. Animals of groups III, IV, VI and VII were intraperitoneally administered daily $K_2Cr_2O_7$ in a dose of 2.5 mg Cr(VI) / kg body weight, for 7 (III, VI group) and 14 days (groups IV and VII). Rats of groups V, VI and VII were intragastrically injected with ethylthiosulfanylate oily solution at a rate of 100 mg/kg of body weight daily for 14 days. The number of erythrocytes and leukocytes were counted in the blood of rats. The level of hemoglobin was also measured. All calculations were performed mathematically and statistically (one-way ANOVA) using Microsoft Excel software.

Results

The number of erythrocytes decreased in blood of rats of groups III and IV relative to the group I by 17 and 25%, respectively. However, increasing of red blood cell count was observed in blood of animals of V and VI groups compared to the group II by 18 and 7%, respectively. The level of erythrocytes was slightly decreased (by 6%) in blood of rats of group VII relative to the group II. We observed only a tendency to increasing of number of leukocytes in blood of animals of all experimental groups, but no statistically significant differences were observed between the groups. The level of hemoglobin was decreased in blood of rats of groups III and IV relative to the group I by 22 and 29%, respectively.



Conclusions

Therefore, Cr(VI)-induced toxicity leads to the decrease of hemoglobin content and erythrocyte number in blood of rats. However, ethylthiosulfanylate action induces increase of red blood cell count and attenuates Cr(VI)-induced decrease of erythrocyte level. The changes of hemoglobin content and erythrocyte number were within the physiological norm in all experimental groups.