THE EFFECTS OF NEW SELENIUM COMPOUNDS ON SOME PERIPHERAL BLOOD INDICATORS OF RABBITS IN LEAD INTOXICATION

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Abstract: The aim of this project is to study the effects of new synthetic selenium compounds on the quantitative content of erythrocytes, reticulocytes and hemoglobin in the peripheral blood while acute lead intoxication (BID) and the comparative evaluation of the best therapeutic effect of a well-known drug with inorganic selenium - sodium selenite and selenium compounds. Exploring selenium preparations. Exploring selenium preparations - 1,2,5-trimethyl-4,4-di (butilseleno) piperidine (BSP) (2,3-diazo-1-seleno) -1,2,3-trimethylpiperidine-3-ene (DSP-2) and piperidine (dibusilseleno) selenophosphate (PSP) were synthesized in the laboratory of physiologically active compounds of the Institute of Chemical Sciences of the Republic of Kazakhstan. Determination of acute toxicity (LD50) of newly synthesized organ selenium compounds were performed on white mice weighing 20-22g according to Kerber’s method, representing ± 12mg/kg 160mg/kg, 280mg/kg and 300mg/kg ± 21mg/kg ± 25mg/kg respectively. The acute intoxication with lead was modeled by intragastric administration of an aqueous solution of lead acetate in dosage of 120mg/kg body weight. The samples of peripheral blood of animals were carried out on the 4th, 7th and 14th day from the beginning of poisoning with lead acetate and using a treatment with selenium preparations. The administration of selenium preparations in case of acute lead intoxication significantly improves the studied indicators of red blood cells, starting from the 7th day of treatment. Toxic hepatitis of lead genesis was successfully treated by selenium preparations, all used drugs significantly reduced hemoglobin content during all periods of the study. The ultimate reduction of reticulocytes and basophilic stippling erythrocytes was observed in the case of using PSP, with constitution 27% and 66%, respectively. In comparative study among selenium preparations, which based on the effect of normalization of ESR, we can note a slight advantage of PSP. According to the results of our research, we can conclude that organic selenium preparations normalize red blood indicators, enhances erythropoiesis, reduced hemoglobin, decrease reticulocytosis and basophilic stippling of red blood cells on in case of acute lead intoxication. All these and other data about selenium preparations justify the relevance of further deep pharmacological studies about the usage in clinical practice for the prevention and treatment of toxic lesions, chemical and industrial poisoning of human body.

Keywords: Selenium, synthesis, organ selenium compounds, lead intoxication, erythrocytes, hemoglobin.