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THE EFFECT OF VANADIUM CITRATE ON THE BIOCHEMICAL PARAMETERS OF THE BLOOD PLASMA OF PREGNANT FEMALE RATS

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Introduction. Pregnancy is accompanied by significant changes in biochemical parameters, which causes metabolism intensification, accelerated excretion of substances and microelements. It is known about the normalizing effect of some vanadium compounds on metabolic processes in the body during pregnancy.

The purpose of our research was to find out the effect of the organic compound of vanadium citrate on the activity of aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (AP), urea and creatinine in pregnant rats.

Methods. The research was conducted on female white laboratory rats with the body weight of 140-160 g, which were divided into five groups: I group – control, II, III, IV, V – experimental. I group – non-pregnant females, II – pregnant females (consumed pure water), III, IV, V – pregnant females, which during the period of mating and pregnancy received vanadium citrate solution in concentrations of 0.03, 0.125 and 0.5 µg V/ml of water. The study material was blood plasma of rats, in which the activity of AST, ALT, AP, urea and creatinine (on the biochemical analyzer Humalyzer 2000, Germany) was determined.

Results. The authors have concluded that the activity of AST, ALT and creatinine level decreased, while the activity of AP and urea level increased as compared to the control.

Under the conditions of watering vanadium, the rats of III, IV and V experimental groups ex-

perienced the increase in the activity of AST, ALT, urea and creatinine levels, while the AP activity decreased (unless V group) as compared to pregnant females of II group, which didn't consume vanadium citrate.

Discussion. Investigating the activity of AST and ALT in pregnant rats enables to detect possible heart and liver complications. The decrease in AST activity may be caused by a lowered level of vitamin B₆ in pregnant animals. The increase in AP activity at the end of pregnancy might be due to the restructuring of life-support systems, include bone tissue growth and placenta development. The increase in the urea level in blood plasma of pregnant females is due to renal function changes caused by the increase in the urine formation and its excretion, whereas the decrease in creatinine level is caused by its excessive excretion with the urine.

It is known that vanadium has a hepatoprotective effect, which causes stabilization of AST and ALT activity, normalization of creatinine level.

Conclusions. Rats that received vanadium citrate showed the approximation of the activity of AST, ALT, AP, creatinine level to the control group, but the urea level increased as compared to II group, which indicates the normalizing effect of this compound on some biochemical parameters in pregnant females.

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