

THE EFFECT OF VANADIUM CITRATE ON PLATELET CHARACTERISTICS IN MALE AND FEMALE RATS

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Introduction

According to the study by D. Del Principe, the frequency of thrombotic complications is characterized by gender disparities. In particular, females are less likely to have a platelet dysfunction. According to the studies of other authors, the effect of estrogen and its receptors on thrombogenesis, in particular the differentiation of megakaryocytes, and even directly on the integrity and function of the PLT, is shown. Given the absence of a nucleus, the susceptibility of PLT to such influences is significant and, apparently, is due to the non-nuclear function of estrogen receptors.

Material & Methods

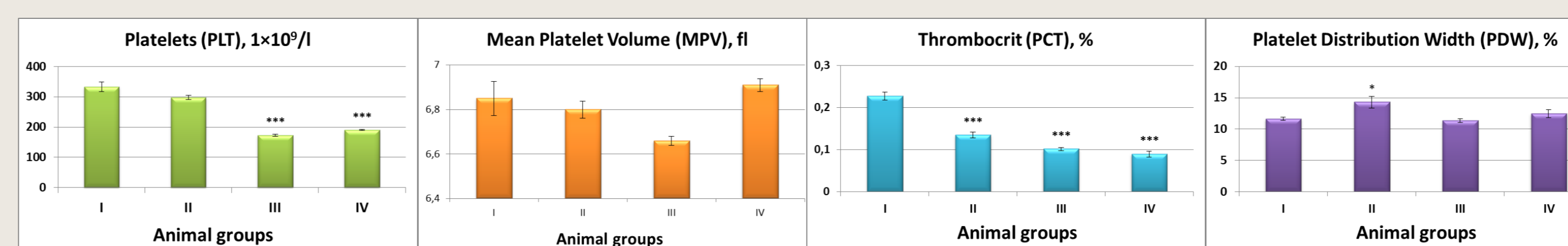
Female rats during pregnancy and their offspring before puberty (36-37 days) were fed the solution of vanadium citrate at concentrations of 0.03 (group II), 0.125 (group III) and 0.5 µg V/ml (group IV). The offspring of females that did not consume the solution of vanadium citrate were considered control (group I). The material for the study was whole blood of female and male rats, in which PLT, PDW, PCT and MPV were determined on a hematology analyzer (Orphèe Mythic 18, Switzerland).

Results

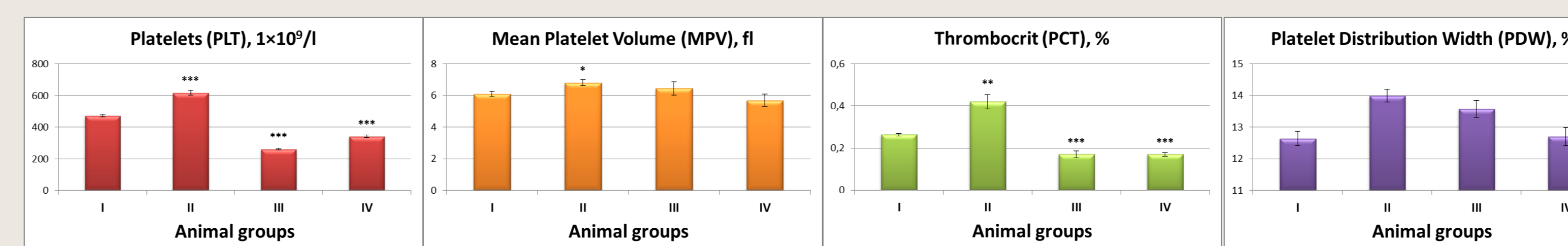
As a result of the research, in female and male rats that consumed solutions of vanadium citrate, a decrease in PLT was found in groups III and IV, in particular, in females by 48.05 and 42.94%, respectively, and in males - by 55.04 and 72, 46%, respectively, as compared with the control. This is possibly due to the inhibitory effect of vanadium citrate on thrombogenesis. PCT in females decreased in all three study groups: in II - by 40.79, III - by 55.26 and IV - 60.53%, as compared with group I. A decrease in PCT correlates with a decrease in platelet count. PDW increased in group II by 22.75%, as compared with control females, which is due to the increase in the number of young platelets under the effect of vanadium citrate at a concentration of 0.03 µg/ml.

MPV in group II males increased by 11.47%, as compared with the control, which indicates an increase in the number of young platelets and their increased formation. The value of PCT increased in males of group II by 59.1%, but decreased by 36.6% in groups III and IV, as compared with the control.

Platelets and another their characteristics in female rats



Platelets and another their characteristics in female rats



Conclusions

According to the results of the study, there are a stimulating effect of vanadium citrate on thrombogenesis in females and males at a concentration of 0.03 (group II), but the inhibitory effect is observed at concentrations of 0.125 (group III) and 0.5 µg V/ml (group IV).