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THE ANALYSIS OF MODIFYING EFFECT OF GOLD, SILVER AND IRON CITRATES ON EMBRYOTOXICITY OF LEAD ACETATE IN EXPERIMENT

The study was performed according to the agreement on scientific cooperation between Bogomolets National Medical University, Research Institute of nanobiotechnology and resources of Ukraine and State institution “Dnipropetrovsk medical academy of the Ministry of Health of Ukraine” as a part of research work “Development and morphofunctional status of organs and tissues of experimental animals and humans in norm, in ontogenesis, under the influence of external factors” (state registration number 0111U009598).

ABSTRACT. Background. Metals and their nanoforms are widely used in modern medicine and veterinary as antimicrobial bandage and films in surgery (silver) and also as an agent for targeted delivery of medicines in oncology (gold). At the same time their impact on embryogenesis and reproductive system is still poorly understood. **Objective.** The purpose of this experimental work was to investigate the possible modification effect of iron, gold and silver citrates on toxicity of low doses of lead acetate on reproductive function and embryogenesis of rats. **Methods.** 40 female rats were subdivided into 5 groups: 1st – administration of lead acetate; 2nd – lead acetate + gold citrate; 3rd – lead acetate + silver citrate; 4th – lead acetate + iron citrate; 5th – control. Solutions were administered to pregnant rats through a catheter once a day, daily from the 1st to the 19th days of pregnancy. **Results.** Introduction of ultra-low doses of lead acetate to pregnant female rats caused embryotoxicity; it resulted in significant decrease in the number of alive fetuses (17%) and corpora lutea in ovaries. The combined administration of low doses of lead acetate + metal citrates resulted in the increased number of corpora lutea of pregnancy and percentage of alive fetuses, due to a decrease in general and pre-implantation embryonic mortality compared with the 1st experimental group at almost the same weight of fetuses. **Conclusion.** Results of the experiment have shown that the administration of gold, iron and silver citrates in combination with lead acetate prevents the negative impact of the latter on the reproductive system and on the processes of embryonic development.

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