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Chemical composition changes of immature rats testis under increased receipts of heavy metals salts

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Introduction: One reason for the prevalence of infertility in men is high sensitivity of the male reproductive system to adverse exogenous and endogenous factors in the prenatal and early postnatal periods. One of the most common and dangerous pollutants for the reproductive system is the heavy metals compounds (HMC), which have both direct and indirect effects on the development of reproductive system.

Aim: To investigate the intensity of accumulation of zinc, copper, lead, manganese, chromium and iron in tissues and structures of immature rat testes under their alimentary intake and under conditions of L-carnitine correction.

Material and Methods: The survey was conducted on 128 white lab immature male rats. The tissue of testes was studied by methods of histology, scanning electron microscopy, atomic absorption spectroscopy (AAS)

Results: Using spectrophotometry in atomic absorption mode, it is found out that the level of zinc is reduced, and the content of other analyzed trace elements increases. Accumulation of copper, iron, manganese, chromium and lead in testes tissue is mostly expressed in the period of 60 days; iron, lead and chromium show the largest organ tropism. The low rate of HMC accumulation in the testes of rats of breast and suckling age period is explained by the limited intake of xenobiotics via maternal milk. Loss of zinc by testis tissue is caused by antagonistic interactions between chemical elements that come into the body of

rats in excessive quantities. Interaction of chemical elements at different levels can lead to secondary violations of chemical and structural homeostasis of the organ, causing further inhibition of its function.

Conclusion: The results of chemical analysis of immature animals' testes, obtained by SEM, indicate the dependence of accumulation of microelements of heavy metals from the morphofunctional activity of the histological structure of the studied organ. Heavy metals mainly accumulate in a functionally active spermatogenic epithelium.

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