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**ELECTRON MICROSCOPIC CHANGES IN THE HEMATOTESTICULAR
BARRIER OF THE TESTES RATS AFTER IRRADIATION WITH THEIR
ELECTROMAGNETIC FIELD**

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Annotation. In this research, the author identified electron microscopic changes that appear in the testicles of rats after action electromagnetic field (EMF), the appearance of these changes by the disorders in the system microcirculation of the testicles of rats. The results of the study can be extrapolated per person, taking to attention the lower resistance of the person's testicles to action damaging factors of the environment.

Keywords: testicle, microcircular bed, electromagnetic field, rats.

Introduction. Electromagnetic field (EMF) as a harmful factor the environment occupies one of the leading places in human action and animals [1, p.10]. Effect of this factor on human and animal systems and organs is not well defined yet. In particular, questions remain unresolved effects of EMF on mammalian organs [2, p. 150].

Purpose of the research. To determine the morphological changes in the hematotesticular barrier of the testicles of rats after irradiation with industrial ones electromagnetic field.

Materials and methods of research. Wistar's Laboratory Rats 40 animals were exposed to a 750 kV electromagnetic field in the frequency range of 50 Hz and voltage 10 kV/m. The control group was consisted of 5 rats. After the experiment and

histological processing the testicular tissue was studied on an electron microscope Sumy EM-125 Electron Production Association (Ukraine).

Research results. In the venular branch of the vascular system of the testicles first come the phenomena of the blood vessels, the swelling of the endothelial cells, which narrow the lumen of the microvasculature and interfere with the movement of blood, which increases stasis and promotes blood clotting and obliteration. Swelling of the vessel wall replaced by focal hyalinosis and sclerosis.

The walls become of uneven thickness, the areas of thinning alternate with compacted sclerosed areas, resulting in increased blood vessels. There is polymorphism of the endothelial cells – the light and dark endothelial cells are in the vessels. Changes occurring in the vessels of the venular unit, are explained by the absence in these vessels of myoid cells. These changes affect on the structure of its own coiled tubule sheath and myoid cell layer, the surrounding tubules, which is a consistent continuation of the disruption of the structure hematotesticular barrier. Later, in Sertoli cells dystrophic processes begin, that cause disorientation progress of spermatogenesis cells, their contact with Sertoli cells break and their hypotrophy arises, and in the following - destruction and blocking spermatogenesis at different levels. Due to structural changes in the testicular vessels first perivascular and then peritubular fibrosis develops. Subsequently, in the interstitial tissue, predominantly in areas with cells fibrosis, thin fibers of connective tissue appear that turns into further into the fibrous connective tissue, collagen foci connective tissue, hyalinosis and sclerosis, appear. The transformation of connective tissue leads to increasing of modificational blood vessels that contribute to increased blood stagnation and deepen structural changes the walls of the vessels in which the sclerosis foci appear.

Due to changes in the structure of blood vessels and connective tissue, deformation and disorientation of Leydig cells begin. In the next stage, with the deepening of the vascular disorders, destruction of the cytoplasm and nuclei of Leydig cells develops.

Conclusions. The action of the electromagnetic field of high voltage and low frequency causes changes in the structures of the hematotesticular barrier of the

testicles of rats in the form of edematous phenomena in the venous link of the seminal glands.

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