

Assessment of the State of the Spermatogenic Epithelium in Rats at a Dose of 0.5 Gy After a Single External γ - Irradiation

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Opinion

In experiments, we studied the states of testicular morphology in rats at different times (3-10-40-60-90 days) after a single dose of 0.5 Gy (power 0.92 Gy/min, 137Cs source) external total-body γ -irradiation. Histological preparations were prepared, stained with hematoxylin-eosin and the number of transversely cut convoluted seminal tubules was calculated, the types of tubules were determined. According to the state of the spermatogenic epithelium, the convoluted seminal tubules were divided into five types, where destructive changes increase from type II to type IV. Convoluted tubules of normal structure were assigned to type I. Quantitative assessment of morphological changes in spermatogenesis was carried out in 100 transversely cut convoluted tubules. During the study it was shown that in the experimental (irradiated) groups there were significant changes in the state of the spermatogenic epithelium of the tubules of the testicles of rats, the change was detected not only by the ratio between the tubules and type I-IV, but also there was a significant decrease in the number of convoluted

tubules in them. An early sign of irradiation is morphological changes in the spermatogenic epithelium 72 hours after irradiation, so it was from the 3rd to the 10th day in the testes continued to maintain a decrease in the number of convoluted tubules in the field of vision compared to the control, and there were no convoluted tubules with a normal structure (type I). After 40 days, tubules of 4 types - I, II, III and IV - were found in sections of the testes of rats after irradiation, the number of tubules with normal structure, as well as with signs of mild spermatogenesis disorders, was reduced. After 2 to 3 months, the morphological picture changes dramatically. And although tubules of all types are present in the sections of the testes of rats of these groups, tubules of type V with incomplete spermatogenesis, but without signs of germ cell degeneration, can also serve as evidence of the beginning of recovery processes in the testes. The data obtained proved that the destabilization of most cells of the spermatogenic epithelium and as a result changes in the structure of the tubular apparatus of the gonads.



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