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MORPHOFUNCTIONAL FEATURES OF THE POSTNATAL DEVELOPMENT OF THE TESTES OF THE OFFSPRING OBTAINED UNDER CONDITIONS OF EXPERIMENTAL HYPOTHYROIDISM IN THE MOTHER

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Relevance

Currently, there is a steady increase in thyroid diseases. The research studies aimed at studying the pathology of the thyroid gland as well as the significance of hypothyroidism in pregnant women, since it is the cause of a violation of all metabolic processes not only in the mother's body, but also in her offspring. Hypothyroidism in the mother has a pathogenic effect on the formation of all organs and functional systems of the young body. One such system is the male reproductive system. Little attention is paid to its condition in hypothyroidism, and there is practically no data on the effect of mother's hypothyroidism on the formation and functioning of the male reproductive system in the offspring.

The purpose of the study is to identify the structural features of postnatal development and the formation of the testes of the offspring obtained under conditions of experimental hypothyroidism in the mother.

Material and methods. Experimental hypothyroidism in nulliparous rats of females weighing 150-180 g was modeled by administering per os mercazolil at a dose of 5 mg per 100 g of body weight for 21 days, then after pregnancy until the end of breastfeeding, they were given a maintenance dose of mercazolil at the rate of 2.5 mg per 100 g of body weight. The testes of the offspring were studied on the 60th day after birth. Morphological, morphometric, enzyme immunoassay, electron microscopic and statistical research methods were used.

Results and their analysis. It was revealed that experimental hypothyroidism of the mother negatively affects the formation of the testes of the offspring. All rats of the experimental groups showed a decrease in the level of free thyroxine (T4) and triiodothyronine (T3), with a moderate increase in the concentration of thyroid-stimulating hormone (TSH). There was also a decrease in the concentration of



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follicle-stimulating (FSH), luteinizing (LH) hormones and testosterone. Morphological studies have shown that maternal hypothyroidism affects the process of spermatogenesis in general and destructive changes in the cells of the seminiferous tubules and interstitial cells of Leydig in the offspring. Edema of interstitial tissue was observed, against the background of destructive changes and extrusion of spermatogenic epithelium cells, pronounced signs of spermatogenesis delay at the level of the stages of maturation and formation were found. Electron microscopic observations revealed destructive changes in most Leydig cells, in the form of local cytoplasm lysis, swelling and vacuolization of mitochondria, a decrease in the number and electron density of granules. Morphometric observations revealed a decrease in the number of tubules actively producing spermatozoa, the average diameter of convoluted tubules, the total number of spermatogenic cells, the number of sustentocytes and interstitial glandulocytes, a decrease in the index of spermatogenesis.

Conclusion. The disruption of intrauterine development in experimental hypothyroidism in the mother negatively affects the processes of formation of correlative relationships in the pituitary-thyroid-genital system of the fetus, which causes a delay in the structural and functional formation of the testes.

