STUDY OF FUNCTIONAL INDICATORS IN LABORATORY ANIMALS WITH INDUCED HYPERTIRHOSIS

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Annotation. Issues of experimental modeling of thyroid pathology in laboratory animals (hypothyroidism, hyperthyroidism, etc.) were considered, and an analysis of research works was conducted to study functional disorders from various body systems that occur under these experimental conditions. Today, among the most reliable and easily reproducible experimental models of thyroid pathologies, chemical models have found wide application. It has been shown that thyroid diseases alter the functional state of the body's immune, cardiovascular, nervous, and other systems.

Keywords: endocrine system, thyroid gland, experimental animals, hyperthyroidism.

Relevance. Studying functional indicators in laboratory animals with induced hyperthyroidism involves assessing various aspects related to excessive thyroid hormone production. This may include analysis of metabolism, cardiovascular, nervous systems, and other organs and systems.

Work objective - To study the functional changes observed in the pancreas as a result of experimental hyperthyroidism.

Material and methods. To achieve our goal, 27 white non-breed laboratory rats were obtained. 12 experimental animals constituted the control group, and 15 - the main group. The experiment was conducted on 12-week-old laboratory rats of female and male reproductive age, weighing 200-220 grams. In the rats included in the experimental group, a model of experimental hyperthyroidism was induced. From the experimental animals, 3 ml of blood was taken directly from the heart cavity under anesthesia for laboratory testing. The levels of thyroid hormones, pancreatic enzymes, and biochemical blood parameters were determined, and a complete blood count was conducted.

Research results. To determine the reactive changes in the functional state of the thyroid gland in experimental animals and the level of its influence on the secretory activity of the pancreas, a comparison of thyroid hormone levels in the blood of experimental animals in the control group and in animals with experimental thyrotoxicosis was conducted.

Comparative values of thyroid hormones in the blood serum of the control and experimental groups of rats.

Control group	**TTG**	**T4**	**T3**	**sv T4**	**cvT3**	**TG**
Men	0.28 IU/ML	182. Nmol/L	2.27 NG/ML	22.74 Pmol/L	6.87 Pmol/L	56.2 ng/ml
Women	0.23 IU/ML	183.3 Nmol/L	2.54 NG/ML	23.1 Pmol/L	6.93 Pmol/L	57.7 ng/ml
Experimental hyperthyroidism	**TTG**	**T4**	**T3**	**free T4.**	**free T3**	**TG**
Men	0.08 IU/ML	191.5 Nmol/L	2.76 NG/ML	26. Pmol/L	7.75 Pmol/L	64 NG/ML
Women	0.087 IU/ML	197.1 Nmol/L	3.23 NG/ML	29.4 Pmol/L	8.43 Pmol/L	69 NG/ML

Conclusion: Determining the reactive changes in the functional state of the thyroid gland in experimental animals and a comparative analysis of the amount of thyroid hormones in the blood of experimental animals showed a significant decrease in the amount of TSH to 3.5 times compared to the control group. The total amount of T4, T3, and free T4, T3, and TG hormones, on the contrary, was significantly elevated in the experimental group (induced thyrotoxicosis) compared to the control group. This indicates an increase in thyroid function in animals with induced hyperthyroidism.

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