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FUNCTIONS OF THE THYROID IN THE HUMAN BODY

Abstract: This article examines the function of the thyroid gland in the human body.

Key words: Thyroid gland, thyroxine, triiodothyronine, autoimmune process

ФУНКЦИИ ЩИТОВИДНОЙ ЖЕЛЕЗЫ В ОРГАНИЗМЕ ЧЕЛОВЕКА

Аннотация: В этой статье рассматриваются функции щитовидной железы в организме человека.

Ключевые слова: Щитовидная железа, тироксин, трийодтиронин, аутоиммунный процесс

The thyroid gland (Latin glandula thyr (e) oidea) is an endocrine gland in vertebrates that stores iodine and produces iodine-containing hormones (iodothyronines) involved in the regulation of metabolism and the growth of individual cells, as well as the body as a whole - thyroxine (tetraiodothyronine, T4) and triiodothyronine (T3). The synthesis of these hormones occurs in epithelial follicular cells called thyrocytes. Calcitonin, a peptide hormone, is also synthesized in the thyroid gland: in parafollicular or C-cells. It compensates for bone wear by incorporating calcium and phosphates into the bone tissue, and also inhibits the formation of osteoclasts, which, when activated, can lead to the destruction of bone tissue, and stimulates the functional activity and reproduction of osteoblasts. Thus, it participates in the regulation of the activity of these two types of formations, it is thanks to the hormone that new bone tissue is formed faster.

The thyroid gland is located in the neck, under the larynx, in front of the trachea. In humans, it has the shape of a butterfly and is located on the surface of the thyroid cartilage.

Diseases of the thyroid gland can occur against the background of unchanged, decreased (hypothyroidism) or increased (hyperthyroidism, thyrotoxicosis) endocrine function. Iodine deficiency found in certain areas can lead to the development of endemic goiter and even cretinism.

The thyroid gland consists of two lobes (lat.lobus dexter and lobus sinister), connected by a narrow isthmus (isthmus). This isthmus is located at the level of the second or third tracheal ring. The lateral lobes cover the trachea and are attached to it by connective tissue. The shape of the thyroid gland can be compared to the letter "H", with the lower horns short and wide, while the upper horns are tall, narrow and slightly diverging. Sometimes an additional (pyramidal) lobe of the thyroid gland is determined.

On average, the thyroid gland of an adult weighs 12-25 g and 2-3 g in a newborn. The dimensions of each lobe are 2.5-4 cm in length, 1.5-2 cm in width and 1-1.5 cm in thickness. A volume of up to 18 ml for women and up to 25 ml for men is considered normal. The weight and size of the thyroid gland is individual; thus, women may have slight deviations in volume due to the menstrual cycle. [1]

The thyroid gland is an endocrine gland, in the cells of which - thyrocytes - two hormones (thyroxine, triiodothyronine) are produced that control metabolism and energy, growth processes, maturation of tissues and organs. C-cells (parafollicular), belonging to the diffuse endocrine system, secrete calcitonin - one of the factors that regulate calcium metabolism in cells, a participant in the growth and development of the bone apparatus (along with other hormones). Both excessive (hyperthyroidism, thyrotoxicosis) and insufficient (hypothyroidism) functional activity of the thyroid gland is the cause of various diseases, some of which can cause side effects in the form of systemic

dystrophy or obesity. To diagnose disorders of the thyroid gland, the indicators of T3, T4, TSH and the autoimmune process are examined.

The blood supply to the gland is very abundant, it is carried out by two upper (lat.arteria thyroidea superior), extending from the external carotid artery (lat.arteria carotis externa), and two lower thyroid arteries (lat.arteria thyroidea inferior), extending from the thyroid-cervical trunk (lat. truncus thyrocervicalis) of the subclavian artery (lat.arteria subclavia). In animals, the upper thyroid arteries are called the cranial thyroid arteries (arteria thyroidea cranialis), and the lower ones are called the caudal thyroid arteries (lat.arteria thyroidea caudalis). Approximately 5% of people have an unpaired artery (Latin arteria thyroidea ima), extending directly from the aortic arch (it can also depart from the brachiocephalic trunk (Latin truncus brachiocephalicus), subclavian artery (Latin A. subclavia), as well as from the lower thyroid arteries (lat. A. thyroidea inferior). It enters the thyroid gland in the isthmus or the lower pole of the gland. Thyroid tissue is also supplied with blood by the small arterial branches of the anterior and lateral surfaces of the trachea. All small branches of the thyroid arteries are intertwined inside the organ. blood will give nourishment and oxygen to the tissues of the thyroid gland, it, taking carbon dioxide, hormones and other metabolites, is collected in small veins that are woven under the capsule of the thyroid gland. Thus, venous outflow is carried out through the unpaired thyroid plexus (Latin plexus thyroideus impar), which opens into the brachiocephalic veins (Latin vena brachiocephalica) through the lower thyroid veins (Latin vena thyroidea inferior). [1] [2]

The interstitial fluid (lymph) located between the cells of the thyroid gland flows through the lymphatic vessels to the lymph nodes. This lymphatic drainage of the thyroid gland is provided by a well-organized system of lymphatic vessels. There are many branches between the individual lymphatic vessels and nodes. Lymphatic vessels flow into regional lymph nodes located along the internal jugular veins (Latin vena jugularis interna). The lymph of one

lateral lobe can reach the connected lymph nodes of the other lateral lobe through the lymph nodes in front of the trachea. Lymph drainage pathways are important in oncology (cancer cells can metastasize with lymph flow)

The thyroid gland has both sympathetic and parasympathetic innervation. It is carried out by the nerve fibers of the autonomic nervous system. Fibers of sympathetic innervation originate from the upper cervical ganglion (Latin ganglion cervicae superius) and form the upper and lower thyroid nerves. Parasympathetic innervation is carried out by the branches of the vagus nerve (Latin nervus vagus) - the upper laryngeal and recurrent laryngeal nerves (Latin nervus laryngeus).

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