

Etiology and Treatment of Thyroid Diseases

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Abstract: Most people have heard of the thyroid gland, but many do not know or understand what it does. The thyroid gland is an endocrine gland. It makes hormones called thyroid hormones, which help regulate the body's metabolism. The gland is shaped like a butterfly and is located in the front of the neck below the Adam's apple. Problems occasionally can occur in the thyroid gland, with the most common being overactivity and underactivity.

Keywords: thyroid gland, Hashimoto's thyroiditis, hypothyroidism.

One of the most common problems affecting the thyroid gland is hypothyroidism. This condition occurs when the gland stops making enough hormone. The most common cause of hypothyroidism is Hashimoto's thyroiditis, an autoimmune disorder that ultimately causes the gland to stop working. In early stages, hypothyroidism may not cause noticeable symptoms.

Symptoms of hypothyroidism may vary, and can include:

Fatigue

Weight gain

Constipation

Dry skin

Coarse hair and skin

Muscle weakness

Slowed heart rate

Hypothyroidism is treated with thyroid hormone medicine that is effective when taken at the correct dose. If left untreated, hypothyroidism can lead to high cholesterol and heart problems over time.

What is hyperthyroidism?

Some disorders of the thyroid gland cause it to be overactive and make too many thyroid hormones, a condition called hyperthyroidism. Hyperthyroidism usually is caused by an autoimmune disease called Graves' disease. It also can be caused by a metabolically active thyroid nodule making too much hormone or by a short-lived thyroid gland inflammation. Graves' disease can be treated with medication, radioactive iodine therapy or surgery. Graves' disease can lead to Graves' ophthalmopathy, or thyroid eye disease, which can cause vision loss, eye pain or bulging eyes.

Symptoms of hyperthyroidism also vary and can include:

Losing weight without trying

Rapid heart rate

Sweating

Diarrhea

Nervousness

Muscle weakness

Thinning skin and brittle hair

Other thyroid disorders

Other disorders of the thyroid gland often require surgery for treatment lobectomy, known as hemilobectomy, is a surgery that removes part of the gland. During a total thyroidectomy, the entire gland is removed. Thyroid cancer treatment usually requires total thyroidectomy and, in some cases, removal of lymph nodes in the neck. Many small thyroid cancers can now be treated with a lobectomy.

Some noncancerous nodules become large enough to cause pain and problems swallowing and breathing. When this happens, partial or total thyroidectomy is recommended. A person who has part of their thyroid gland removed may need to take hormone replacement after surgery. When a person has the entire gland removed, they will need to take replacement hormones for life.

Consider seeing your primary care professional if you have signs and symptoms of hypothyroidism or hyperthyroidism, or if you can feel a nodule in the lower front of your neck. Your healthcare team will take a detailed medical history and perform a physical exam. Your care may include lab tests, a neck ultrasound and referral to an endocrinologist or an ear, nose and throat specialist. If surgery is needed, you will be referred to an ear, nose and throat surgeon or general surgeon with expertise in performing thyroid procedures who will evaluate and discuss your options.

Thyroid disorders are relatively common in adults. Fortunately, nearly all thyroid problems can be managed successfully when identified early.

Experimental group A. In animals receiving an immunosuppressant in high doses, the thyroid gland loses the normal pattern of follicle arrangement with a predominance of larger ones on the periphery of the lobes. The organ acquires a pronounced mosaic pattern: -10- large follicles are found in the central sections, and small ones are often located along the periphery. In general, by the end of the experiment, relatively small follicles lined with low epithelium predominated. The visual analysis data are confirmed by the results of a morphometric study: on the 6th day, the d value decreases to 74%, and h - to 78.5% of the levels of these indicators in the K1 group. The E value tends to decrease compared to that in the K1 group. Meanwhile, analysis of the dynamics of the E/C and Ef/Ei ratios did not reveal significant shifts. By the end of the experiment, thyrocytes undergoing degenerative changes are often detected. The apical pole of such cells is vacuolated and often destroyed. Areas of local destruction of the wall of individual follicles with partial fusion of some of them, as well as leakage of colloid into the interfollicular space, are identified. These changes are apparently a reflection of the cytotoxic effect of cyclophosphamide on thyrocytes [Kusumoto Y. et al., 1997; Mizukami M. et al, 1995]. The pronounced cytotoxic effect was confirmed by ultrastructural analysis of thyrocytes, which made it possible to clarify the nature of the identified disorders. In almost all cells, a sharp expansion and deformation of the cisterns of the granular endoplasmic reticulum with a decrease in the electron density of their contents was noted, which indicates a violation of the synthesis and/or transport of thyroglobulin into the lumen of the follicle and has been described with toxic effects on thyrocytes, as well as in tumor cells and goitrous thyroid glands [Khan K.N. et al., 1996; Mochizuki Y. et al., 1992; Ohyama Y. et al., 1994; Pitsiavas V. et al., 1997; Sakai Y. et al., 2000]. This phenomenon was accompanied by swelling and rounding of mitochondria with disorganization of their cristae and clearing of the matrix. In some thyrocytes, accumulations of lipid droplets were detected. The noted violations indicate the damaging effect of cyclophosphamide on the synthetic apparatus of thyrocytes, which is combined with (and, possibly, caused by) disruption of the activity of the energy apparatus.

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