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**PATHOPHYSIOLOGICAL BASES OF DIAGNOSIS AND  
SURGICAL TREATMENT OF RECURRENT THYROTOXIC GOITER  
BY MODERN METHODS**

**Resume:** Recurrent is a common autoimmune disease characterized by the development of goiter and, as a rule, endocrine ophthalmopathy. The pathogenesis of the disease is mainly due to the production of thyroid-stimulating autoantibodies (TSI), which act as thyroid-stimulating hormone (TSH) and lead to hyperfunction and proliferation of thyrocytes.

In the treatment of this disease, the surgical method is one of the most effective in the treatment of DTZ and allows you to quickly eliminate thyrotoxicosis. The predicted outcomes of surgical treatment of DTZ are: euthyroidism (the most favorable outcome), hypothyroidism and recurrence of thyrotoxicosis. The functional state of the remaining thyroid gland after surgery does not depend on its size.

This article examines the factor determining the postoperative status of the thyroid gland - the activity of thyroid-stimulating antibodies and the functional activity of thyrocytes, at-rtg titers and the ratio of antibodies to thyroid oxidase (at-TPO).

**Key words:** thyroid diseases, surgical intervention, thyrotoxicosis, thyroid gland.

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## ПАТОФИЗИОЛОГИЧЕСКИЕ ОСНОВЫ ДИАГНОСТИКИ И ХИРУРГИЧЕСКОГО ЛЕЧЕНИЯ РЕЦИДИВИРУЮЩЕГО ТИРЕОТОКСИЧЕСКОГО ЗОБА СОВРЕМЕННЫМИ МЕТОДАМИ

**Резюме:** Рецидивирующее - распространенное аутоиммунное заболевание, характеризующееся развитием Зоб и, как правило, эндокринной офтальмопатии. Патогенез заболевания в основном обусловлен выработкой тиреотропных аутоантител (TSI), которые действуют как тиреотропный гормон (ТТГ) и приводят к гиперфункции и пролиферации тироцитов.

При лечении этого заболевания хирургический метод является одним из наиболее эффективных при лечении ДТЗ и позволяет быстро устранить тиреотоксикоз. Прогнозируемыми исходами хирургического лечения ДТЗ являются: эутиреоз (наиболее благоприятный исход), гипотиреоз и рецидив тиреотоксикоза. Функциональное состояние остатка щитовидной железы после операции не зависит от ее размера.

В данной статье исследуется фактор, определяющий послеоперационный статус щитовидной железы - активность тиреотропных антител и функциональная активность тироцитов, титры at-rtg и соотношение антител к тиреооксидазе (at-TPO).

**Ключевые слова:** болезни щитовидной железы, хирургическое вмешательство, тиреотоксикоз, щитовидная железа.

**Introduction.** Thyrotoxicosis is a set of pathophysiological, clinical-laboratory and anatomical-morphological disorders resulting from an excess of thyroid hormones and (or) their enhanced effect on tissues, organs and systems [7].

Most often (in 75-80%) CT is associated with diffuse toxic goiter (DTZ). However, in practice, this figure is even higher, since a number of other

morphological and etiopathogenetic variants of CT have an evolutionary relationship with DTZ or other common positions[3].

The epidemiology of thyroid diseases depends on many factors and conditions: geochemical, demographic, social, environmental, climatic, etc.

To the greatest extent, the frequency of thyroid pathology is affected by iodine intake. For example, the frequency of endemic and nodular goiter is increased in iodine-deficient regions, and the frequency of DTZ, AIT and other autoimmune thyropathies is higher in places with high iodine content and consumption.

Due to the numerous and not always clear effects on thyroid morbidity, the data of different authors on the frequency of CT vary significantly. In women, this indicator varies from 1 to 3%, among men it is an order of magnitude lower. The incidence is 5-6 cases per 100,000 population per year.

Radioactive iodine therapy, widely used in the USA and Western Europe, which is a fairly effective method of treating DTZ, leads over time to the development of hypothyroidism in almost all patients [1,2], it is also necessary to take into account the risk of thyroid cancer, breast cancer, infertility and severe osteoporosis in premenopausal women [3]. Surgical treatment occupies a significant place in the therapy of DTZ, providing the patient with the fastest achievement of the euthyroid state, however, like any surgical intervention, it is accompanied by a number of characteristic complications [3,6].

**The purpose of the study.** Improving the effectiveness of surgical treatment of patients with diffuse toxic goiter by creating a system that includes modern preoperative preparation, modified surgical intervention tactics and correction of postoperative functional disorders.

**Materials and methods of research.** To accomplish this task, we selected a total of 56 patients with recurrent thyrotoxicosis and conducted examinations on them

**The results of the study.** Long-term results of surgical treatment of diffuse toxic goiter in the region of goiter endemia show that 30.1% of patients have hypothyroidism, 7.9% have a recurrence of thyrotoxicosis and 62% have euthyroidism in the period from 1 to 10 and over years after surgery. The outcomes of surgical treatment depend on high-quality preoperative preparation, an individual approach to choosing the volume of surgical aid and differentiated rehabilitation treatment in the long-term postoperative period.

Medical methods of preoperative preparation of patients with diffuse toxic goiter in 7.2% of cases do not allow to eliminate thyrotoxicosis, due to the development of drug complications and refractoriness to thyrostatic drugs. The introduction of efferent, quantum therapy methods, modern antioxidants and enterosorbents into preoperative preparation makes it possible to achieve a state of clinical euthyroidism and reduce the duration by  $4.5 \pm 1.2$  k/ day.

Intraoperative IR photosonding with targeted puncture biopsy in 97.5% of cases makes it possible to quickly, with minimal economic costs, assess the nature and prevalence of the pathological process in the thyroid gland and choose an adequate amount of surgical aid.

The use of plasma argon coagulator during surgery creates reliable hemostasis, minimal damage to surrounding tissues, reduces the duration of surgery by 24.3%.

The inclusion of VLOK in the complex therapy of postoperative hypothyroidism makes it possible to achieve the state of clinical euthyroidism in 76% of patients using low doses of thyroid hormones. VLOK has a temporary, favorable clinical effect. To stabilize the positive effect of laser exposure, repeated courses of treatment should be carried out after 3-6 months.

Ethanol destruction of "thyroid residues" under ultrasound control makes it possible to achieve remission of thyrotoxicosis in 65.2% of patients with relapse of the disease and to avoid repeated operations in persons with high operational risk.

Complex therapy of postoperative laryngeal paresis, including drug treatment, physical therapy, correctional and pedagogical influence and psychological relief, allows to increase its effectiveness, shorten the treatment period and leads to labor and social rehabilitation of 87.5% of patients.

After operations, patients should be under the supervision of an endocrinologist and a surgeon. Examinations should be carried out 3, 6, 12 months during the first year after surgery, then -2 times a year, which will allow timely diagnosis of functional disorders and make corrections to treatment, improve the quality of life of patients.

**Conclusion.** Effective concentrations of D- and L-isomers of thyroxine are similar to those of steroid hormones that give a similar antioxidant effect, and are  $10^{-5}$  M.

At a physiological concentration of  $10^{-6}$  M, both forms of the hormone have an antioxidant effect in the subcellular fractions of the rat cerebral cortex, regardless of the presence of biological activity.

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