

THE RELATIONSHIP BETWEEN THE LEVEL OF THYROID STIMULATING HORMONE (TSH) AND THE SEVERITY OF CLINICAL SYMPTOMS OF PRIMARY HYPOTHYROIDISM IN WOMEN AFTER STRUMECTOMY

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**Abstract:** This study examined the relationship between thyroid-stimulating hormone (TSH) levels and the severity of clinical symptoms of primary hypothyroidism in women after strumectomy. Data from 64 women who underwent total or subtotal strumectomy were analyzed. Symptom severity was assessed using a 10-point clinical scoring scale. A significant positive correlation between elevated TSH levels and symptom intensity was observed, especially among patients after total strumectomy. The findings support the importance of regular laboratory follow-up and individualized treatment planning.

**Keywords:** hypothyroidism, TSH, clinical severity, hormonal imbalance, strumectomy

### Introduction

Primary hypothyroidism is one of the most common endocrine diseases characterized by a deficiency of thyroid hormones due to damage or removal of the thyroid gland. The most common reasons for surgical intervention are diffuse or nodular goiter, autoimmune processes, and oncopathology. After strumectomy, especially total, patients require lifelong replacement therapy and careful monitoring of laboratory parameters. At the same time, the severity of hypothyroidism and its biochemical manifestations may vary depending on the volume of gland resection. Biochemical markers, including the level of thyroid stimulating hormone (TSH), free thyroxine (T4), thyroid peroxidase antibodies (AT-TPO), as well as lipid profile, play a key role in assessing the severity of the condition and adjusting therapy. The relevance of a comparative analysis of these indicators after various volumes of surgery is due to the need for a personalized approach to patient management. Objective of the study

To assess the degree of correlation between the TSH level and the severity of clinical symptoms of hypothyroidism in women after total and subtotal strumectomy.

### Materials and methods

The study included 64 women aged 28 to 62 years who had undergone surgery for diffuse nontoxic or multinodular goiter. Total strumectomy was performed in 36 patients, and subtotal strumectomy in 28 patients. Inclusion in the study was carried out 6 weeks after surgery in the presence of signs of hypothyroidism and elevated TSH levels. Symptoms were assessed using a subjective scale from 0 (absent) to 3 (severe manifestation) for ten main symptoms: weakness, fatigue, swelling, dry skin, drowsiness, depression, weight gain, bradycardia, decreased concentration, and constipation. The levels of TSH, free T4, and AT-TPO were determined by enzyme-linked immunosorbent assay (ELISA). Correlation analysis was performed using Spearman's coefficient. Statistical significance was determined at  $p < 0.05$ .

## Results

The average age of the subjects was  $45.2 \pm 8.3$  years. In the total strumectomy group, the average TSH level was  $10.4 \pm 2.9$  mIU/L, in the subtotal group -  $6.2 \pm 2.3$  mIU/L. The overall symptomatic scale scores were  $28.4 \pm 5.1$  and  $20.1 \pm 4.3$ , respectively. The positive correlation between the TSH level and the severity of symptoms was  $r = 0.73$  ( $p < 0.01$ ).

The most prominent symptoms in patients with high TSH ( $>10$  mIU/L) were edema (85%), lethargy (93%), drowsiness (79%), and weight gain (74%). TSH levels also correlated with free T4 levels ( $r = -0.55$ ;  $p < 0.01$ ). The incidence of subclinical hypothyroidism was higher in the subtotal strumectomy group.

## Conclusions

1. The TSH level significantly correlates with the severity of clinical symptoms of hypothyroidism in women after strumectomy.
2. Total strumectomy is associated with a more severe course of hypothyroidism.
3. The use of a clinical scale for assessing symptoms along with laboratory markers increases the accuracy of diagnosis.
4. The results confirm the need for regular monitoring of hormonal status and individual selection of therapy.

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