EVALUATION OF VITAMIN D STATUS IN WOMEN OF REPRODUCTIVE AGE WITH AUTOIMMUNE THYROIDITIS AND JUSTIFICATION OF CHITOSAN-BASED THERAPEUTIC CORRECTION

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Abstract. *Autoimmune thyroiditis (AIT) in women of reproductive age is often associated with vitamin D deficiency, which may aggravate autoimmune thyroid dysfunction. Fifty women aged 15–49 years with AIT were examined. Vitamin D deficiency (<20 ng/mL) was detected in 68%, insufficiency (20–30 ng/mL) in 22%, and normal levels (>30 ng/mL) in 10%. Deficient patients showed higher TSH and anti-TPO levels compared to those with sufficient vitamin D. A subgroup treated with vitamin D and chitosan demonstrated greater improvement: 25(OH)D normalization in 82%, TSH reduction in 61%, and ≥25% decrease of anti-TPO in 47%, compared to 29%, 38%, and 19% in the vitamin-D-only group. These results indicate that vitamin D deficiency is common in reproductive-age women with AIT and that adding chitosan may enhance therapeutic response.*

Key words: *Autoimmune thyroiditis, vitamin D deficiency, reproductive-age women, chitosan, thyroid function.*

Introduction. Autoimmune thyroiditis (AIT) is one of the most common autoimmune endocrine disorders affecting women of reproductive age. It is characterized by lymphocytic infiltration of the thyroid gland, elevated anti-thyroid antibodies, and gradual decline of thyroid function [1]**.** A growing body of evidence indicates that vitamin D deficiency is prevalent in AIT patients and may contribute to autoimmune activation by modulating immune responses and promoting inflammation [2].

Despite its importance, data on vitamin D status among women with AIT in Uzbekistan are limited. Furthermore, adjunctive therapeutic strategies, such as chitosan supplementation, have been suggested to enhance immune modulation and improve clinical outcomes [3]**.** This study aims to evaluate vitamin D status in women with AIT and assess the effectiveness of combined vitamin D and chitosan therapy.

Methods. The study included 50 women aged 15–49 years with confirmed AIT, treated at the AVED Thyroidology Center and the Endocrinology Department of Andijan State Medical Institute. Serum levels of 25-hydroxyvitamin D (25(OH)D), TSH, free T4, and anti-thyroid peroxidase (anti-TPO) antibodies were measured. Patients were classified according to vitamin D status: deficiency (<20 ng/mL), insufficiency (20–30 ng/mL), or normal (>30 ng/mL). A subgroup of patients received combined therapy with vitamin D and chitosan, while the remainder received vitamin D alone. Hormonal and immunological parameters were assessed before and after the intervention. Data were analyzed statistically to compare outcomes between treatment groups.

Results. Vitamin D deficiency was observed in 68% of patients, insufficiency in 22%, and normal levels in only 10%**.** Women with deficiency exhibited higher TSH levels (4.8 ± 1.3 mIU/L) and elevated anti-TPO titers (358 ± 92 IU/mL) compared to those with sufficient vitamin D (2.7 ± 0.9 mIU/L and 214 ± 70 IU/mL, respectively).

Combined therapy with vitamin D and chitosan demonstrated superior outcomes: normalization or increase of 25(OH)D levels in 82% of patients, reduction of TSH in 61%, and ≥25% decrease of anti-TPO antibodies in 47%, compared to 29%, 38%, and 19% respectively in the vitamin-D-only group. Patients reported improvement in general well-being and reduction of fatigue. The findings indicate that vitamin D deficiency is highly prevalent and contributes to more pronounced autoimmune and hormonal disturbances.

Conclusion. Vitamin D deficiency is common among reproductive-age women with AIT and is associated with worsened thyroid function and heightened autoimmune activity.

Supplementation with vitamin D improves hormonal and immunological parameters, and the addition of chitosan enhances these effects. Combined therapy offers a promising approach to optimize clinical outcomes, reduce autoimmune aggression, and support thyroid function in women with AIT [4]**.** Further studies with larger patient cohorts are warranted to confirm these findings and establish standardized protocols for chitosan use as an adjunctive therapy.

References:

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