

The relationship between vitamin D deficiency and thyroid autoimmunity in Graves' Disease

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OBJECTIVES

Graves' disease is the most common cause of hyperthyroidism. It occurs more commonly amongst women, smokers and patients with other autoimmune diseases or a family history of thyroid autoimmunity. Peak incidence occurs between 40 and 60 years of age but any age group may be affected. Vitamin D deficiency has been reported to link with a variety of autoimmune diseases. However, the relationship between the thyroid autoimmunity in Graves' disease (GD) and vitamin D deficiency is unclear.

We aimed to investigate the association of vitamin D and TSH receptor antibody levels (TRAb) with GD.

METHODS

This was a cross-sectional study conducted in education and research hospital. A total of 67 patient with GD (30 men; 37 women) along with 53 age-matched non-GD controls participated in the study.

Thyroid-stimulating hormone (TSH), free triiodothyronine (FT3), free thyroxine (FT4), thyroid peroxidase antibody (TPOAb) and thyroglobulin antibody (TGAb), thyrotrophin receptor antibody (TRAb), parathyroid hormone (PTH), calcium, 25-hydroxyvitamin D [25(OH)D] levels were measured.

RESULTS

25(OH)D levels were significantly lower in the GD group, compared with non-GD control group ($P < 0.001$). 25(OH)D levels was inversely correlated with TRAb levels ($r = -0.38$, $P < 0.001$). However, our results did not show a correlation between the levels of 25(OH)D and the levels TPOAb, TGAb, FT3, FT4, and TSH. The levels of PTH in serum were increased in TRAb positive GD patients compared to control subjects ($P < 0.001$). Logistic regression analysis results indicated that 25(OH)D levels were not a significant risk factor for developing GD.

CONCLUSIONS

In patients with GD, low vitamin D status might be cause of increased titers of TRAb, suggesting a possible link between vitamin D status and increased thyroid autoimmunity in GD.

