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TSH-deficiency is associated with a lower thyroid gland volume in hypopituitary patients compared to healthy volunteers: a cross-sectional study

Daniele Santi1, Giulia Brigante1,2; Valentina Gnarni1,2; Bruno Madeo1,2; Sara De Vincentis1;2; Cesare Carani1,2; Marco Faustini-Fusini1, Antonio Balestrieri1 & Vincenzo Rochira1,2
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Introduction
Thyroid volume (TV) depends on age, gender, anthropometry, smoking and isode status. IGF1 plays a role on thyroid growth, as demonstrated in acromegaly and GH-deficiency. Finally, TSH is a well recognised permissive factor for thyroid tissue growth. The aim of the study is to evaluate the long-term effect of TSH-deficiency on TV in hypopituitary patients compared with healthy volunteers.

Methods
We performed a cross-sectional, controlled study on 58 hypopituitary patients (36 males, 22 females) with multiple hormonal deficiency (confirmed diagnosis of central hypothyroidism was the main inclusion criteria) (60.0 ± 13.9 years), and 244 volunteers (75 males, 171 females) (47.7 ± 11.63 years). All subjects underwent thyroid ultrasonography (Siemens Acuson Antares, Philadelphia, USA) performed by the same operator. TV was calculated as the sum of TV of the two lobes, each estimated as: length (cm)×width (cm)×depth (cm)×0.52.

Results
Age, weight, BMI and body surface area (BSA) were greater in hypopituitaric patients compared to healthy volunteers. TV and weight were also greater in hypopituitaric patients with goiter (9.62 ± 3.702 ml, 81.8 ± 3.497 ml vs 9.69 ± 3.702 ml, 81.2 ± 3.27 ml, P < 0.001). These differences were held even after correction of TV for BSA, BMI and age. Finally, TV was lower in hypopituitaric patients without goiter (4.73 ± 3.27 ml) than in those with goiter (9.62 ± 7.18 ml; P = 0.003). These differences were held even after correction of TV for BSA, BMI and age.

Discussion
TV is significantly lower in hypopituitaric patients than in healthy subjects, but the prevalence of thyroid nodules seems to be similar. The reduction of TV in hypopituitaric patients seems to occur only in thyroid glands without nodules. The chronic lack of TSH, as in hypopituitarism, seems to be responsible in vivo for a reduction of TV, but this effect seems to involve mainly the normal thyroid tissue rather than the hyperplastic nodular tissue.

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P1006
Prevalence of GH deficiency in Turkish patients with Hashimoto’s thyroiditis: a single center experience

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Background and Aim
Prevalence of Hashimoto’s thyroiditis is increasing in Turkey. GH deficiency has been reported to associate with this disorder in several different ethnic population. The aim of this study was to evaluate GH deficiency in the population with Hashimoto’s thyroiditis.

Materials and methods
Euthyroid Hashimoto’s thyroiditis patients, who admitted to the Department of Endocrinology and Metabolism of Hacettepe University, were included to the study. Demographic and laboratory data of patients were recorded.

Results
One hundred ninety three patients with Hashimoto’s thyroiditis were evaluated (117 males, 176 females (8.8 vs 91.2%)). Mean age was 39.94 ± 11.02 (min: 18 years, max: 64 years). There were no co-morbid conditions in any patients. One hundred and eleven of them were using medications containing f-thyroxine (57.5%). IGF1 levels of 179 patients (92.8%) were normal. Fourteen patients had low levels of IGF1. Glucagon stimulation testing in 14 subjects revealed GH deficiency (<3 μg/l) in only one subject. This subject had no response to insulin tolerance test either and she was put GH replacement therapy. Our data reveals the prevalence of GH deficiency in this particular group of Turkish Hashimoto’s thyroiditis patients was 0.5%.

Conclusion
We conclude that isolated GH deficiency is rarely observed in Hashimoto’s thyroiditis patients. There were diverse outcomes of different studies about GH deficiency in Hashimoto’s patients from different ethnic backgrounds (0.4–5%). This preliminary study on this issue demonstrated that GH deficiency is 0.5% in this particular group of Turkish Hashimoto’s thyroiditis patients.

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P1007
Insulin resistance in patients with thyroid dysfunction and hepatosteatosis

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Introduction
Hepatosteatosis is one of the results of insulin resistance. Thyroid dysfunctions effect on insulin sensitivity. The aim of this study was to evaluate insulin resistance in patients with hepatosteatosis and either hypothyroidism or hyperthyroidism.

Design
A total of 407 patients with hepatosteatosis were included. These patients were further divided into two study subgroups and a control group: 102 subjects with hypothyroidism, 103 with hyperthyroidism and 202 with normal thyroid function in the control group. The institution review board of hospital approved the study. Serum TSH, free T4, free T3 concentrations, blood glucose, and insulin levels, serum lipid levels, hepatic transaminases and homestasis model assessment of insulin resistance (HOMA-IR) were measured. Insulin resistance was calculated according to HOMA-index and compared between the groups. IBM Statistics 20.0 for Windows was used for statistical analysis. χ² and ANOVA tests were used for comparing groups.

Results
Average age was 50.8 ± 14.1 years. Male:female ratio was 141:266. Frequencies of insulin resistance in patients with hepatosteatosis and either hypothyroidism, hyperthyroidism, or normal thyroid function were 43, 40, and 48% (P, nonsignificant), respectively. HOMA-IR indices were not statistically different between different groups (P = 0.104).

Conclusions
Hypothyroidism and hyperthyroidism are not correlated to insulin resistance in patients with hepatosteatosis. We decided that patients with hepatosteatosis already have insulin resistance despite different associated comorbidities. Similar studies in literature did not emphasize on hepatosteatosis in such cases.

Key words
Insulin resistance, hepatosteatosis, hypothyroidism, hyperthyroidism.

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P1008
Vitamin D status in autoimmune hypothyroidism

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Objective
To investigate vitamin D status in patients with autoimmune hypothyroidism.

Methods
The study group consisted of 100 patients with newly diagnosed Hashimoto’s thyroiditis and 100 subjects as the control group. Parameters of calcium metabolism, thyroid function tests and 25(OH) vitamin D levels were measured. Results or case presentation

Mean age of the study groups was 33.4 ± 4.8 years with female:male, 72:28. Vitamin D insufficiency/deficiency (25(OH)D < 30 ng/ml) rate was significantly higher in the Hashimoto’s group compared with the control subjects (75 vs 20%, P < 0.0001). In the Hashimoto group, mean 25(OH) vitamin D levels were significantly lower compared with the control group (12.5 ± 7.0 vs 22.3 ± 7.9 ng/ml, P < 0.001). The study group revealed

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