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# TSH-DEFICIENCY IS ASSOCIATED WITH A LOWER THYROID GLAND VOLUME IN HYPOPITUITARIC PATIENTS COMPARED TO HEALTHY VOLUNTEERS: A CROSS-SECTIONAL STUDY

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**Introduction**: Thyroid Volume (TV) depends on age, gender, anthropometry, smoking and iodine status. IGF-1 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 hypopituitaric patients compared with healthy volunteers.

**Methods**: We performed a cross-sectional, controlled study on 58 hypopituitaric patients (36 male, 22 female) with multiple hormonal deficiency (confirmed diagnosis of central hypothyroidism was the main inclusion criteria) (60.0 + 13.9 years), and 244 volunteers (73 male, 171 female) (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) x width (cm) x depth (cm) x 0.52.

**Results**: Age, weight, BMI and body surface area (BSA) were greater in hypopipuitaric patients than healthy volunteers. Thyroid nodules were incidentally discovered at ultrasonography in 17 hypopituitaric (29.3%) and 93 volunteers (38.1%). TV was lower in hypopituitaric patients than in volunteers (6,066 + 5,079 mL and 9,695 + 3,702 mL, p<0,001). This difference was confirmed also in the subgroup without nodules (mean 4,719 + 3,230 mL and 9,430 + 3,497 mL, p<0,001), but not when comparing hypopituitaric patients and volunteers with goiter. Finally, TV was lower in hypopituitaric patients without nodules (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.

Nothing to Disclose: VR, DS, GB, VLG, BM, SD, MF, AB, CC

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