IGF-1 DEFICIENCY IN NEWLY DIAGNOSED GRAVES' DISEASE PATIENTS

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OBJECTIVES

Thyroid hormones influence GH/IGF-1 axis, but previous studies reported discrepant results regarding serum

IGF-1 levels in hyperthyroidism. We have therefore investigated, at diagnosis, the relationship between serum IGF-1 levels/IGF-1 z scores and clinical and biological characteristics of Graves' disease (GD) patients. We also compared IGF-1 levels/IGF-1 z scores, at diagnosis, between GD and autonomous hyperthyroidism patients.

METHODS

This cross-sectional study included 119 newly diagnosed hyperthyroid patients (98 with GD, 21 with toxic multinodular goiter) that presented consecutively to our clinic.

The main measured parameters: TSH, FT4, FT3, TT3, thyroglobulin, TPOAb, ATA, TRAb, IGF-1. Patients were considered IGF-deficient if IGF-1 z score was ≤-2SD from mean for age.

RESULTS

In GD patients men had higher IGF-1 levels (p=0.023) and IGF-1 z scores (p=0.013) than women. 18.4% of GD patients were, at diagnosis, IGF-1 deficient. Compared to patients without IGF-1 deficiency, these patients presented, at diagnosis, higher thyroglobulin (median=72.55, IQR=116.02 vs median=11.40, IQR=80.74ng/ml, p=0.002), FT3 (median=11.30, IQR=7.64 vs median=7.33, IQR=5.72pg/ml, p=0.027) and lower ATA (median=20, IQR=0 vs median=34.05, IQR=161UI/ml, p=0.001) levels. Thyroglobulin was identified as strong predictor for IGF-1 deficiency (AUROC=0.732, 95%IC:0.620-0.844, p=0.002; cut-off for thyroglobulin=50.40ng/ml, Se=77.8%, Sp=70%).

IGF-1 status wasn't influenced by gender (p=0.08), current smoking (p=0.55), goiter size (p=0.53), ophtalmopathy (p=0.33), TRAb (p=0.23), TPOAb status (p=0.36).

The prevalence of IGF-1 deficiency was higher in GD patients compared to patients with toxic goiter (18% vs 0%, $\chi 2=4.54$, p=0.033)

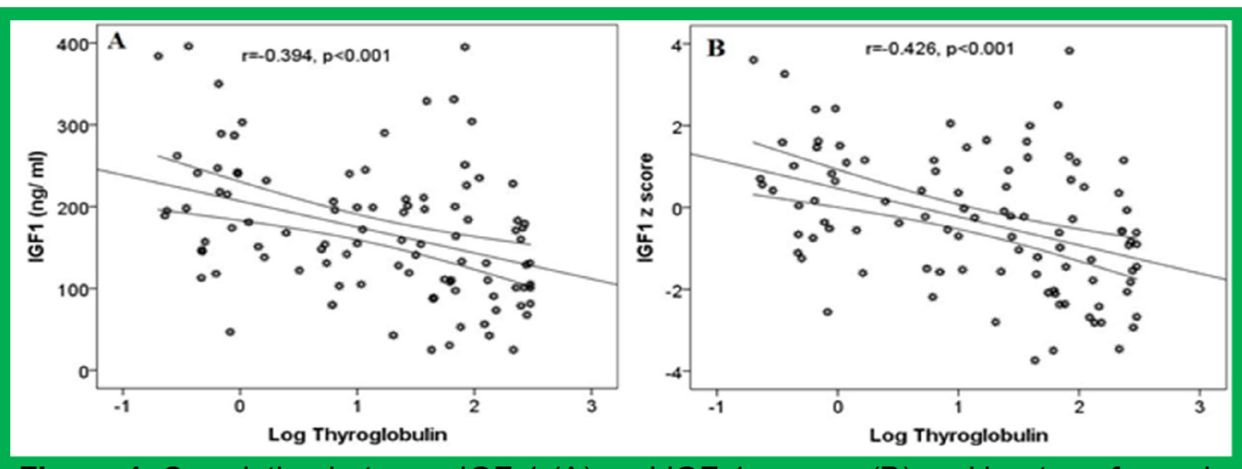

Figure 1. Correlation between IGF-1 (A) and IGF-1 z score (B) and log-transformed serum thyroglobulin levels

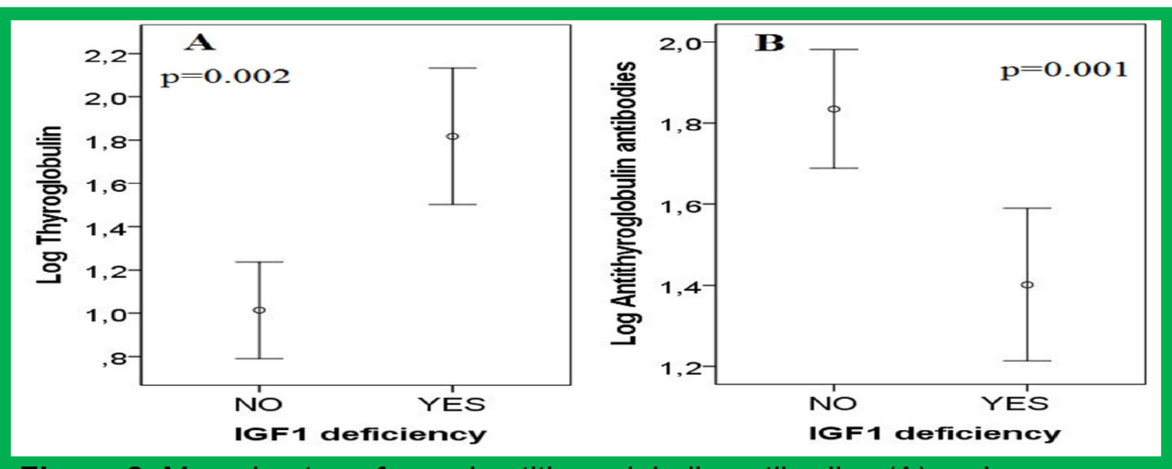

Figure 2. Mean log transformed antithyroglobulin antibodies (A) and thyroglobulin (B) values, at diagnosis, according to IGF-1 status

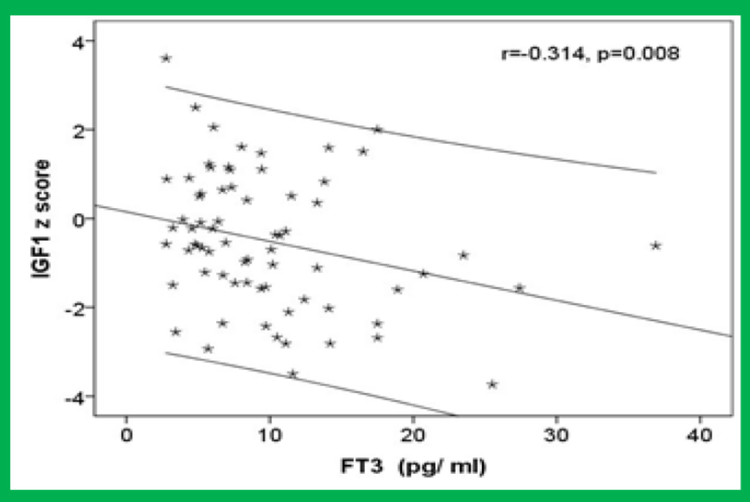

Figure 3. Correlation between IGF-1 z score and FT3 at diagnosis

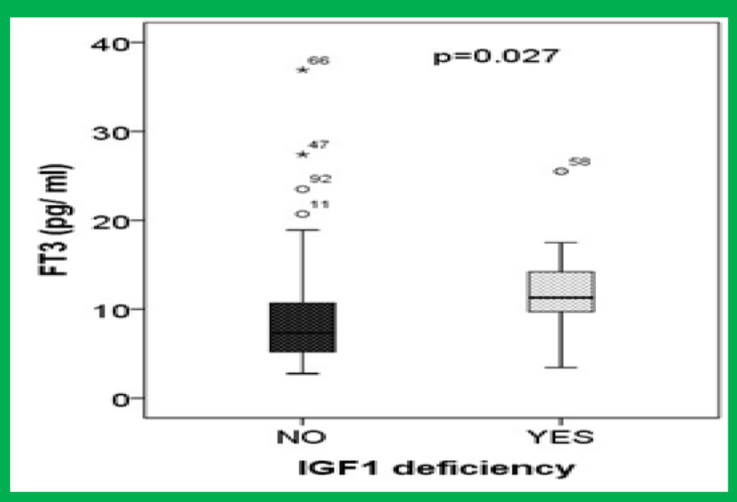

Figure 4. Serum FT3 levels according to IGF-I status, at diagnosis

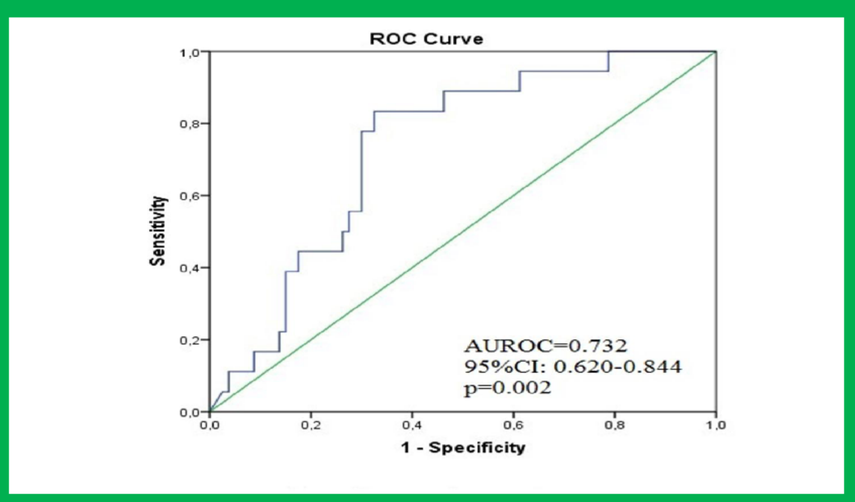

Figure 5. Predictive value of serum thyroglobulin levels on IGF-1 deficiency

CONCLUSIONS

Our study shows, for the first time, the presence of IGF-1 deficiency in nearly one fifth of newly diagnosed GD patients. IGF-1 deficiency was associated with lower ATA titers, higher thyroglobulin levels and more severe FT3 hyperthyroidism.

The presence of active GO didn't influence IGF-1 status.GD patients had higher prevalence of IGF-1 deficiency than patients with toxic multinodular goiter

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