Growth Horm IGF Res. 2009 Jun;19(3):252-5. doi: 10.1016/j.ghir.2008.11.003. Epub 2008 Dec 25.

Growth hormone/insulin-like growth factor axis in patients with subclinical thyroid dysfunction.

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Abstract

OBJECTIVE: Our aim was to evaluate serum concentrations of GH, IGF-I, and insulin-like growth factor-binding protein-3 (IGFBP-3) in patients with subclinical thyroid dysfunction before and after normalization of thyroid function.

DESIGN AND METHODS: The study included 51 patients (mean age 42.2+/-1.8 years) with subclinical hypothyroidism and 30 patients (mean age 44.3+/-2.4 years) with subclinical hyperthyroidism. A group of 37 euthyroid healthy subjects were studied as controls. Serum concentrations of TSH, FT4, FT3, GH, insulin, IGF-I, and IGFBP-3 were measured in all patients before starting therapy and after normalization of thyroid function. The dosage of levothyroxine (LT4) and antithyroid drugs was adjusted in attempt to keep the serum-free thyroxine (FT4) and thyrotropin (TSH) concentrations within the normal range.

MAIN OUTCOME: Baseline growth hormone levels were similar with hypothyroid group and hyperthyroid group in relation to euthyroid control subjects. Fasting serum IGF-I levels were significantly lower in the subclinical hypothyroid group compared with the control group. On the other hand, IGF-I levels of subclinical hyperthyroid patients and control group were similar. After normalization of thyroid function tests, IGF-I concentrations were increased in subclinical hypothyroid subjects, but unchanged in subclinical hyperthyroid subjects. Patients with subclinical hyperthyroidism showed slightly lower mean serum IGFBP-3 concentrations than those found in control group, but the difference was not statistically significant. Serum GH and IGFBP-3 levels were unaltered by treatment.

CONCLUSIONS: In this study, it was shown that GH-IGF axis was not affected in patients with subclinical hyperthyroidism, while it was affected in patients with subclinical hypothyroidism. That is, investigation of the axis in subclinical hyperthyroidism would not bring any extra advantages, but LT4 replacement therapy could prevent abnormalities related to GH-IGF axis in patients with subclinical hypothyroidism.

PMID: 19111490 DOI: 10.1016/j.ghir.2008.11.003