



Thyroid function (TF) in short children with idiopathic short stature (ISS) treated with growth hormone (GH) versus those not treated; a controlled study.

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Introduction

In ISS is a condition with a height is >2SD below the corresponding mean for age, sex, and population. Thyroid abnormalities reported during GH therapy in GH deficient (GHD) children but not well studied in ISS children on GH therapy.

Aim of study

To investigate effects of GH therapy on TF in a group of euthyroid children with ISS in comparison with ISS group not receiving GH therapy and GHD group on GH therapy.

Materials And Methodology

ISS (n = 54) was diagnosed when the child had short stature (height <-2 SDS) without genetic factors or other physical problems, but the peak GH response was >7 ng/mL.

Twenty-four children with ISS were treated with GH for 1 year and 30 didn't receive treatment.

Twenty-eight children with GHD were treated with GH for the same period used as controls.

Anthropometric measurements and IGF-1, thyroid-stimulating hormone (TSH), and free thyroxine (fT4) were analyzed at baseline and after a year in the treated and non-treated groups.

Results

- At presentation, none of the children had FT4 < 10 pmol/L or TSH>5mIU/L.
- After a year of GH therapy, 2 out of 24 (8.3 %) with ISS had FT4 <10 (9.1, 9.2) without an increase in the TSH > 5 and 2 /28 (7.1%) of the children with GHD had FT4 < 10 (9.2 and 9.1) without an increase in THS > 5.
- None of the non-treated group (n = 30) had FT4 <10 or TSH > 5.
- The mean serum concentrations of fT4 and TSH did not differ significantly after the initiation of GH treatment for 1 year of GH treatment.
- FT4 and TSH didn't differ between the three groups after 1 year of follow-up.
- Table: Thyroid function before (1)and after(2) a year of follow up.

Groups	Age1	HtSDS1	BMI SDS	FT41	TSH1	Age2	FT4 2	TSH 2	HtSDS2
ISS On GH (N:24)	10.3	-2.22	-0.5	13.4	2.47	11.9	12.8	2.78	-1.81
ISS not On GH (N:30)	10.2	-2.14	-1	148	2.89	11.0	13.1	2.21	-1.95
GHD on GH (N:28)	9.77	-2.24	-0.5	13.2	3.18	11.1	12.2	3.08	-1.92

Conclusion

- FT4 levels decreased during the first year of GH therapy in 8.3% of ISS children and 7.1% of children with GHD, while TSH levels appeared to be unaffected by GH therapy.
- Prepubertal children with ISS seem to be more predisposed to thyroid function alterations during GH therapy in comparison with those not receiving GH treatment.

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