

Linear growth response to growth hormone therapy in underweight versus normal-weight children with idiopathic short stature (ISS)

Sohair Elsiddig, Ahmed Elawwa, Marwa Farag, Ashraf Soliman
 Department of Pediatrics, University of Alexandria, Alexandria, Egypt
 Department of Pediatrics, Hamad General Hospital, Doha, Qatar

Introduction

Growth hormone (GH) increases lean body mass and reduces fat mass. However, the long-term changes in weight status during growth hormone treatment, according to age and weight status at the onset of therapy, have not previously been reported in large data sets.

Aim

To identify the growth response (change in HTSDS and BMISDS) to GH therapy in underweight versus normal weight short children.

Materials

Retrospective study. Growth data of 78 short, pre-pubertal children (HtSDS < -2 SDS below the mean for age and sex) with normal GH secretion were reviewed.

Children divided according to BMI into 2 groups:

- Group 1: underweight (BMI SDS < -2) N= 19.
- Group 2: Normal weight (BMI SDS > -2) N=59.

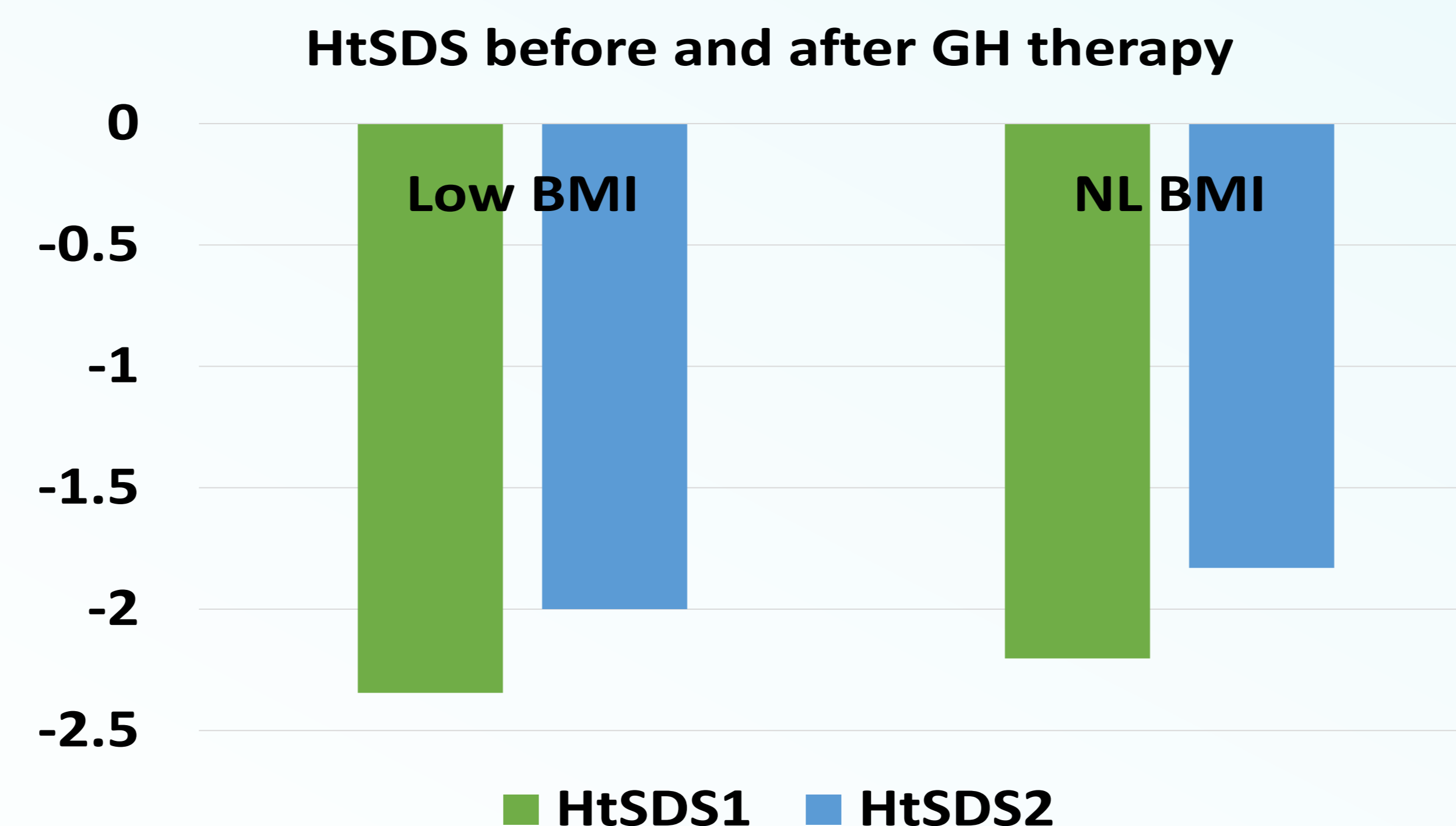
For 2years, all children received a daily Sc dose of GH (0.03 – 0.05 mg/kg/day) to keep their IGF1 level between 0 and 2SD.

Results

Before GH treatment, the underweight children (group 1) had a significantly lower IGF1 level versus the normal-weight children (group2). Age and HtSDS did not differ among the two groups. Treatment with GH for two years was associated with a significant increase in the BMI SDS in the underweight group. as their (BMI-SDS increased by 0.45 SD) but not in the normal-weight group.

The HtSDS increased significantly in both groups after GH therapy, but the increase was more significant in children with normal weight than underweight.

	Low BMI	NL BMI
HtSDS1	-2.345	-2.203
	0.53	0.599
HtSDS2	-2	-1.83
	0.54	0.584
P	0.32	0.001



Conclusion

Two years of GH therapy significantly increased the IGF1 level and improved BMI, BMI SDS, and HtSDS in underweight children with ISS. However, the increase in the HtSDS of underweight children was significantly lower than ISS children with normal weight. Underweight children who had GH therapy increased their BMISDS significantly.

	Low BMI	NL BMI
HtSDS1-MPH SDS	-0.91	-1.212
	1.066	0.879
HtSDS2-MPH SDS	-0.35	-0.575
	1.307	1.138
P	0.23	0.02*

