Final and Near-final Adult Height and BMI after Long-term Growth Hormone Treatment in Patients with Turner Syndrome (TS)

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Introduction

Short stature is the most common finding in patients with Turner syndrome. Improving the final adult height in these patients is a challenge both for the patients and physicians.
In addition, children with Turner syndrome (TS) respond variably to GH therapy.

Aim

We investigated the clinical response of patients with to growth hormone treatment for height improvement over the period of seven years

Methodology

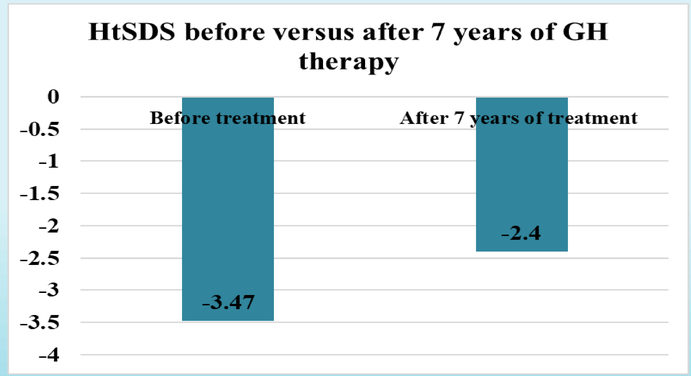
We evaluated retrospectively the anthropometric data of 10 girls with TS short children (height SDS <-2) who were diagnosed and treated with GH (0.05 mg/kg/day) between January 2007 till 2018 in our centre.

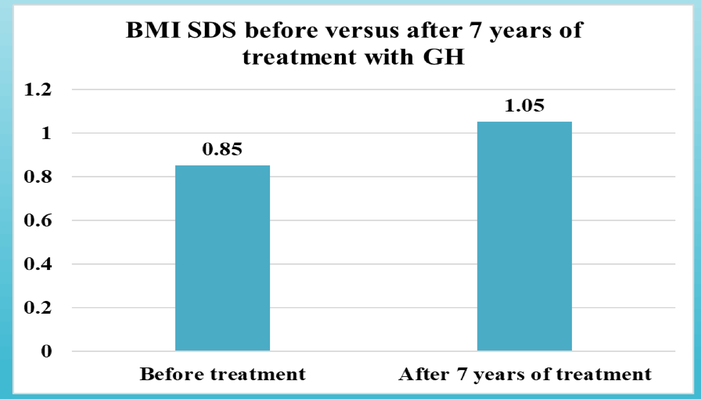
Before and during GH treatment, auxological and biochemical parameters including Height (Ht), weight (Wt), Ht z score (HtSDS), BMI, and BMI SDS were recorded every 6 months and bone age (BA) was recorded every 12 months.

The total increment ratios of HT-SDS were calculated over the period of all years of GH therapy till the final or last visit height.

Results

- **GH therapy was started at a mean age of 9.1 ± 3.7 years, and the treatment duration was 7.4 ± 3.1 years.**
- **After an average of 7 years of treatment, they had a significant increase in HtSDS (+1 SD) when using the normal children WHO curve.**
- **Half of the HtSDS gain occurred during the first year of treatment.**
- **Their final adult heigh = 148.8 +/- 2.88 cm with HtSDS = -2.34 on the normal children WHO curve and with HtSDS = 1.23 +/- 0.5 on TS growth curve.**
- **No significant change was detected in the BMI SDS after long treatment with GH. Only one child had BMI SDS = 2.4 and another had BMI SDS = 1.8.**
- **The delta HtSDS gain was correlated negatively with the HtSDS and BMI SDS before treatment and positively with HtSDS at the end of treatment (r = -0.34, - 0.7 and 0.43 respectively, p <0.04).**
- **The final HtSDS was correlated negatively with the age at the start of treatment (r = 0.57, p < 0.01)**





Conclusion

Children with TS exhibited moderate increases in HtSDS when treated with GH for 7 years. GH administration at an early age is important for final height gain. The change in the BMI SDS was not statistically significant after vs before GH therapy.