Presented at: 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 height = 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.