GROWTH HORMONE THERAPY IN TURNER SYNDROME

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BACKGROUND

- Turner syndrome (TS) is one of the most common causes of short stature in females. Adult height of patients with TS is 20 cm shorter than in general population.
- Growth hormone (GH) therapy improves height outcome in girls with TS; results depend on age at diagnosis, duration of therapy and doses of GH.

OBJECTIVES

- The primary objective of this study was to evaluate growth during the first 4 years of GH treatment in patients with TS
- The secondary objectives of this study include:
  - registering the incidence and severity of adverse events
  - occurrence of malignancies during treatment

METHODS

- The study enrolled eight prepubertal girls with TS (fig.1)
- Age at baseline varied between 4ys and 14.4ys (mean 11.54ys) (fig.2,6)
- All of them were treated with a mean dose of GH = 0.037mg/kg/d and followed for at least 4 years (mean 5.2ys)
- We register the following parameters at baseline and every 6 months:
  - height and height SDS
  - weight
  - height velocity (HV)
  - X-ray of non-dominant hand and wrist for bone age
  - IGF-1 values
  - fasting plasma glucose
  - +/- oral glucose tolerance tests

RESULTS

- The mean height standard deviation score (SDS) improved by 2.33, from -3.61 at baseline to -1.28 after 4 years of therapy; main gain over 4ys was 23.55 cm (fig.3)
- Mean height velocity was maximum in the first year (8.53 cm/yr), decreasing in the second (6.85 cm/yr), third (4.11 cm/yr) and fourth year (4.05 cm/yr) of treatment (fig.4)
- The mean weight standard deviation score (SDS) improved by 0.6, increasing from -1.28 at baseline to -0.68 after 4 years (fig.5)

DISCUSSIONS

- GH therapy accelerates the linear growth rate, improving final height.
- GH treatment may have a diabetogenic potential, affecting the carbohydrate metabolism.
- Delayed diagnosis of TS has a negative impact on growth.

CONCLUSIONS

- GH treatment is associated with highly significant changes in growth.
- In our study height velocity was maximum (8.53 cm/yr) in the first year of GH treatment; the improvements in growth declined in the second (6.85 cm/yr), third (4.11 cm/yr) and fourth year (4.05 cm/yr).
- GH therapy had a favorable safety profile.
- No severe adverse events were observed