The Effect of GH and Pubertal Induction Therapy in Turner Syndrome

Şükran Darcan[1], Samim Özen[1], Özge Köprülü[1], Tahir Atik[2], Ferda Özkınay[2], Damla Gökşen[1]

Ege University School of Medicine, Department of 1:Pediatric Endocrinology 2: Pediatric Genetics, İzmir, TURKEY

The authors declare there is no conflict of interest

- Background: The most prominent clinical feature in patients with Turner Syndrome (TS) is short stature. A study in our country has reported as an average adult height of 141,6 ± 7 cm.
- Objective and hypotheses: To assess the effect of GH and pubertal induction therapy on height gain in patients with TS
- Method: Fiftyeight TS patients with a mean age of 18.9 ± 7.2 yrs were documanted retrospectively. Clinical findings, karyotype, impact of baseline age, dosage, baseline bone age, duration of the GH and pubertal induction therapy was investigated.

Results

- On admission mean age and height SDS was, 9.6 ± 4.2 yr and -3.1 ± 1.1SD respectively.
- Only the 3 patients diagnosed in neonatal periods and only 1 patient diagnosed in intrauterine.(Figure1)

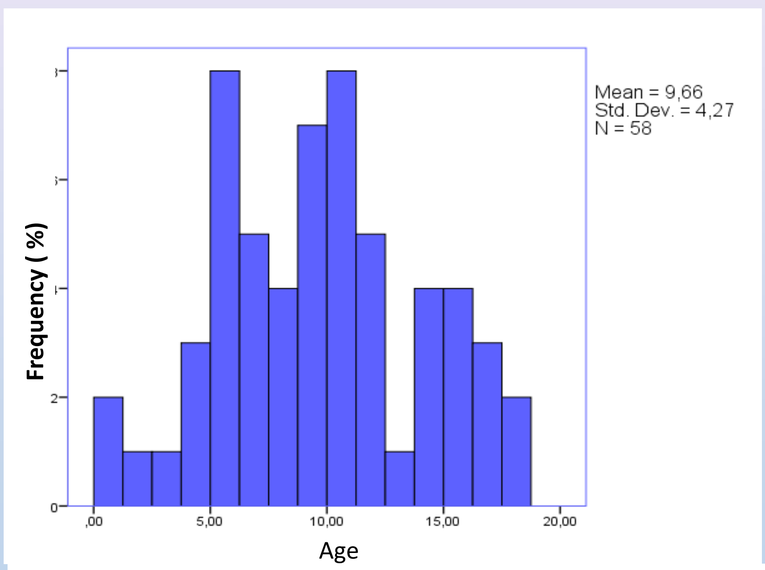

Figure 1: The age of diagnosis

Table 1: Clinical symptoms

	%
Short stature	74,1 (n:43)
Puberte tarda	6,9 (n:4)
Incidental	12,1 (n:7)
Intrauterin	1,7 (n:1)
Neonatal period	5,2 (n:3)

- The clinical symptoms and the clinical features are shown at Table 1 and 2.

Table 2: Clinical features

	%
Webbed neck	53,4 (n:31)
Cubitis valgus	44,8 (n:26)
Multiple pigmented nevi	24,1 (n:14)
Broad chest	67,2 (n:39)
Short metacarp	20,7 (n:12)
High arched palate	63,8 (n:37)
Cardiopathy	32,8 (n:19)
Osteopenia/ Osteoporosis	6,9 (n:4)
Hearing loss	25,9 (n:15)
Refractive errors	8,6 (n:5)
Thyroiditis	17,2 (n:10)
Celiac disease	5,2 (n:3)

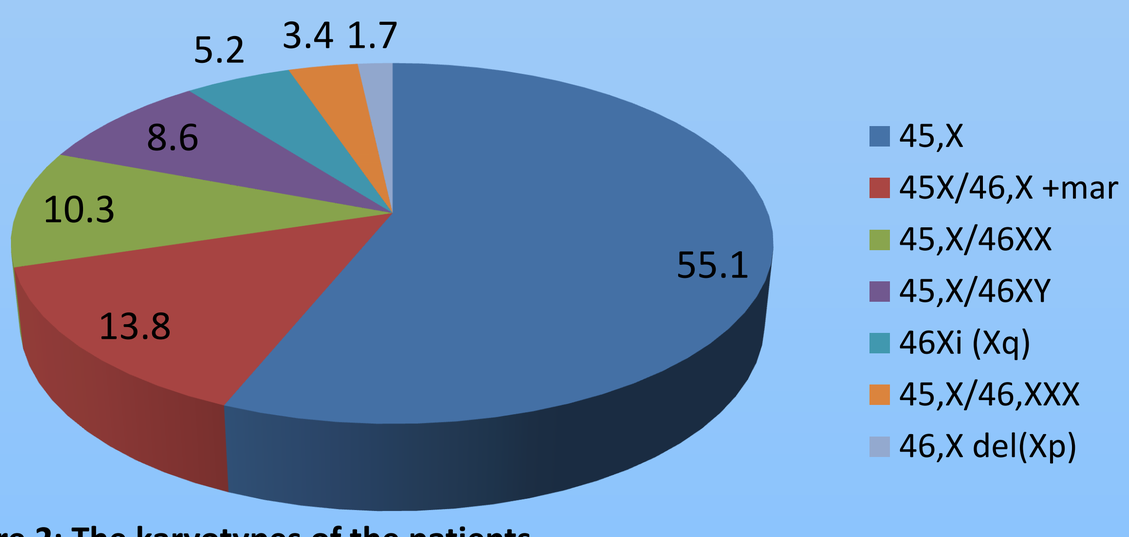

Figure 2: The karyotypes of the patients

On admission ;

- Weight SDS: -1.4 ± 1.1
- Height SDS: -3.1 ±1.1
- BMI SDS: 0.4 ±1.2
- Difference between chronologic and bone age (CA-BA): - 2.3 ±1.5 years

GH therapy

52 patients (89%) received GH therapy

- Age of treatment: 10.0 ±3.3 years
- Bone age: 7.9 ± 2.9 years
- CA-BA: -2.3±1.5
- Height SDS: -3.3 ±1.1

Initial dosage of GH : 0.038 ±0.008 mg/kg/d

Treatment duration: 49.5 ±27.4 ay

Pubertal induction

28 (48%) patients received pubertal induction

- Age of treatment: 14.6 ±1.5 years
- Bone age: 11.6 ± 1.6 years
- Height SDS: -2.5 ±1.0

Target height-Baseline height- Final height

- Mean final height was 147 ± 5.5 cm (final height SDS -2 ± 0.95) in the 21 patients who had achieved final height.
- Positive correlation was found between height gain and baseline age, initial age of GH and CA-BA ($p<0.05$).
- Karyotype, dosage of GH, initial age of pubertal induction, bone age at pubertal induction are not correlated with the height gain.
- Height gain in patients treated with GH was 0.9 ± 1.2 SD while in patients untreated was 0.2 ± 1.5 SD (p=0.18).
- 32 of the patients were diagnosed below 10 years (group1) and 26 above 10 yrs (group 2). Six of the patients (18.7%) from group 1 and 15 of the patients (57.6%) from group 2 reached to final height. Final height SDS of the two groups did not reach to statistical significance (p=0.133).

Conclusions: Early diagnosis, early GH therapy and the retardation of initial bone age are important for the height gain in patient with TS.