EVALUATION OF SITTING HEIGHT/HEIGHT STANDARD DEVIATION SCORE IN PATIENTS WITH TURNER SYNDROME

P 1–D1-209

Mikayir GENENŞ, Melis ULAK, Gamze KAYA, Şükran POYRAZOĞLU, Firdevs BAŞ, Rüveyde BUNDAK, Nurçin SAKA, Feyza DARENDELİLER

Istanbul University, Istanbul Faculty of Medicine , Pediatric Endocrinology Unit, Istanbul, TURKEY

Introduction: Short stature and gonadal dysgenesis are the main characteristics in Turner syndrome (TS). There are conflicting reports about the body proportions in TS. Some studies described a proportionately short stature, whereas others reported disproportionately short legs. It is known that body proportions are genetically controlled and different for each populations or ethnic groups.

Objective and hypotheses: To evaluate body proportion assessed by sitting height (SH) / height (HT) ratio in patients with TS with respect to national standards.

Methods: The medical records of 92 patients with TS were reviewed retrospectively. HT and SH measurements were performed using a fixed Harpenden stadiometer with a precision of 0.1 cm and weight was taken in underclothing to the nearest 0.1 kg. All measurements were expressed as SDS, according to age- and sex-specific national growth references. Adult HT was accepted when growth velocity was <0.5 cm in the previous year and when bone age exceeded 15 years. Pubertal stage was classified according to Tanner. Measurements at presentation, the onset of puberty and at adult HT were evaluated.

Disproportionate short stature was defined as SH /HT SDS >2 SD above the mean for age and sex.

Statistical analyses were carried out with SPSS 21 version. The results are presented as the mean±SD. T-test and Wilcoxon tests were used for comparison of means. P<0.05 was accepted as significant.

Results: Some characteristics of the patients at presentation are summarized in Table 1. The mean age of the patients was 11.9±2.9 yrs (range:6.0-17.7 yrs). Eighty nine patients (96.7%) had dysmorphic features. The mean HTSDS and SHSDS at presentation was -3.6 ± 1.2 and -3.4±1.1 respectively. The mean SH/HTSDS at presentation was 0.1 ± 0.3. The frequency of abnormal body proportion at presentation was 15.3%. The distribution of karyotype was found 45,X in 52%; mosaism in 28% and structural abnormalities in 20%. There was no difference in the body proportions according to karyotypes.

The mean age at onset of puberty (spontaneous and induced) was 14.5 ± 2.1 years and 22% of TS had spontaneous puberty. The mean SH/HT SDS at onset of puberty was normal (0.9 ± 0.5). Fifty-nine patients were treated with growth hormone (GH) during follow-up. Thirty two patients reached adult HT. Twenty two of them had been treated with GH and SH/HT SDS ratios of patients were <2 except for one patient on GH. The frequency of abnormal body proportion at adult HT was 9.4%. Treatment with GH did not influence the body proportion. The frequency of abnormal body proportion was similar in patients who reached adult HT with or without GH (9.1% and 10% respectively). SH/HT SDS was similar in patients who reached adult HT with or without GH (1.2±0.4 and 1.3±0.4 respectively) (Table 2).

Table 1. Some characteristics of patients with TS at presentation

	MEAN ±SD (RANGE)
Chronological age (yrs)	11.9±2.9 (6 / 17.7)
Karyotype(%)	Classic : 50 % Mosacism : 18.5 % Structural : 27.2 %
Height SDS	-3.6±1.2 (-6.5 / -1.1)
Sitting height SDS	-3.4±1.3 (-6.2 / -0.6)
Sitting Height / Height SDS	1.1±1.4 (-3/5)
Weight SDS	-2.0±1.7 (-6.3/2)
Bone age(yrs)	9.9±2.5 (3.6/15)
Cardiac anomalies(%)	17.4%
Renal anomalies(%)	17.4%
Thyroid dysfunction (%)	16.3%
Dysmorphism(%)	96.7%

Table 2. Comparision of anthropometric measurements of patients at presentation, onset of puberty and adult height

	Patients treated with growth hormone	Untreated patients	P
Presentation	N:59	N:33	
Height SDS	-3.5±1.2	-3.8±1.3	0.29
Sitting height SDS	-3.3±1.1	-3.5±1.3	0.35
SH/HT SDS	1.0±0.3	1.0±0.3	0.73
Puberty	N:42	N:14	
Height SDS	-3.3±1.3	-4.0±1.0	0.19
Sitting height SDS	-3.3±1.2	-4.1±1.2	0.14
SH/HT SDS	1.0±0.2	0.9±0.3	0.56
Adult height	N:22	N:10	
Height SDS	-2.9±1.0	-3.4±1.3	0.06
Sitting height SDS	-3.2±1.1	-4.0±1.8	0.057
SH/HT SDS	1.1±0.4	1.2±0.4	0.7

Conclusions:

- **Abnormal body proportion was low in our patients with TS with respect to national standards. This finding is important in the evaluation of disproportionate growth.**
- **GH therapy did not affect body proportions.**

Disclosure : The authors have nothing to disclose.

References

1) *Neyzi O, Furman A, Bundak R, Günöz H, Darendeliler F, Baş F. Growth references for Turkish children aged 6 to18 years. Acta Paediatr 2006; 95: 1635–1641*

2) *Bundak R, Bas F, Furman A, Günöz H, Darendeliler F,Saka N, Poyrazoglu S, Neyzi O. Sitting height and sitting height/height ratio references for Turkish children aged 6 to 18 years. Eur J Paediatr 2014; 173: 861-869*