Factors Effecting Response to Growth Hormone Treatment in Children with Turner Syndrome

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Introduction : Short stature is the most common presenting symptom in Turner Syndrome (TS). Growth hormone (GH) treatment helps alleviating short stature in TS, although response to treatment varies significantly.

We aimed to evaluate the response to GH treatment and factors affecting this response in children with TS.

Method: Forty-nine patients with TS diagnosed by cytogenetic analysis and who had been followed minimum of 1-year with GH therapy were included in the study. Clinical and anthropometric parameters were obtained retrospectively from patients files. Height SDS changes >0.5 SD in 1st year of treatment was considered as good response.

Table 1. Clinical and laboratory features of cases

	Diagnosis	Beginning of therapy	1st year (n:49)	2nd year (n:40)
Age (yrs)	9.9±3.8	10.7±3.6		
Height SDS	-3.2±1.3	-3.0±1.1	-2.5±1.0	-2.3±1.1
Initial GH dosage (µg /kg/day)		41±1		

	Good Responders (n:27)	Bad responders (n:22)	p
Height SDS at presentation	-3.2±1.3	-2.6±1.0	p<0.05)
Peak GH to stimulation (mg/dL)	6.5±4	8.9±5	p<0.05
IGF-I SDS	-2.1±1.1	-1.7±1.3	NS
Final Height (cm)	152.5±2.3 (n:7)	147.1±5.6 (n:8)	p<0.01
MPH (cm)	158±7	156±6cm	NS
Final Height-MPH	p<0.01	p:0.07	

Table 2. Distribution of The Karyotypes

Karyotypes	n (%)
45,X	20 (40.8)
45X/46XX	7 (14.3)
46X,i(X)(q10)	6 (12.2)
Others	16 (32.7)

- Peak GH levels on provacative testing was the only parameter significantly different between good and bad reponders.

- Target height (TH), presenting age, birth weight, chronological age -bone age difference, change in IGF-I SDS after treatment were not different

- Final heights (reached in 15 patients) showed that poor responders had significantly lower FH tan their target height [147.1±5.6 vs. 158±7cm (p<0.01)], whereas this was not significant in good responders (152.5±2.3 vs. 156±6cm, p:0.07)

Conclusions

✓ Only significant factor affecting first year response to GH treatment was GH levels on provocative testing in children with TS.

✓ First year response to GH treatment predicts final height in patients with TS.