Etiologic distribution and characteristics of patients with short stature in a Pediatric Endocrinology Clinic

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Background

Short stature (SS) is one of the most frequent reasons for referral to pediatric endocrinology clinics.

Objective and hypotheses

We aimed to analyse the etiological factors of SS, in patients of our clinic, who are referred from general paediatrics with high likelihood of endocrinological problems after primary screening.

Method

1519 patients (693F) with height <3%[1] were included.

Clinical, anthropometric, radiological and laboratory data were recruited from patient's charts. Upper/lower segment ratio and/or armspan-height difference used for proportions. Disproportionate SS defined <-2SD or >+2SD, according to Turkish standarts[2]

Severe SS was defined < -3SD

Malnutrition defined BMI <-2SD

Growth hormone deficiency was diagnosed when low IGF-I/IGFBP-3 with subnormal growth velocity, stimulated GH≤7 ng/ml in two tests.

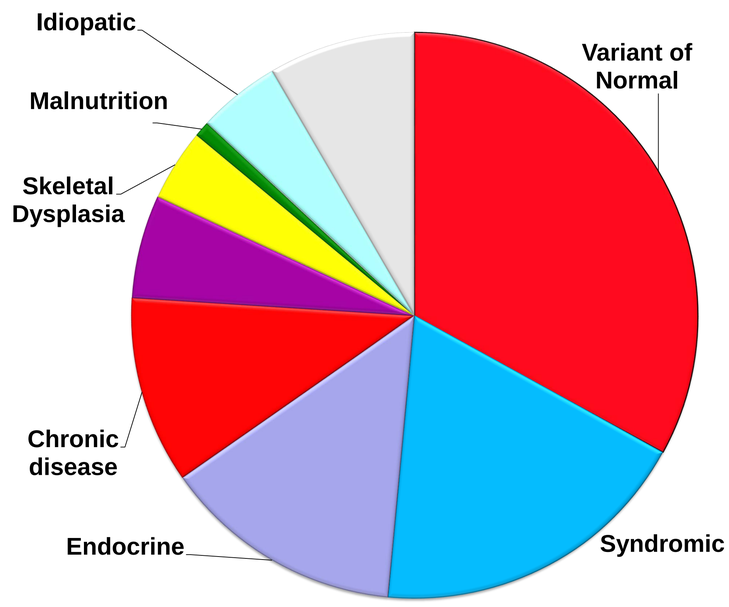
Table 1. General characteristics of patients with short stature (n=1519)

	n (%)
Girls	693 (45.6)
Severe SS	630 (41.5)
Disproportionate SS	238 (15.7)
SGA	316 (20.8)
	mean±SD (range)
Age (years)	10.2±4.2 (0.2 – 19.2)
Height SDS	-3.1±1.0
Target height SDS (n=1255)	-1.4 ± 0.9
BMI SDS	-0.3 ± 1.0

Results

Etiologic distribution of SS %

Familial and/or constitutional	33.0
Syndromic	18.4
Endocrine disorders	12.7
Chronic diseases	10.7
Non-syndromic IUGR	5.9
Skeletal dysplasia	4.1
Idiopathic	4.7
Malnutrition	1.2



(Aetiology could not be determined in 8.4% of the patients due to lost in follow-up)

✓ SGA was more prevalent in mothers with severe SS (33.3% vs. 19.4%, p:0.003).

✓ Turner Syndrome (TS) was detected in 3.9% of the population and 8.5% of the females. Cytogenetic analysis was performed in 47% of girls; 18% of them were consistent with TS.

✓ Isolated GHD, multiple pituitary hormone deficiency and hypothyroidism were detected in 6.8%, 3.5% and 1.6% respectively.

✓ Celiac disease was detected in %0.6, despite screening of Celiac antibodies in 46% of the population.

✓ In patients with severe SS, skeletal dysplasia and endocrine causes were more common, while, in non-severe SS, normal variant, idiopathic, chronic disease and IUGR were more common (p <0.001).

✓ The height SDS and target height SDS was significantly correlated in girls (r = 0.157, p <0.001); but not in boys (r = 0.030, p = 0.436).

✓ Short stature was detected in 47.1% of mother and/or father (<-2 SDS).

✓ SGA birth rate was more prevalent in the mother with severe short stature (33.3% vs 19.4%, p=0.003)

Conclusion

The initial screen and referring of high likelihood of endocrine problems lead to lower ratio of normal variant SS. When shortness gets more severe, the possibilities of endocrine causes and skeletal dysplasia increase. Having a severely short mother increases the likelihood of being born SGA and subsequent SS.

References

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