Prevalence of IGF1 deficiency in prepubertal children with isolated short stature (ISS) and their response to GH therapy.

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Introduction

Primary IGF1 deficiency (IGFD)' is defined by low levels of IGF1 without a concomitant impairment in GH secretion in the absence of secondary cause.

Aim of the study :

This study aimed to evaluate the prevalence of non-GH deficient IGFD in prepubertal children with isolated short stature (SS) and to describe their response to GH therapy.

Methodology

This retrospective study included all children with idiopathic short stature (ISS) seen in our Pediatric Endocrinology Unit from January 2017 to December 2017.

Inclusion criteria were:

i)   ISS with current height SDS < -2.

ii) age > 2 years.

iii) prepubertal status.

Exclusion criteria were:

i)   identified cause of SS.

ii) current or past therapy with GH.

** IGF1-deficient children were defined as children without GH deficiency and with IGF1 levels below or equal to -1.5 SDS for age and sex.
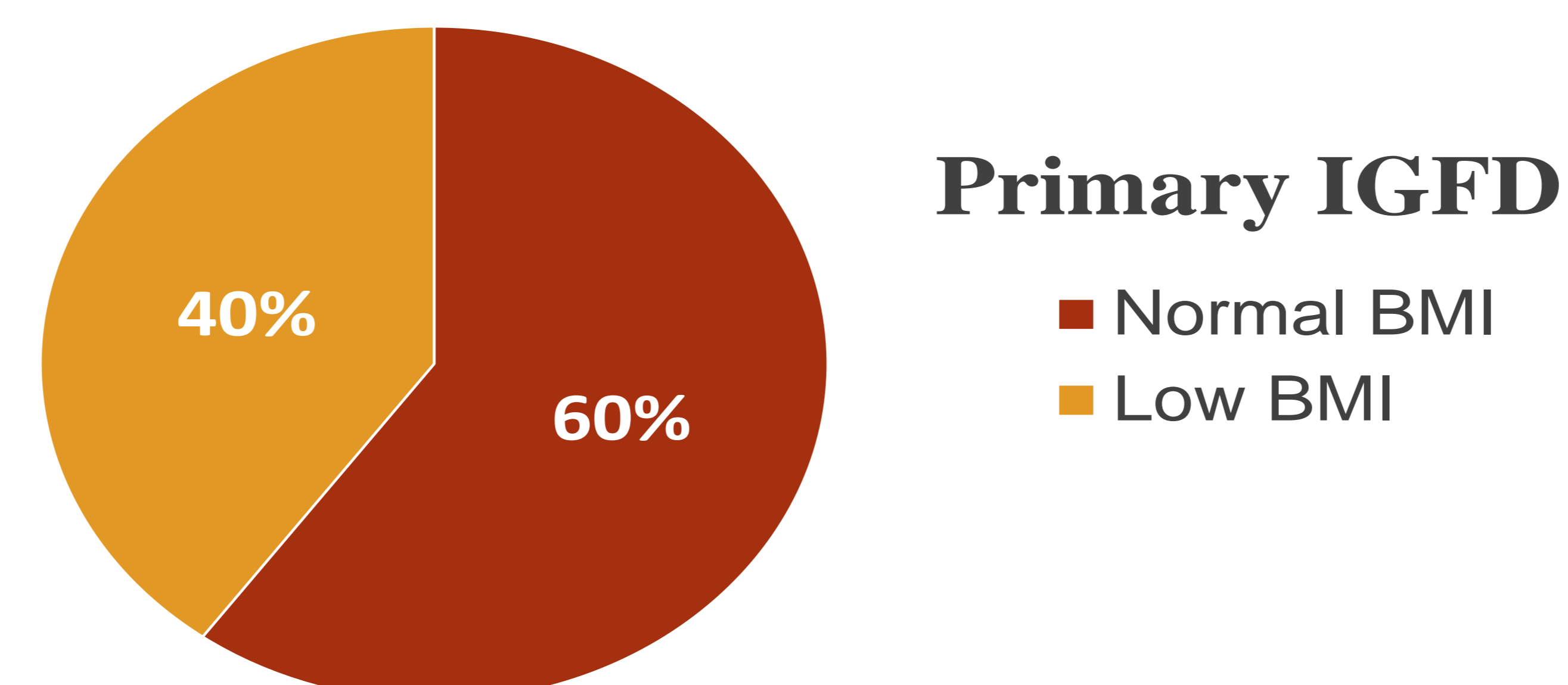
Results

Among 38 children with isolated SS, 10 (26%) had low IGF1 levels, consistent with a diagnosis of primary IGFD. All were born appropriate for gestational age.

- 26% Primary IGFD
- 74% Normal IGF-1
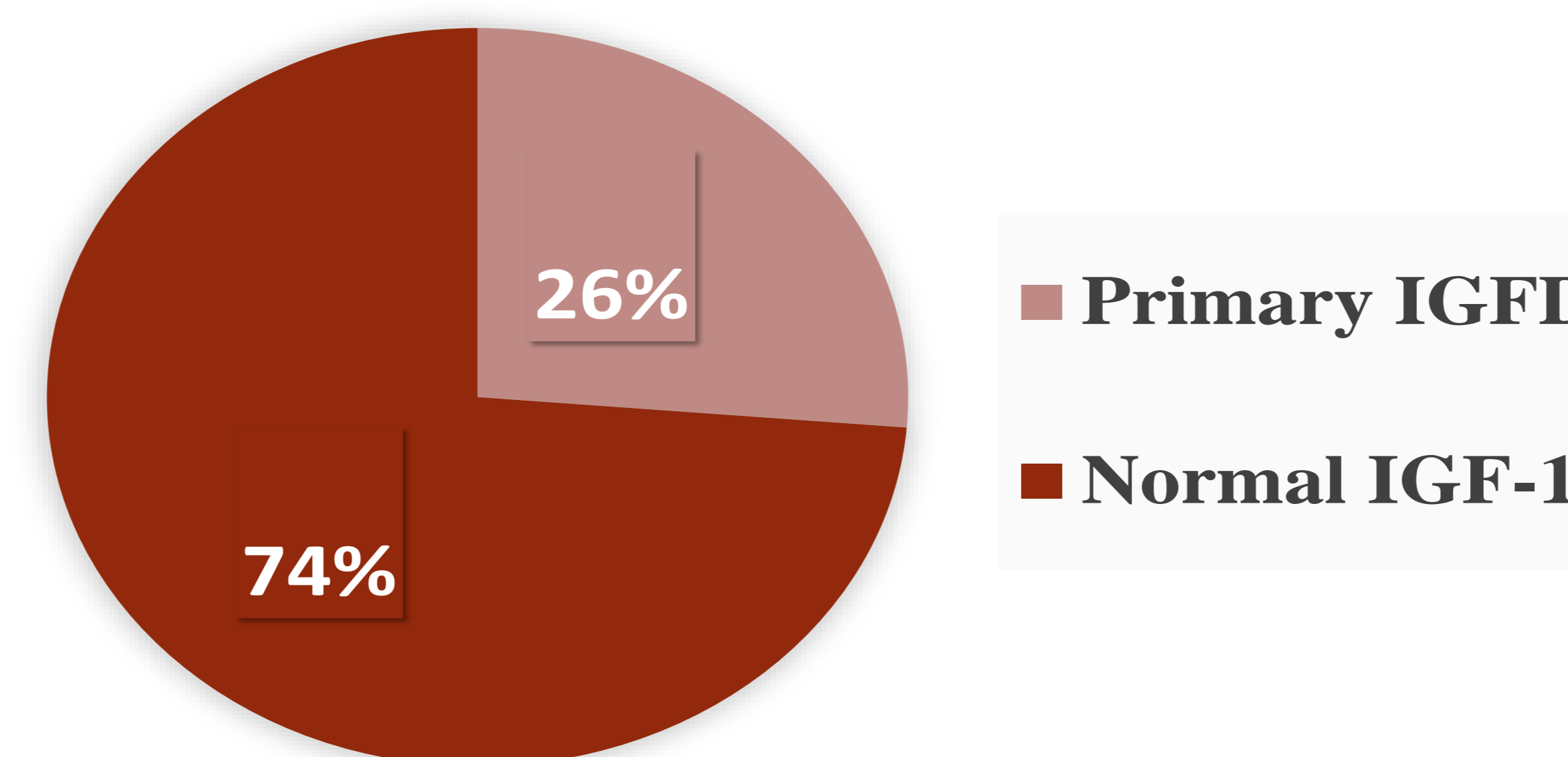
Compared with non-IGFD ISS children, IGFD children were shorter (p =0.02) and their parents were shorter (p = 0.05) than ISS with normal IGF1.

Bone age and BMISDS did not differ between the two groups.

Primary IGFD
- Normal BMI
- Low BMI
- 60% Normal BMI
- 40% Low BMI

Results

40% of ISS children with low IGF1 had low BMISDS (< -1.7).
After one year of treatment with GH (0.05 mg/kg/d), HtSDS, BMISDS, and bone age did not differ between ISS treated with GH versus the non-treated group.

Conclusion

The prevalence of primary IGFD was 26% in children with ISS.
Concerning the pathophysiology, our study emphasizes that IGFD in some children may be secondary to undernutrition.
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