

Disclosure: the authors have no competing interests

Introduction

- In children with HR, the treatment attempts to correct growth and leg deformities. However, final height is compromised despite treatment, and it promotes developing nephrocalcinosis in the future.
- Some factors (such as sex or age) have been related to height outcome, but little is known about the impact of growth with different dosages of treatment or of alkaline phosphatase (ALP) levels.

Methods

- Retrospective review of patients with HR (2006-2016).
- Patients were divided into two groups according to their catch up growth after treatment. The first group improved the height more (G1: Δ Zscore height > 0.5 SDS) than the second group (G2: Δ Zscore height ≤ 0.5 SDS).
- Improvements were evaluated according to their sex and age at diagnosis, treatment dosages and ALP levels.

Results

Table 1. The participant's general data

N = 9 (5 females)	Median	IQR
Age at diagnosis (years)	2.8	(2.1, 3.6)
Years' follow-up	4.4	(3.9, 8.1)
Decline ALP* (last visit- diagnosis)	-0.4	(-0.7, -0.1)
Δ Z score height (SDS)	0.5	(-0.04, 0.65)
Last visit: Z score height – Z score midparental height (SDS)	-1,8	(-2.4, -1.5)

*ALP was expressed as multiples of the upper limit of normal age reference range

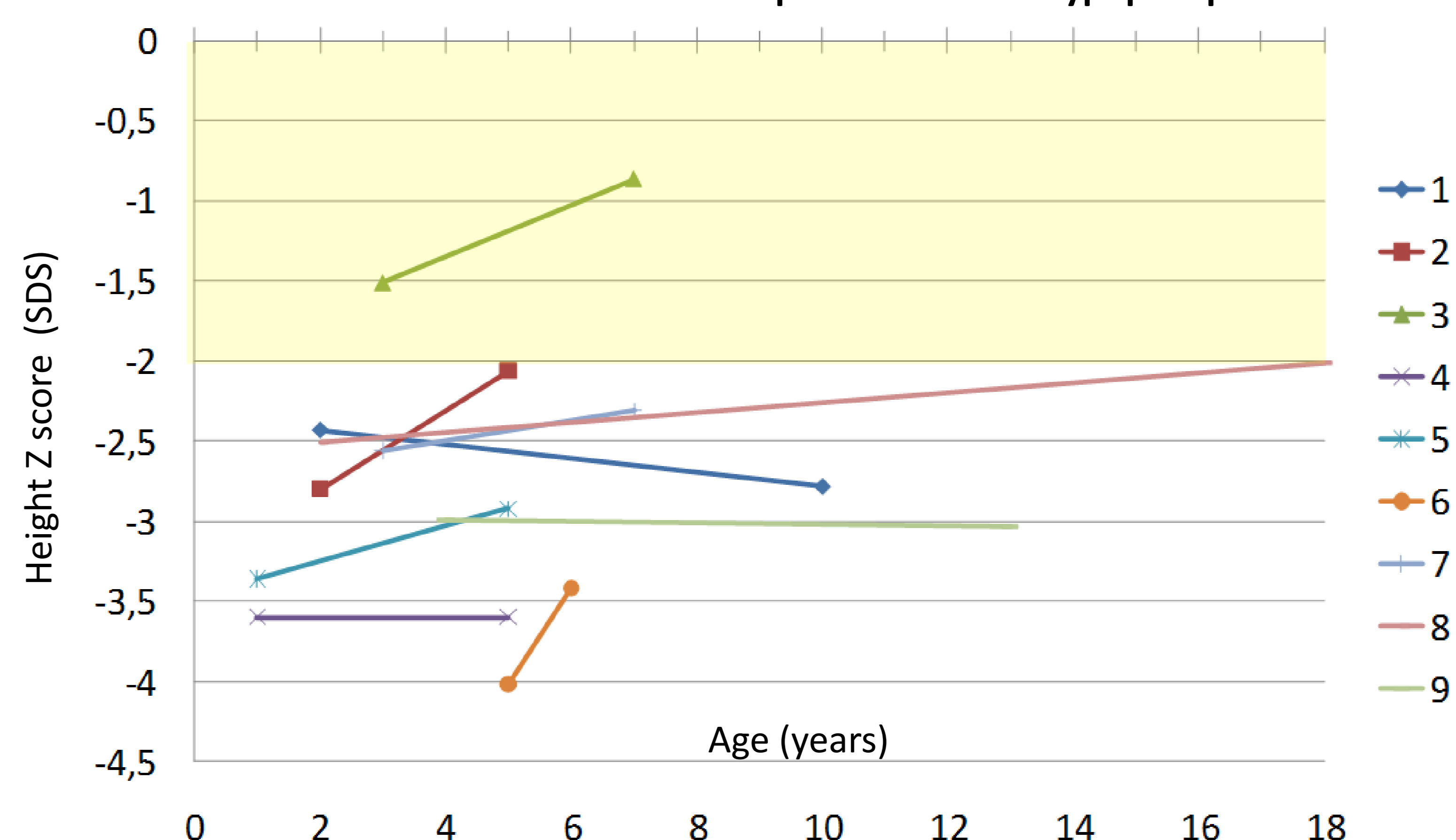
	Δ Z score height > 0.5 SDS (n= 4)	Δ Z score height ≤ 0.5 SDS (n= 5)	p
Sex	60% females	50% males	ns
Age at diagnosis (years) median (IQR)	2.6 (1.8, 3.7)	2.8 (2.2, 3.6)	ns
Phosphate (mg/Kg per day) median (IQR)	68.5 (65.8, 69)	70 (56.9, 82.3)	ns
Calcitriol (ng/Kg per day) median (IQR)	25.7 (24.1, 27)	23.4 (14.4, 27)	ns
Decline ALP (last visit – diagnosis)	-0.6 (-0.8, -0.4)	-0.1 (-0.6, -0.1)	ns

Table 2. Evaluation of growth in relation to dosages of treatment and ALP

Objectives

- To evaluate growth improvement in relation to: dosages of phosphate and calcitriol, and the decline of ALP.
- To assess the relationship between dosages and duration of treatment with the incidence of nephrocalcinosis.

Graph 1. Growth in hypophosphatemic rickets



	Absence of nephrocalcinosis (n= 4)	Presence of nephrocalcinosis (n= 5)	p
Phosphate (mg/Kg per day) median (IQR)	68.5 (65.5, 68.9)	70 (58.1, 82.3)	ns
Calcitriol (ng/Kg per day) median (IQR)	28.2 (25.2, 34)	19.8 (14.4, 25.6)	ns
Treatment (years) median (IQR)	6.8 (5.9, 8.9)	7.5 (5.5, 10.3)	ns
ALP at last visit	1.2 (1, 1.3)	1.8 (1.7, 1.8)	0.048

Table 3. The relationship between the treatment and incidence of nephrocalcinosis

Conclusions

- The children improved their growth but remained below their midparental height.
- We are unable to identify any specific treatment protocol that would be associated with a better height outcome.
- The children with nephrocalcinosis had a higher level of ALP at their last visit, which could reflect a more aggressive phenotype.

References

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