



Response to rhGH treatment in patients with transient or permanent growth hormone deficiency

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GROWTH

INTRODUCTION AND OBJECTIVES

Growth hormone (rhGH) treatment improves adult height in GH deficient (GHD) patients. However, there are differences in short and long term responses to treatment between children with permanent deficiency (PDGH) and those who present a transient deficiency (TDGH) when reassessed at final height (FH).

The main objective of the study is to evaluate the response to GH treatment in patients with PDGH or TDGH one year after initiating treatment and at adult height when treatment was suspended.

METHODS

Descriptive, retrospective study including 89 patients diagnosed of GHD (GH peak concentration lower than 10 ng/mL). Patients were treated with rhGH and followed-up to adult height. TDGH was defined as GH peak concentration greater than 6 ng/mL on final reassessment. We use *Stata Statistical Software: Release 12* statistical package for analysis of the data. The results were considered statistically significant when $p < 0.05$.

RESULTS

Variables	PERMANENT	TRANSIENT
Number of patients	25	64
Sex		
Girls	36% (n = 9)	33% (n = 21)
Boys	64% (n = 16)	67% (n = 43)
DIAGNOSIS		
Age (years)	10.5 ± 3.4	10.8 ± 2.7
Height at diagnosis (SD)	-2.46 ± 0.86	-2.24 ± 0.68
Target height (cm)	166.6 ± 8.73	164.8 ± 8.17
(SD)	-0.61 ± 0.66	-0.95 ± 1.02
Predicted adult height (cm)	159.9 ± 10.55	160.2 ± 8.59
(SD)	-1.68 ± 1.04	-1.74 ± 0.99
BMI (SD)	-0.36 ± 0.84	-0.43 ± 0.7
Bone age (%)		
Retarded < 1 year	60% (n = 15)	81% (n = 52)
Average	40% (n = 10)	19% (n = 12)
Advanced > 1 year	0%	0%
Pubertal stage		
Prepuberty	88% (n = 22)	93.7% (n = 60)
Puberty	12% (n = 3)	6.3% (n = 4)
GH peak (ng/mL)	4.26 ± 2.78	6.2 ± 2.01
GH initial dose (mg/kg/día)	0.03 ± 0	0.03 ± 0
EVALUATION AT FIRST YEAR OF TREATMENT		
Height (SD)	-1.91 ± 0.91	-1.88 ± 0.69
Height increase (SD)	0.55 ± 0.53	0.36 ± 0.47
Growth velocity (cm)	8.9 ± 2.69	8.2 ± 1.68
(SD)	4.33 ± 3.53	2.95 ± 2.54
Good response		
Height increase > + 0.3 SD	56% (n = 14)	46% (n = 30)
Growth velocity > + 1 SD	76% (n = 19)	76% (n = 49)
ADULT HEIGHT		
Height (cm)	165.2 ± 8.5	163.9 ± 8.2
(SD)	-0.81 ± 0.87	-0.95 ± 0.83
Final height - height at diagnosis (increase, SD)	1.65 ± 1.43	1.29 ± 0.8
Final height - predicted adult height (increase, cm)	5.5 ± 6.22	4 ± 4.94

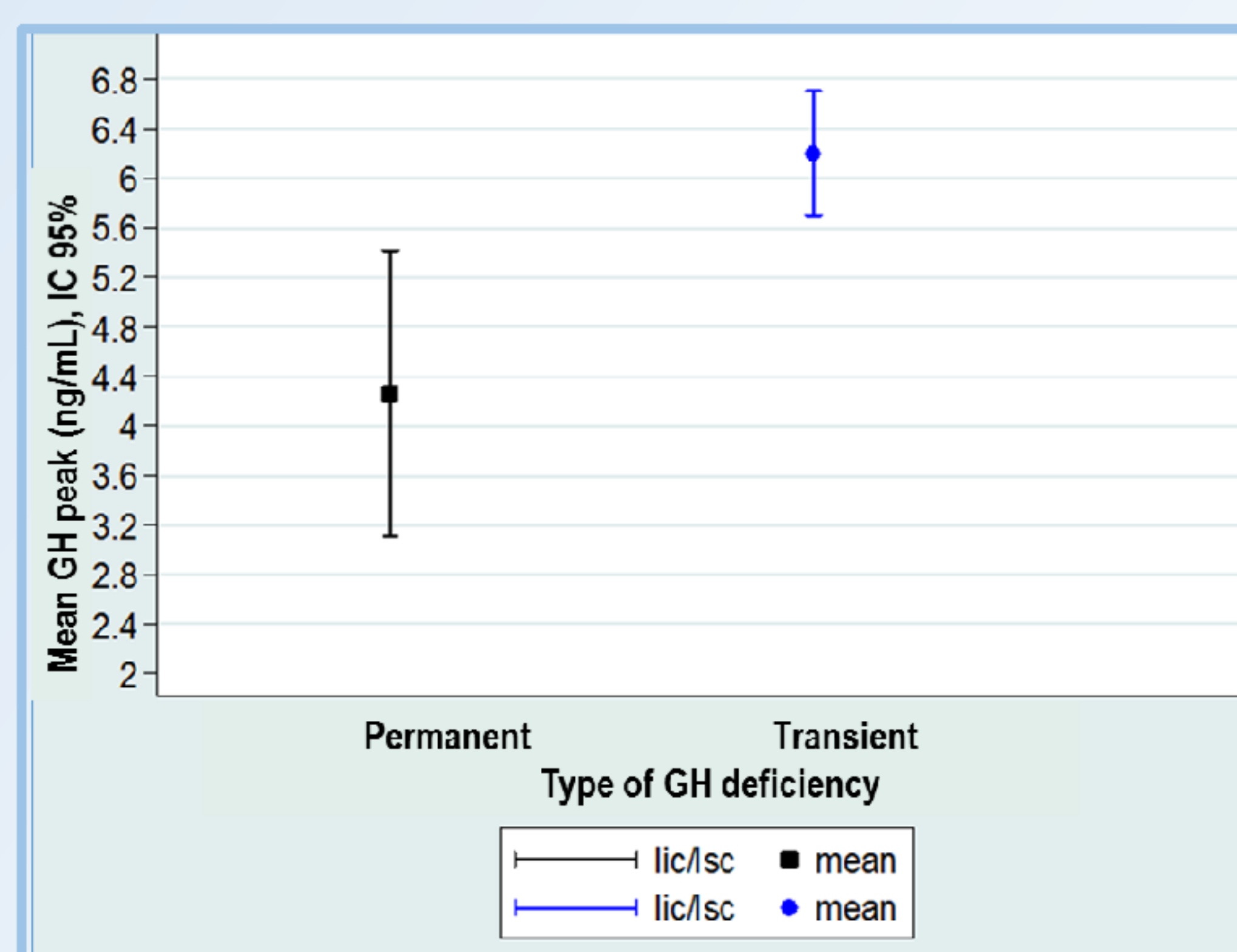


Figure 1. Mean peak of GH concentrations at diagnosis

Patients with PDGH presented lower response to GH stimulation test as compared with TDGH ($p < 0.0004$)

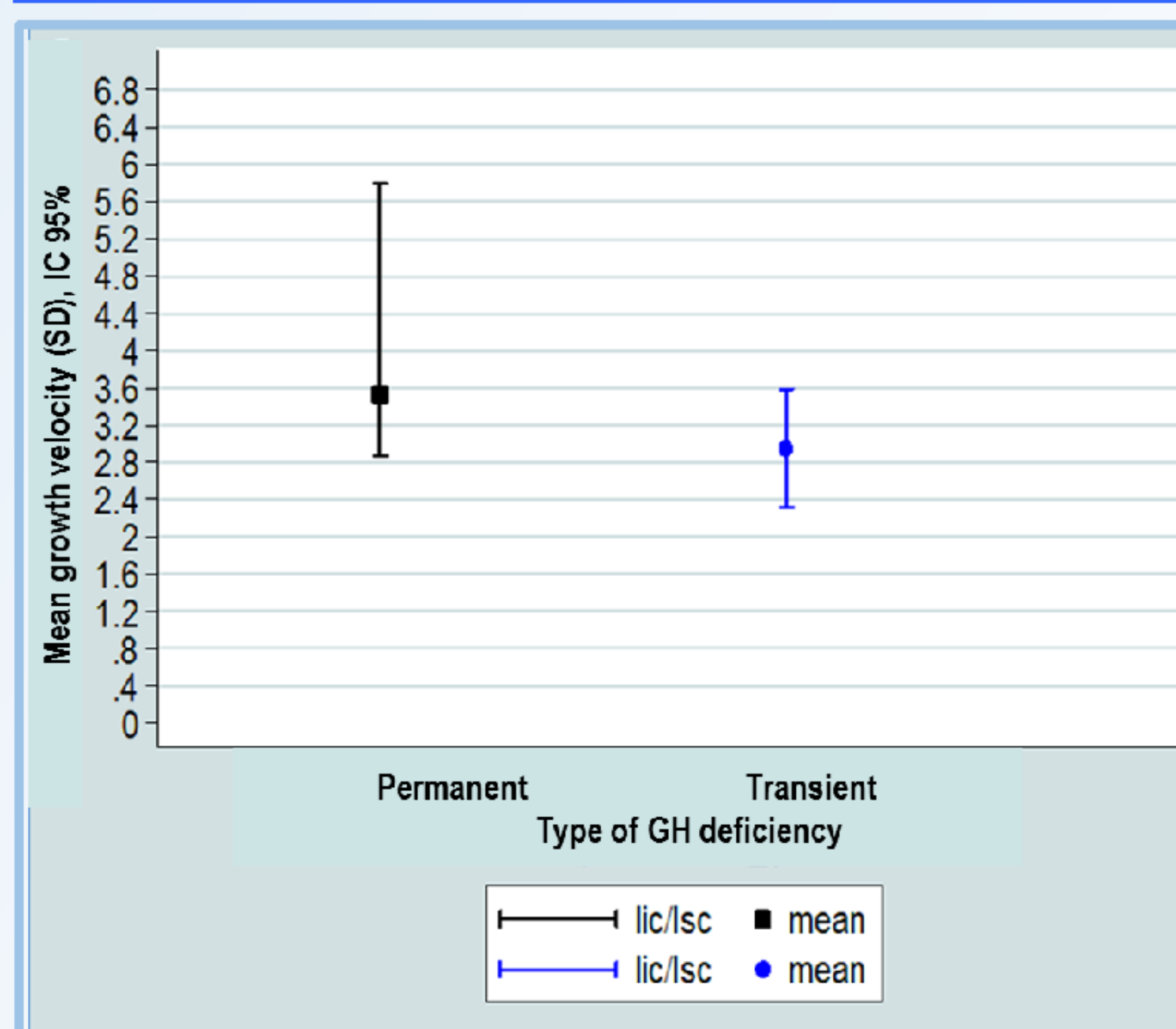


Figure 2. Mean growth velocity (SD)

Growth velocity was higher in PDGH patients than in TDGH children ($p < 0.04$)

CONCLUSION

Children with permanent growth hormone deficiency have a better response to rhGH treatment than those with transient deficiency. All patients included in the study attained a final height below their target height

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