GROWTH HORMONE TREATMENT: DOES TIMING MATTER?

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INTRODUCTION AND OBJECTIVES

Treatment with recombinant growth hormone (rGH) is safe and has greatly improved the approach of children and adolescents with growth hormone deficiency (GHD) and other growth disorders.

Some studies show that most of the height gain associated with GH treatment occurs in prepubertal years. However other studies show that treatment in latter stages of development may be also effective.

The aim of our study was to evaluate the effect of age at start of treatment on the final height in children treated with rGH in a Portuguese cohort.

METHODS

- Multicentric retrospective study of patients who completed treatment with rGH in two reference centers of Portugal.
- The variables analyzed included sex, diagnosis, mid-parental height (MPH), height at the beginning and end of treatment and duration of treatment during pre-puberty/early puberty.
- 2 groups of patients were constructed based on the age at the beginning of treatment. Group 1 consisted of girls under 10 and boys under 11 years old at the beginning of treatment and group 2 of patients over that age.
- Group 2 of patients consisted in girls over 10 and boys over 11 years old on the beginning of treatment.
- Comparative statistical analysis between the two groups was preformed using SPSS® v20 paired and independent t-test samples.

RESULTS

Patients' distribuition according to group, gender, MTH, etiology, duration of treatment, pre-pubertal years of treatment and height at beginning and end of treatment

Variable		Group 1 n=42 (46%)	Group 2 n=50 (54%)	*P-value*
Gender	**♀ n = 32 (35%)/ ♂ n= 60 (65%)**	13 / 29	19 / 31	-
MPH (cm)		164.4±7	168.4±7.1	0.010
MPH (SDS)		-1.5±2.1	-1.07±1.3	NS
Etiology	**Isolated GHD**	21	45	<0.001
	Multiple pituitary deficiencies	21	5	<0.001
Mean age (years)	**Beginning of treatment**	6.0	13.4	<0.001
Pre-pubertal years of treatment		6.3±3.1	0.97±0.4	<0.001
Mean duration of treatment (years)		9.3 ± 2.8	6.2 ±3.9	<0.001
Height	**Beginning of treatment (SDS)**	-2.7	-2.9	NS
	End of treatment (SDS)	-1	-1.5	0.012
ΔHSDS		+1.7	+1.4	NS

Patients' distribuition according to etiology, gender, duration of treatment, pre-pubertal years of treatment and height at beginning and end of treatment

Variable		Isolated GHD n=66 (71%)	Multiple pituitary deficiencies n=26 (29%)	*P-value*
Gender	**♀ n = 32 (35%) / ♂ n= 60 (65%)**	18 / 47	14 / 13	-
Mean age (years)	**Beginning of treatment**	11.9±2.9	5.6±4.5	<0.001
Pre-pubertal years of treatment		1.8±2.7	6.6±3.9	<0.001
Mean duration of treatment (years)		4.9 ± 1.5	9.1 ±4.8	<0.001
Height	**Beginning of treatment (SDS)**	-2.8	-2.8	NS
	End of treatment (SDS)	-1.4	-0.9	0.045
ΔHSDS		+1.4	+1.7	NS

SDS – standard deviation score; NS – no nsignificant

CONCLUSION

Our study reflects the reality of two reference Endocrinology centres in Portugal.

Our results showed that starting treatment of children with GHD at a younger age was associated with improved final height and underscores the need for early diagnosis and therapy.

With this study we hope to alert the paediatric community to this fact.

BIBLIOGRAPHY: Recombinant growth hormone therapy in children with short stature in Kuwait: a cross-sectional study of use and treatment outcomes. Al-Abdulrazzaq D, Al-Taiar A, Hassan K, Al-Basari I. BMC Endocr Disord. 2015 Dec 3;15:76.

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