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Final Heigh(FH) in patients with and without pituitary abnormalities deteted by MRI and/or CT treated with Growth Hormone(GH)

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BACKGROUND

Growth hormone deficiency(GHD) occurs due to different etiologies, morphological abnormalities in pituitary , or mutations leading the individual to lose the genetic growth potential. The pituitary dysfunction can be as GHD alone or associated with other hormones deficiencies. Patients with abnormalities in pituitary may present a greater height loss than others and couldn't reach the target height according to final height(FH).

OBJECTIVES

To correlate H-SDS at diagnosis, with Final Height(FH)-SDS and Target height(TH)-SDS of the patients treated with GH who reached FH. To compare the gain of height until FH in patients with and without pituitary abnormalities changes detected by MRI and / or CT treated with GH.

METHODS

Were analysed medical records of patients, treated with growth hormone, who reached FH (growth velocity below 1cm/y, and/or bone age >17y for boys and >16y for girls), in the period 1993-2014 at a single service. MRI or CT were analyzed in all patients. Sample of T4f, TSH, LH, FSH, Cortisol were also analyzed. Were obtained H-SDS at diagnosis, FH-SDS, and ΔH-SDS and made comparison between patients with and without pituitary abnormalities detected by MRI/CT . Were compared H-SDS and FH-SDS with TH-SDS in all patients.

RESULTS

Were evaluated 34 patients who reached FH, 18 male. Time of treatment 3.94y (0.33-14). Nine patients with pituitary abnormalities: pituitary hypoplasia in 9, empty sella in 2 and ectopic neurohypophysis in 3. At diagnosis they average age were 11.39y(4.16-15.66) and at FH 17.75y(14-21.08).

COMPARISON BETWEEN H-SDS AT DIAGNOSIS AND FH-SDS IN PATIENTS WITHOUT AND WITH PITUITARY ABNOMALITIES

Groups	n	Mean ± SDS	p
H-SDS at diagn (Without)	25	(-1.76 ± 0,79)	
H-SDS at diagn (With)	9	(-2.97 ± 2.08)	**0.04**
FH-SDS (Without)	25	(- 0.90 ± 0,60)	
FH-SDS (With)	9	(- 1.24 ± 0.87)	**0.44**
ΔH- SDS (Without)	25	(0.86 ± 0,79)	
ΔH- SDS (With)	9	(1.73 ± 1.62)	**0.08**

Mann-Whitney test

COMPARISON BETWEEN H-SDS AT DIAGNOSIS, FH-SDS AND TH-SDS IN ALL PATIENTS

Groups	n	Mean ± DP	Median ± DQ	P*
H-SDS at diagnosis	34	(-2.08 ± 1.34)	(-1.99 ± 0.63)	
TH-SDS	34	(-0.96 ± 0.67)	(-0.87 ± 0.51)	**<0.01**
H-SDS at diagnosis	34	(-2.08 ± 1.34)	(-1.99 ± 0.63)	
FH-SDS	34	(-0.99 ± 0.69)	(-1.00 ± 0.44)	**<0.01**
FH-SDS	34	(-0.99 ± 0.69)	(-1.00 ± 0.44)	
TH-SDS	34	(-0.96 ± 0.67)	(-0.87 ± 0.51)	**<0.99**
ΔH-SDS	34	(1.09 ± 1.11)	(1.07 ± 0.44)	

Wilcoxon Test

Levothyroxine were used in 4 patients (3with/1without), sex steroids in 4 and hydrocortisone in 2.

DISCUSSION

Treatment with GH, enhances the growth rate and FH in children with GHD. This sample assured the need for treatment and the gain stature in patients with GHD in relation to TH. When comparing the groups with and without pituitary abnormalities, revealed that patients with pituitary abnormalities have a loss of stature much more important. Until FH, the group with pituitary abnormalities, got a higher growth (ΔH-SDS), but the comparison between FH-SDS in groups showed no significant difference. Studies show that the average time of treatment needed to obtain an increase of 3.5 to 7.5 cm at FH is 4 to 7 years. In this sample, the average duration of treatment with GH was 3.94 years.

CONCLUSION

There was a significant difference in H-SDS at diagnosis in patients with GHD compared with FH-SDS and TH-SDS. Patients with pituitary abnormalities had H-SDS lower than patients without pituitary abnormalities at diagnosis, but no difference were found in FH-SDS after treatment. During treatment, the Δ-H-SDS in patients with pituitary abnormalities was biggest. All patients reached FH according target height after treatment with GH.

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