Growth trajectory and final height in children with non classical congenital adrenal hyperplasia

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Background

Subjects with non classical congenital adrenal hyperplasia (NCCAH) often present an increased growth velocity secondary to elevation of adrenal androgens that promote early bone maturation and compromise final height (FH). The aim of the study was to analyze prognostic factors affecting growth trajectory and FH in children with NCCAH.

DESIGN:

retrospective, multicentric study

Study population:

192 (140 females) NCCAH children with confirmed molecular diagnosis followed from diagnosis up to FH.

Methods:

clinical records were collected and analyzed. The study population was divided for **gender,** with or without **hydrocortisone treatment** (171 treated with hydrocortisone) and type of the **mutation of CYP21A2 gene** (V281L homozygosis in 55, compound heterozygosis with V281L in 85 and other mutations in 48 cases).

FH (SDS), pubertal growth (**PG**) (cm), growth trajectory (**GT**) since diagnosis to FH (SDS) and FH adjusted to target (TH) (**FH-TH**)(SDS) were evaluated as outcomes using stepwise linear regression models.

Results:

FH SDS and **FH-TH** were **not significantly different in both gender (-0.34 vs -0.36, p =0.98** and **-0.05 vs 0.05, p=0.65**, respectively).

At stepwise linear regression analysis, **FH** and **FH-TH** resulted significantly **related to chronological age** (CA) (p= 0.008 and 0.016), **bone age (BA) / CA ratio** (p= 0.004 and 0.001), **height (H)** (p=0.000 for both parameters) **at NCCAH diagnosis and TH** (p=0.013 and 0.000).

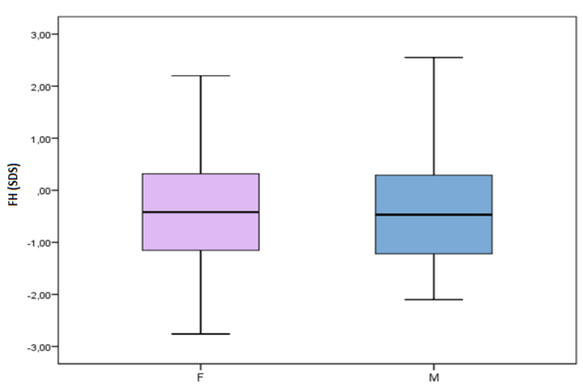
PG was **higher in males** (22.59±5.74 vs 20.72±17.4 cm in females) (p=0.002), as physiologically observed, and was **positively related to H** (p=0.027), **negatively to BMI** (p=0,001) **and BA/CA ratio** (p=0.001) **at NCCAH diagnosis**.

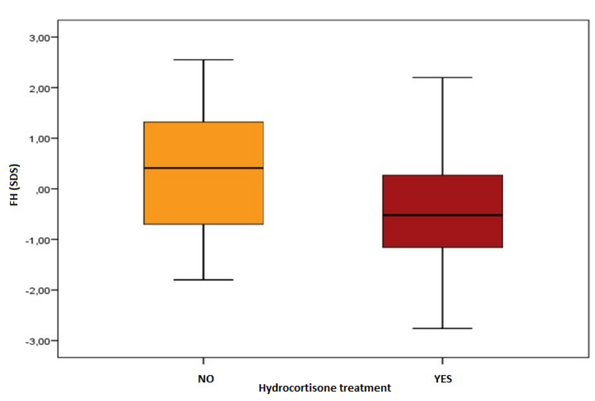
The **type of the mutation** of CYP21A gene and **hydrocortisone doses did not influence** significantly **the parameters of growth of our NCCAH patients.**

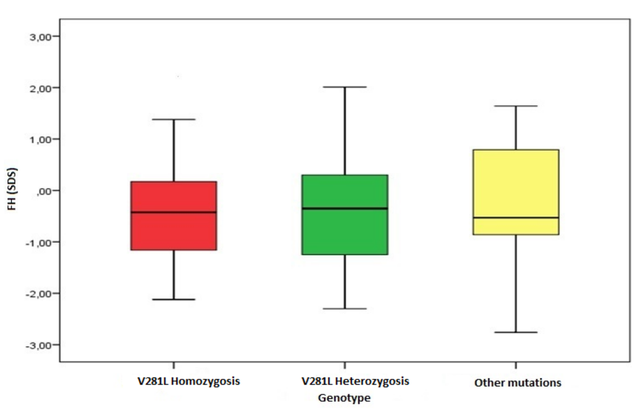
The comparison between treated with hydrocortisone and untreated patients did not evidence significant differences on GT, but the statistic value of these results is limited by the small number of untreated group

OUTCOMES

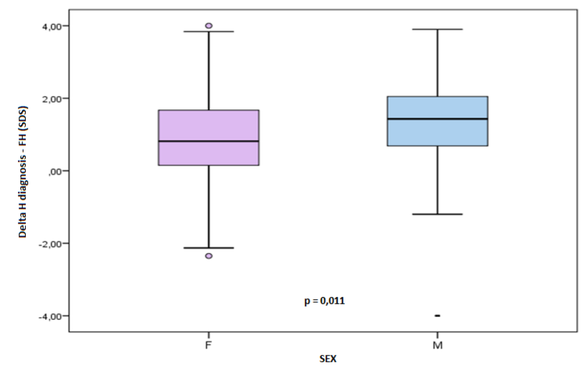
FH (SDS)

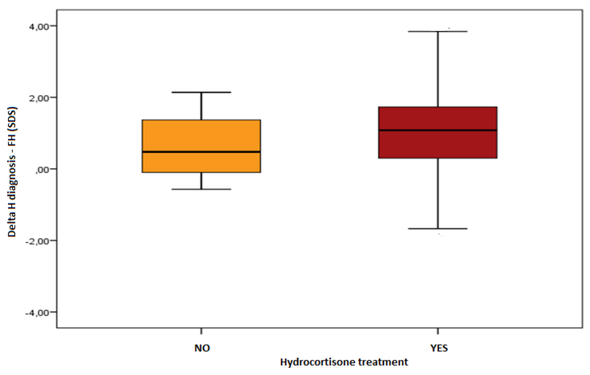


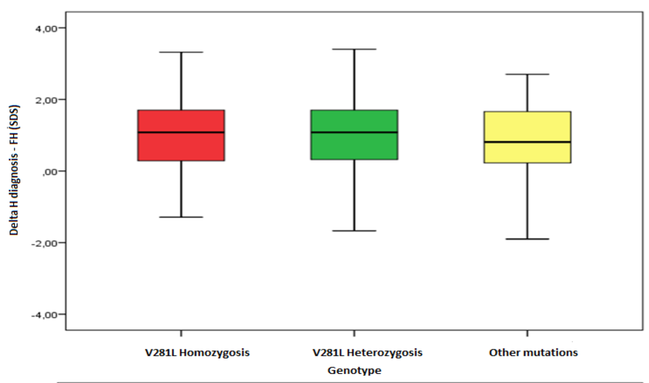




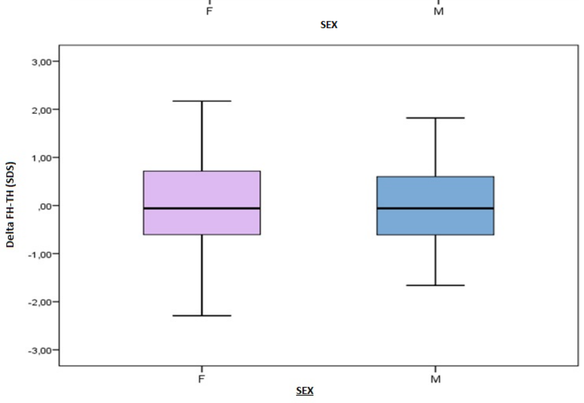
Delta H diagnosis – FH (SDS) = GT

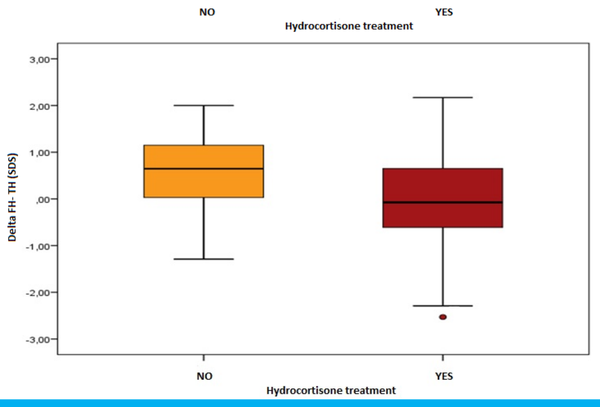


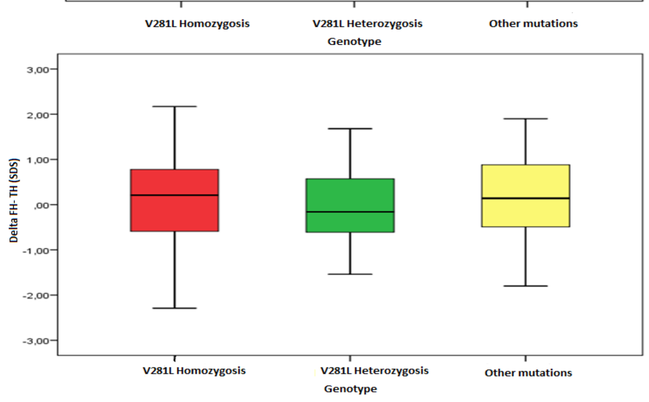




Delta FH- TH (SDS)







CONCLUSION

FH and GT of NCCAH patients are **significantly influenced by auxological parameters at diagnosis (CA, BA/CA ratio, H).**

Gender, molecular alteration, biochemical picture and hydrocortisone doses seem to have no important influence on height outcome of these NCCAH children.