PREMATURE PUBARCHE:
DISTINGUISHING BETWEEN NONCLASSIC CONGENITAL ADRENAL HYPERPLASIA AND IDIOPATHIC PREMATURE PUBARCHE

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INTRODUCTION

Premature Pubarche (PP), or the development of pubic hair before the age of 8 years in girls or 9 years in boys, is most commonly caused by Idiopathic Premature Adrenarche (IPA). There is an increased production of Dehydroepiandrosterone (DHEA) and DHEA Sulfate (DHEAS) by the adrenal zona reticularis without a concomitant rise in Cortisol. IPA is a diagnosis of exclusion and differential diagnosis must include milder and nonclassic variants of Congenital Adrenal Hyperplasia (CAH), that can account for 0 to 40% of cases of PP. Early morning basal 17-Hydroxyprogesterone (17OHP) above 200 ng/dL is 100% sensitive and 99% specific for CAH.

PURPOSE

To identify clinical predictors of CAH and IPA in children with PP.

MATERIAL AND METHODS

A retrospective study was conducted, that included children seen for PP between 2001 and 2011 with baseline blood sampling for DHEAS, Androstenedione, 17OHP and Free Testosterone and a follow up of at least 1 year. Patients were considered to have CAH if their 17OHP level was > 200 ng/dL and CAH was confirmed by mutational analysis of the CYP21 gene. Exclusion criteria were: neonatal onset, concomitant clinical signs of central puberty and genetic syndromes. Statistical analysis was done using SPSS 19th ($p<0,05$).

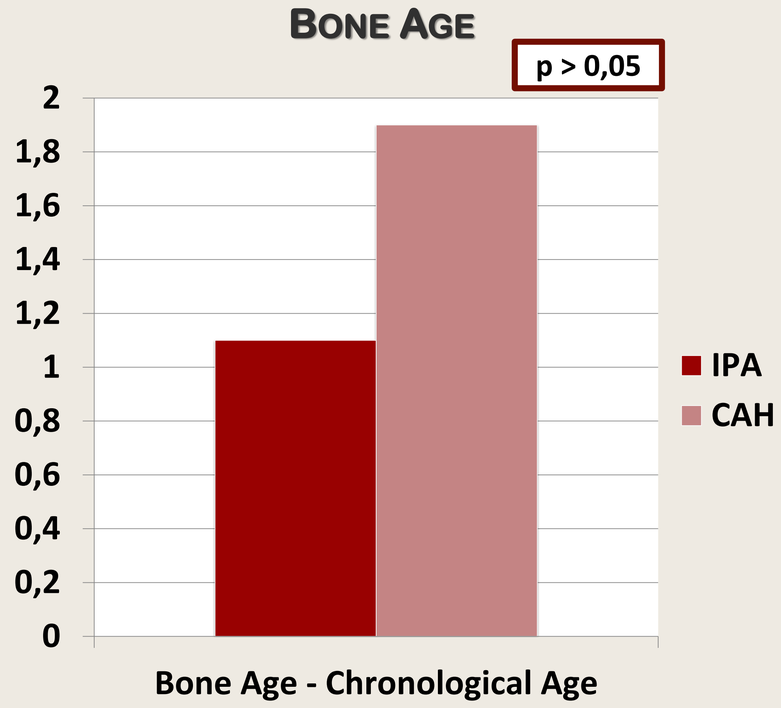
RESULTS

DEMOGRAPHICS

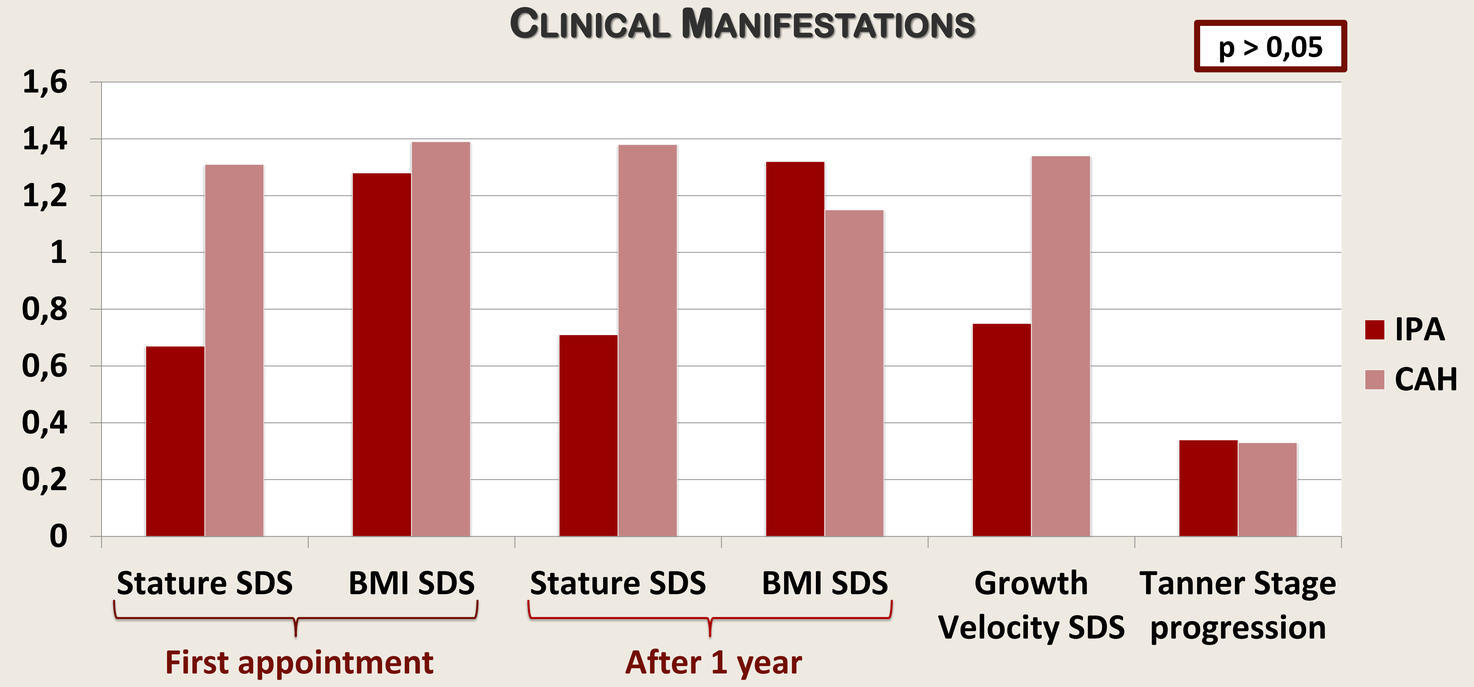
n = 53

	IPA (n = 47)	CAH (n = 6)	*p*
Gender	83,0% female	83,3% female	0,983
Age at onset of PP	4,9 ± 1,6 Y	4,9 ± 2,2 Y	0,940
Age at presentation	6,9 ± 1,5 Y	7,1 ± 1,0 Y	0,692
Other symptoms (axillary hair, acne, apocrine body odor)	23,4%	33,3%	0,595

BONE AGE

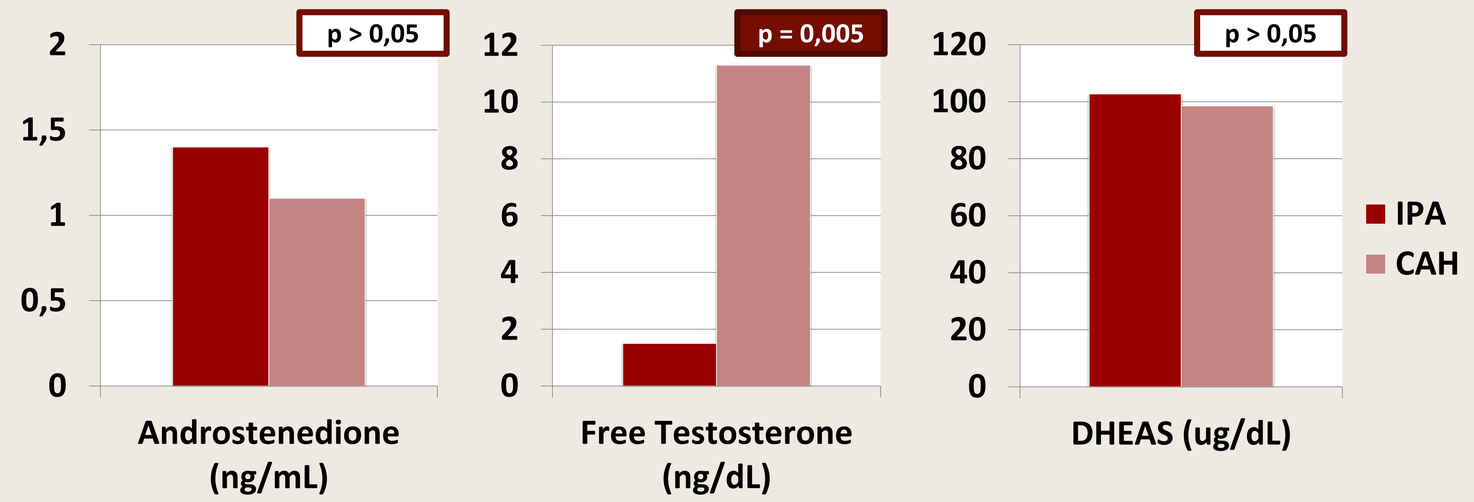


CLINICAL MANIFESTATIONS



SDS standard deviation score, BMI body mass index

HORMONAL EVALUATION



DISCUSSION

- ❑ **CAH was found in 11% of children presenting with PP**
- ❑ **Clinical presentation was similar in IPA and CAH**
  - **Age at onset of PP and at presentation on the first appointment**
  - **Low incidence of other symptoms related to androgen excess (axillary hair, acne and apocrine body odor)**
- ❑ **Stature SDS at the first appointment and after one year and Growth Velocity SDS were higher in CAH, but without statistical difference**
- ❑ **Other clinical manifestations were indistinguishable**
  - **BMI SDS at the first appointment and after one year**
  - **Progression of pubic hair Tanner Stage**
- ❑ **Besides 17OHP, only Free Testosterone was higher in the CAH group (p=0,005)**
  - **Androstenedione and DHEAS didn't differ significantly**
- ❑ **Bone Age was slightly advanced in CAH, but without statistical difference**
- ❑ **Limitations**
  - **Retrospective study**
  - **Small sample (few cases of CAH)**
  - **Selection for mutational analysis of the CYP21 gene on the basis of 17OHP level, without ACTH stimulation testing**

CONCLUSION

CAH cannot be distinguished from IPA on a clinical basis. Evaluation of androgens is essential to make the differential diagnosis in a child with PP.

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