

# Correlation of 11-oxygenated C19 androgens with the clinical and biochemical characteristics in premature adrenarche

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## INTRODUCTION

Premature adrenarche (PA),

- appearance of pubic and/or axillary hair in girls younger than 8 years old
- caused by the rise in adrenal androgen production
- Dehydroepiandrosterone (DHEA)
- DHEA - sulfate (DHEAS)
- Androstenedione (A4)

Biochemical marker of adrenarche:  
DHEAS  $\geq$  400  $\mu$ g/L

Adrenals also produce

11-oxygenated C19 androgens:

- 11 $\beta$ -OH androstenedione (11OHA4)
- 11 $\beta$ -OH testosterone (11OHT)

## OBJECTIVE

to investigate the relation of 11-oxygenated C19 androgens with the clinical and biochemical characteristics of PA

## METHODS

A cross-sectional study

Quantitation of plasma

- DHEA
  - DHEAS
  - A4
  - Androsterone
  - 17OHpregnenolone
  - 11OHA4
  - 11OHT
- by LC-MS/MS

Idiopathic PA group (n=53)

Age range 3.6-8.5 yrs, girls

Control group (n=35)

Age-matched girls without PA

Definitions

Advanced bone age

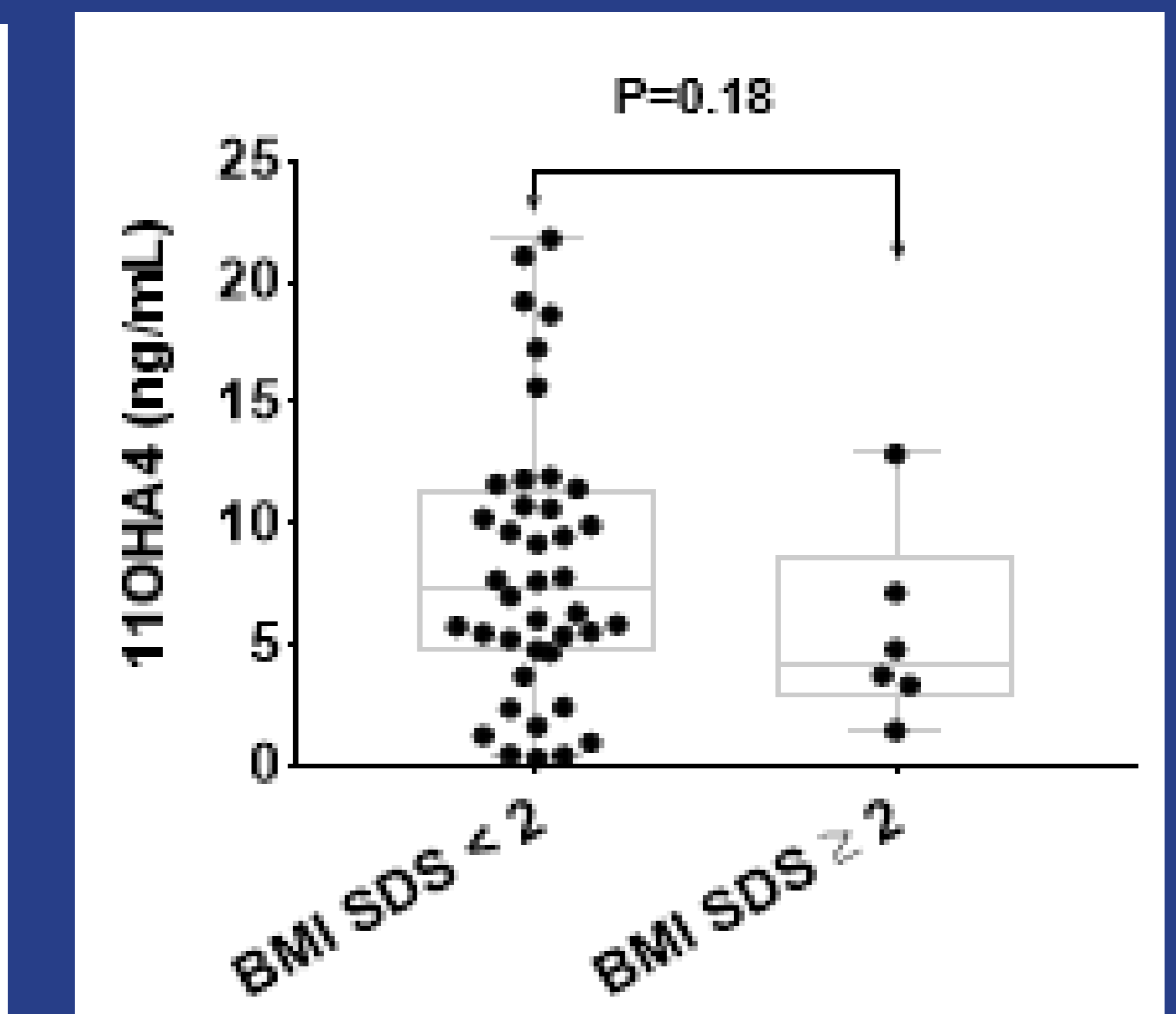
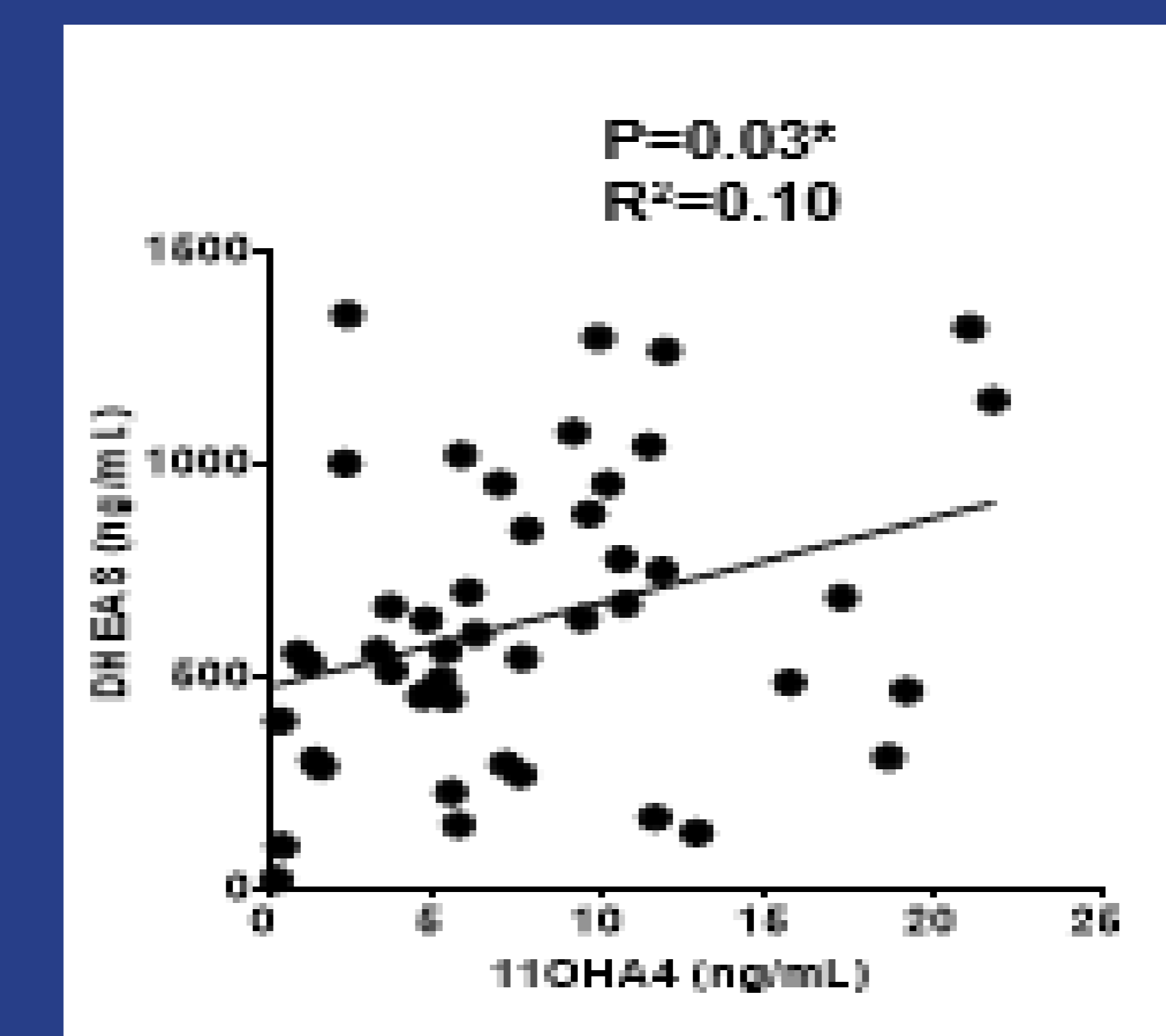
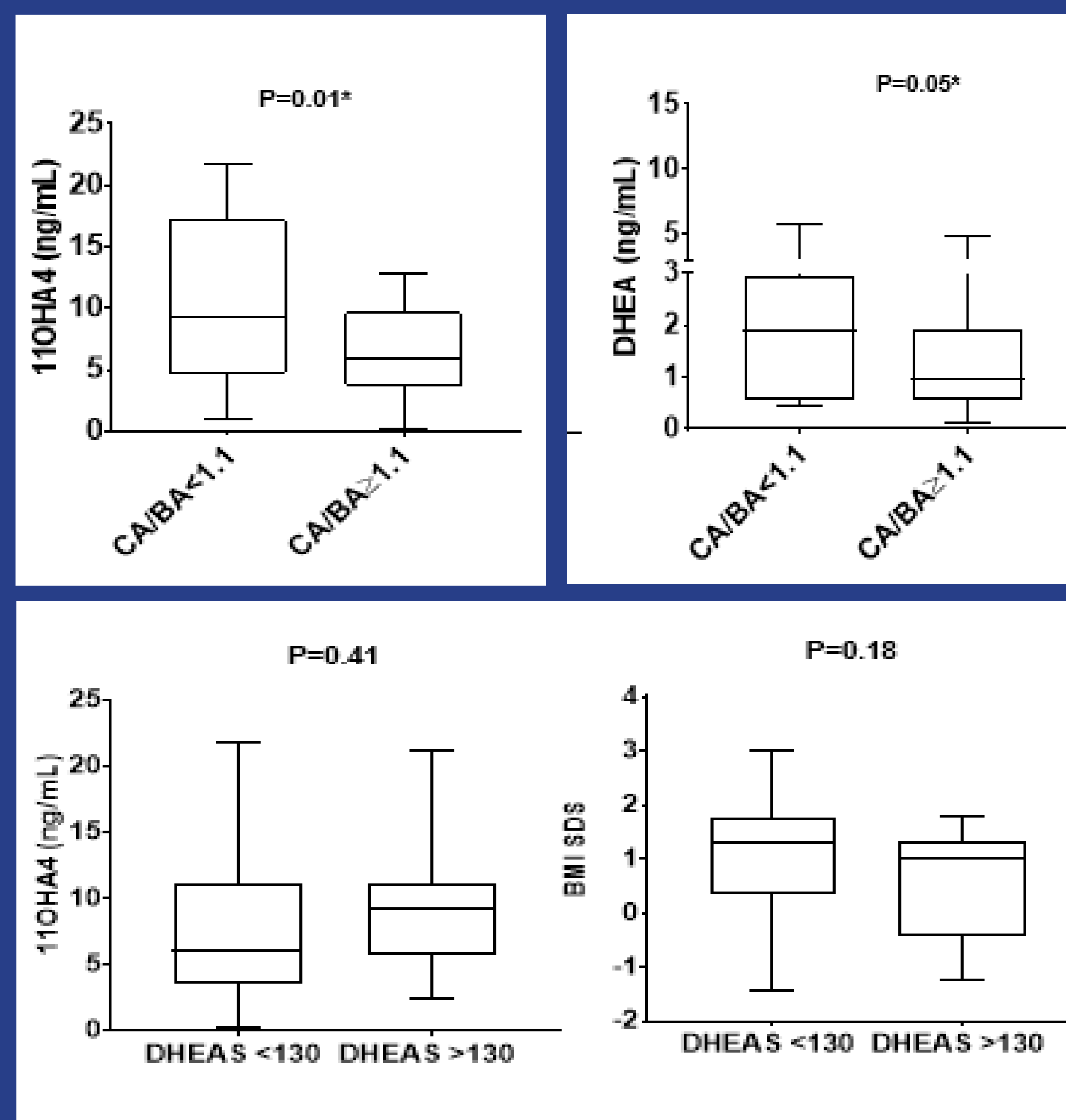
chronological age/bone age (CA/BA) ratio <1.1

Exaggerated PA

DHEAS >1300  $\mu$ g/l

## RESULTS

- The height and BMI-SDS were higher in the patients compared to controls ( $P < 0.001$ )
- Mean CA and BA of the patients were  $6.8 \pm 1.1$  and  $7.6 \pm 1.4$  years, respectively
- DHEA, DHEAS, A4, androsterone, 17OH-pregnenolone concentrations were higher ( $P < 0.0001$ ),
- No difference in 11OHA4 and 11OHT concentrations in patients compared to controls.



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Ethical approval was obtained for this study.

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## CONCLUSIONS

Although 11OHA4 correlated with adrenal androgens and associated with advanced bone age, our findings do not ascribe a significant role of 11-oxygenated androgens in the pathophysiology of premature adrenarche in girls

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