Etiology, Clinical Course and Predictors of Delayed Puberty in 244 Patients Evaluated in a Single Large Academic Center

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Introduction

The conditions that underlie delayed puberty (DP) can be categorized into constitutional delay of growth and puberty (CDGP), permanent hypogonadotropic hypogonadism (PHH), functional hypogonadotropic hypogonadism (FHH) and hypergonadotropic hypogonadism (Hyper H) (1). We investigated the etiology of DP and its outcome predictors in a tertiary center setting.

Design and participants

This retrospective chart review included clinical and biochemical data of 244 patients who were evaluated for DP at the Helsinki University Central Hospital between 2004 and 2014. The eligibility criteria are detailed in Figure 1.

Results

• CDGP was the single most common cause for DP in both sexes, and it was more frequent in the boys than in the girls (P < 0.001) (Figure 2).
• FHH and Hyper H affected the girls more frequently than the boys (P < 0.05) (Figure 2).
• The conditions that cause FHH were more frequent in the boys with the growth velocity less than 3 cm/yr than in those growing faster (19% vs 4%, P < 0.05).
• A history of cryptorchidism in the boys was associated with an 8-fold increase in the risk of permanent hypogonadism (positive predictive value 57%, 95% CI; 20-88).

Conclusions

• In both sexes, CDGP is the most common cause of delayed puberty.
• A history of cryptorchidism and slow growth velocity are two important clinical cues that help to predict the clinical course of DP in boys.
• In prepuberal boys, testicular size is a simple diagnostic parameter of clinical value for differentiating between CDGP and CHH.

References