The Relationship between Prolactin and Development of Puberty in Girls with Early Breast Development

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OBJECTIVES

Prolactin (PRL) stimulates mammary glands and milk production in adult women. Also, high PRL level causes gonadal dysfunction by suppression of gonadotropin releasing hormone (GnRH) and luteinizing hormone (LH). The aim of this study was to evaluate, if any, the relationship between PRL level and development of puberty in girls with precocious breast development.

METHODS

One hundred and ten girls with onset of breast development before age of eight were included in this study. They were 66 girls with precocious puberty (PP) and 44 girls with premature thelarche (PT). Nineteen girls had high PRL level (≥ 17 ng/mL) and 91 girls normal PRL level. The relationships between PRL level and clinical and laboratory parameters were investigated.

RESULTS

PRL level was higher in PT group than in PP group (12.57±7.42 ng/mL vs. 9.66±5.18 ng/mL).

Girls with high PRL level were shorter than girls with normal PRL level (129.8±4.9 cm vs. 132.9±4.9 cm). The ratio of Ht and mid-parental height (Ht/MPH) was also lower in high PRL group than in normal PRL group (0.80±0.03 vs. 0.83±0.03).

Girls with high PRL level had higher basal LH level (1.34±2.20 IU/L vs. 0.83±0.46 IU/L) but lower peak LH level (5.83±4.65 IU/L vs. 8.84±5.72 IU/L) compared with girls with normal PRL level. The ratio of peak LH and follicle stimulating hormone (FSH) level (LH/FSH ratio) was lower in high PRL group than in normal PRL group (0.48±0.46 vs. 0.80±0.63).

PRL level had a negative relationship with Ht-SDS (r=-0.214, p=0.025) and Ht/MPH (r=-0.249, P= 0.009). There was no relationship between PRL level and peak LH level. But PRL level had a positive relationship with peak FSH level (r=0.221, p=0.020) and a negative relationship with LH/FSH ratio (r=-0.212, p=0.026).

CONCLUSIONS

More girls with PT had high PRL level than girls with PP. High PRL may suppress development of puberty in girls, but further study will be required the effect of PRL on peripubertal girls.

The author has nothing to disclose.

Table 1. Comparison of clinical and laboratory parameters between PT and CPP.

Table 2. Comparison of clinical and laboratory parameters between normal PRL and high PRL group.

Fig 1. PRL level was higher in PT group than in PP group (12.57±7.42 ng/mL vs. 9.66±5.18 ng/mL).

Fig 2. There were more girls with high PRL level in the PT group (12.84, 27.3%) than in the PP group (7/66, 10.9%).

Fig 3. PRL level had a negative relationship with peak LH/FSH ratio (r=-0.212, p=0.025).

Fig 4. PRL level had a negative relationship with Ht-SDS (r=-0.214, p=0.025).

References