



POSTER PRESENTATION

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Gonadotropin-releasing hormone (GnRH) stimulation test before and after GnRH analogue treatment in central precocious puberty; can GnRH test simplify adequately?

You Jean Yang*, Min Sun Kim, Pyoung Han Hwang, Dae-Yeol Lee

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Purpose

Gonadotropin-releasing hormone (GnRH) stimulation test is the gold standard to document premature activation of the hypothalamic-pituitary-gonadal axis in early puberty. However, this test is time-consuming, costly and uncomfortable for the patients. The aim of this study was to investigate to simplify the GnRH stimulation test in the assessment of pubertal activation and suppression.

Methods

We identified 72 girls diagnosed with central precocious puberty, and they were treated with GnRH analogue (GnRHa) to suppress pubertal progression from 1 January 2011 to 31 January 2012. GnRH stimulation tests were done before and 4 weeks after the third dose of the GnRH analogue. Information on clinical manifestations and laboratory data were obtained by reviewing medical records. All variables were expressed as mean \pm SD, and a p value of <0.05 was considered statistically significant.

Results

1) Before GnRHa treatment, the mean luteinizing hormone (LH) level was higher at the 30th minutes (18.17 IU/L \pm 16.77) of the test in comparison to the basal level (0.35 IU/L \pm 0.60), the 15th, 60th, 90th and 120th minutes ($p<0.001$). However, there was no significant difference in the LH level between the 30th and 45th minutes of the test. Among 72 patients, 49 girls (68.1%) were showed the peak LH level at 30th minutes and the others were

showed the peak LH level at 45th minutes (33.3%), and 60th minutes (6.9%).

2) After GnRHa treatment, 62 patients (86.1%) were suppressed (peak LH level < 2 IU/L), and 10 (13.9%) were inadequately suppressed. The LH level was higher at the 30th minutes (0.91 IU/L \pm 1.14) of the test in comparison to the basal level (0.26 IU/L \pm 0.55), the 45th minutes (0.78 IU/L \pm 1.12) and 60th minutes (0.71 IU/L \pm 1.08) ($p<0.001$). But the LH level was no significant difference between 15th and 30th minutes.

3) After GnRHa treatment, the AUC in ROC analysis was greatest at the 30th minutes, and sensitivity and specificity of the 30th minutes samples were 90.0% and 100.0%. The basal LH level of the test was showed low sensitivity (25.0%).

Conclusion

It is adequate to check the LH level at 30th and/or 45th minutes of the GnRH test for diagnosis of CPP and 30th minutes for assessment of pubertal suppression. Therefore we suggest that the simplified GnRH test is sufficient to evaluation of pubertal activation and suppression.

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Department of Pediatrics, Chonbuk National University Medical School, Jeonju, Korea