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The Triptorelin test compares favourably with the GnRH test in the diagnosis of central precocious puberty

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BACKGROUND

The intravenous GnRH test remains the gold standard for the diagnosis of central precocious puberty (CPP), however GnRH assay might be expensive and not available worldwide. GnRH analogues have been used as an alternative, but their place is not established and only few studies compared the two tests.

OBJECTIVE

To compare the effects of GnRH and Triptorelin on gonadotrophin secretion in patients with sexual precocity and hence evaluate the diagnostic accuracy of the Triptorelin test for the diagnosis of CPP.

METHODS

In this prospective study, we included all patients suspected of CPP.

- GnRH test was carried out using 100 µg LHRH intravenously.
- Triptorelin test was performed at least 2 weeks later, using 0.1 mg of subcutaneous Triptorelin.
- LH, FSH, and E_2 (or testosterone) were determined at baseline, 30, 45, and 60 min for both tests.

Parents consent was required before the enrollment in the study.

CPP was defined by clinical and radiological signs of precocious puberty (uterus length > 35mm) associated with a LH peak >5 UI/l on GnRH and/or Triptorelin testing. Evolution confirmed the diagnosis of CPP.

Excel and BioSta-TGV softwares were used for the statistical analysis.

RESULTS

Results are shown in tables 1 and 2 and Figure.1

We studied **26 patients** with a sex distribution of 25/1(F/M), of whom

- ✓10 had CPP (9F/1M), mean±S.D. age at diagnosis 5.08±2.61 years
- ✓ 4 had precocious pseudopuberty (PPP)
- ✓ 12 had premature thelarche (PT), age at diagnosis 6.03±1.86 years.

CPP patients showed mean±S.D. (range) peak LH 13.35±14.4 (3.19–42.62) mUI/ml after GnRH and 20.18±23.44 (5.15–79) mUI/ml after Triptorelin. There was no difference between the two tests, 95% CI (−25.4141; 11.7141)

In patients with PT or PPP, peak LH was 1.85±1.49 (0.14–4.74) mUI/ml after GnRH and 2.24±1.7 (0.2–4.95) mUI/ml after Triptorelin. There was no difference between the two tests, 95% CI (−1.5681; 0.7931).

For the Triptorelin test both the sensitivity and specificity for the diagnosis of CPP were 100% for a LH peak of 5.15 UI/l (ROC curves) .

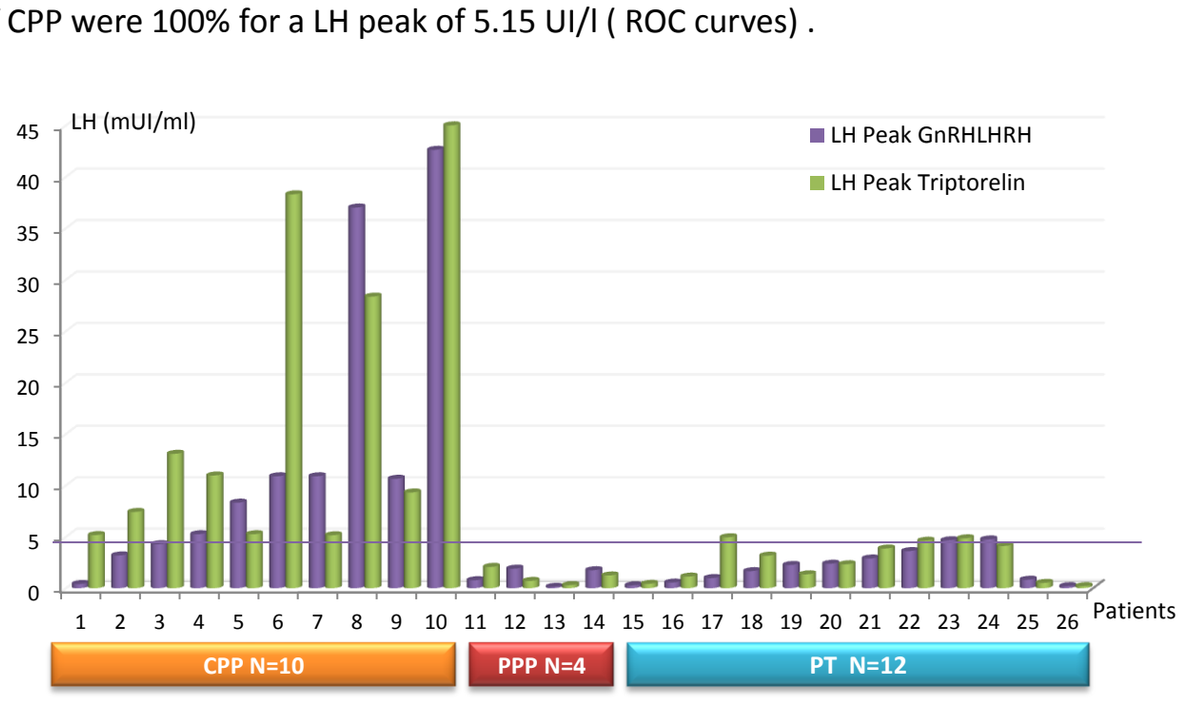

Fig.1. Individual values of LH Peak during the Triptorelin and the GnRH tests)

	GnRH Test	Triptorelin Test	p
Basal LH	0,66±1,65 UI/L	0,89±2,1 UI/L	
LH Peak	6,27±10,24 UI/l	9,1±16,38 UI/L	0,61

Table .1. Global Results (all patients)

	CPP N=10	PPP N=4	PT N=12	p (ANOVA)
Basal LH	1,19±2,71	0,37±0,23	0,31±0,17	0,46
LH Peak (GnRH test) Mean ± SD Median (Min-Max)	13,35±14,45 9,48(0,4-42)	1,14±0,83 1,26(0,14-1,9)	2,09±1,62 1,96(0,2-4,7)	0,016
LH peak (Triptorelin test) Mean ± SD Median (Min-Max)	20,2±23,44 10,1(5,15-79)	1,08±0,76 0,98(0,3-2)	2,65±1,84 2,75(0,2-4,95)	0,003
p IC (95%)	0,44 [-25,41 ; 11,71]	0,9 [-1.3 ; 1.4]	0,45 [-2.0 ; 0.9]	

Table.2. Results according to the aetiology

CONCLUSION

Our study shows similar LH profiles using s.c. Triptorelin and i.v. GnRH confirming the accuracy of Triptorelin in the diagnosis of CPP. Triptorelin can be used as an alternative to GnRH when the latter is unavailable, or too costly.

The authors have no conflict of interest

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