



Screening of Central Precocious Puberty (CPP) in females: efficacy of morning unstimulated luteinizing hormone (mLH) levels

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Objective: The aim of the study is to retrospectively evaluate the clinical and biochemical features of a series of girls referred to our Centre for precocious thelarche in the last 10 years.

Methods: We retrospectively studied the clinical and hormonal data of 166 consecutive girls with precocious thelarche (<8 years of age) evaluated from 2017 to 2018 at our Centre. The patients were subdivided in two groups (Group 1 and Group 2) according to the results of a standard GnRHST (LH peak >5 IU/L). BMI was calculated, normalized for Italian reference standards and reported in SDS. Bone age was assessed by Greulich-Pyle method. The sensitivity and specificity of two mLH thresholds (0.3 IU/L and 0.2 IU/L) to screen CPP in females were evaluated.

Results:

Group 1 (GnRHST peak >5 IU/L): 61 pts

Group 2 (GnRHST peak ≤5IU/L): 105 pts

Clinical biochemical and strumental data are reported in Table

Univariate analysis: mLH, mFSH, UV, ULD are positively associated to LH 30'

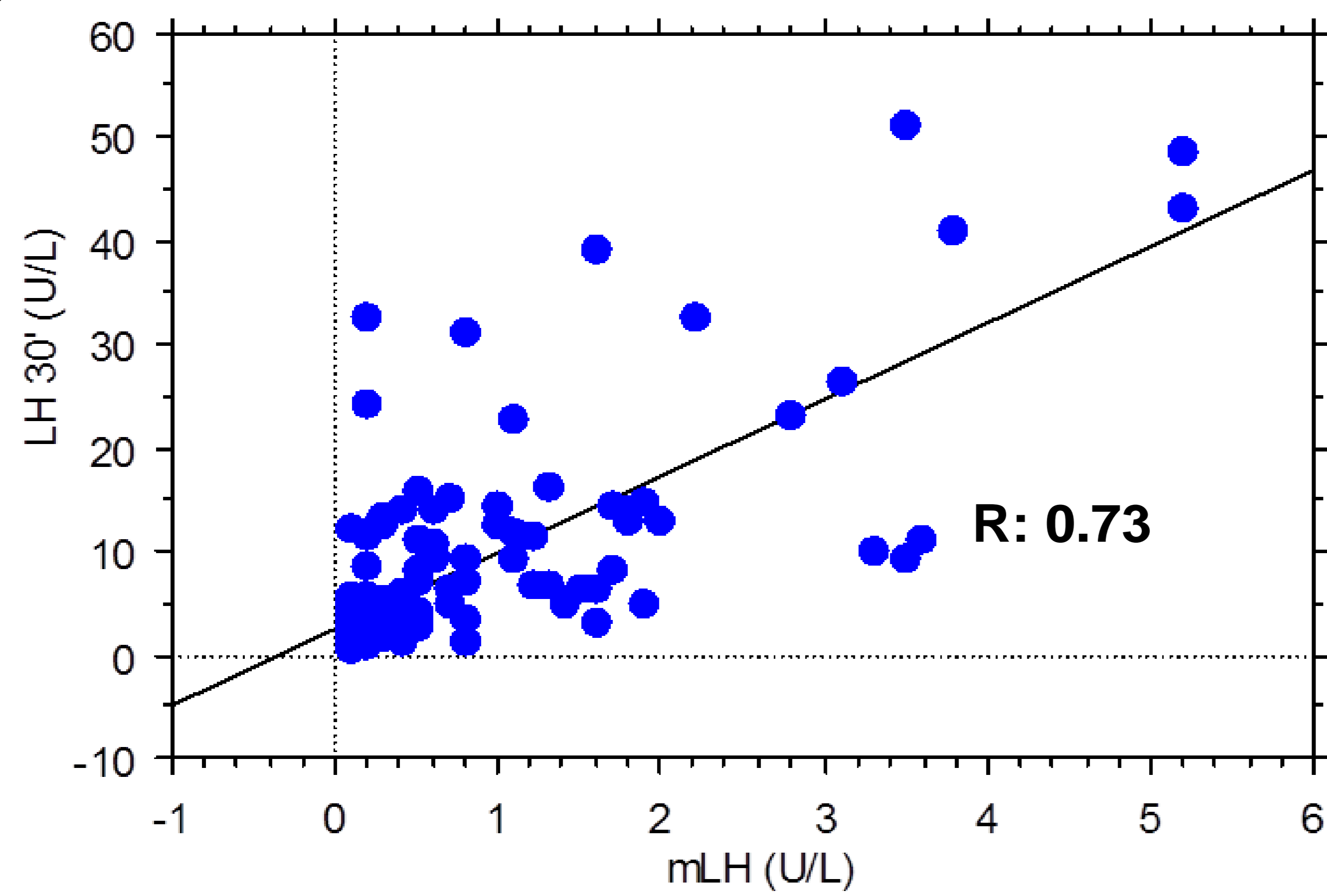
Multivariate analysis: only mLH is positively associated to LH 30' (Figure)

Table: clinical, biochemical and ultrasonographic features

	Group 1 (n°61)	Group 2 (n°105)	P
CA m ± SD (n)	7.9 ± 1.0 (61)	7.6 ± 1.1 (105)	< 0.05
BA-CA m ± S D (n)	1.8 ± 0.9 (49)	1.2 ± 1.4 (85)	< 0.05
BMI -SD m ± SD (n)	-0.0 ± 0.8 (42)	0.3 ± 1.1 (73)	NS
UV (ml) m ± SD (n)	5.7 ± 3.5 (50)	3.1 ± 1.9 (86)	< 0.001
ULD (mm) m ± SD (n)	43.9 ± 5.8 (50)	37.3 ± 5.8 (86)	< 0.001
mLH (IU/L) m ± SD	1.3 ± 1.2 (61)	0.2 ± 0.2 (105)	< 0.0001
mFSH(IU/L) m ± SD	4.7 ± 2.0 (61)	2.5 ± 1.5 (105)	< 0.0001
mLH/mFSH m ± SD	0.2 ± 0.2 (61)	0.1 ± 0.1 (105)	< 0.0001

CA chronological age; BA bone age; ULD: uterine longitudinal diameter; UV uterine volume (in brackets the number of patients examined)

Figure



mLH threshold to identify CPP	≥ 0.3 IU/L	≥ 0.2 IU/L
Sensitivity	80%	95%
Specificity	76%	60%

Conclusion: Our data seem to confirm the correlation between mLH and LH peak after GnRHST in pubertal girls. mLH levels ≥0.3 IU/L should be cautiously considered sufficient to screen CPP in females, but larger data are mandatory to confirm our results.