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CENTRAL PRECOCIUS PUBERTY IN CEREBRAL PALSY

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Authors have nothing to disclose

Background: Children affected by cerebral palsy (CP) could experience central precocious puberty (CPP) 20 times more than general population. Nevertheless, the treatment is challenging.

Objective and hypotheses: To compare CPP features and the effects of gonadotropin-releasing hormone agonist therapy (GnRHa) in children with CP and in controls.

Method: 16 children with CPP and CP [Group A, 12.5% M] and 11 children with CPP but no CP [Group B, 0% M] were enrolled. Auxological, biochemical and instrumental data were collected at diagnosis of CPP and at 2 follow-up visits.

Results:

1. Longitudinal anthropometric data

	Baseline		1° Follow-up		2° Follow-up	
	Group A	Group B	Group A	Group B	Group A	Group B
Age (years)	6.70±1.77	7.20±0.79	9.63±2.85	8.02±0.90	9.94±3.49	8.69±0.55
Height SDS	-0.33±1.80	0.75±1.46	**-1.30±1.72**	**0.87±1.38***	**-1.73±1.58**	**0.76±1.70***
H-TH SDS	**-0.15±1.78**	**1.56±1.38***	**-1.23±1.53**	**1.68±1.26***	**-1.43±1.43**	**1.48±1.42***
Δ BA	1.25±1.01	1.74±1.57	0.73±0.74	1.65±0.98	0.80±0.64	0.89±0.43
GV (cm/y)	6.67±1.22	7.50±1.20	**3.70±2.27**	**6.70±1.34***	4.26±4.91	6.60±1.30
BMI SDS	0.24±1.15	0.45±0.82	-0.13±1.62	0.57±1.02	0.59±1.27	0.24±0.98

Legend: H-TH SDS, Height-SDS-adjusted-for-target-height; Δ BA, discrepancy between chronological and bone age; *, statistical difference between A and B (p<0.05)

- GnRHa affected differently growth in the 2 groups: through follow-up, height-SDS and H-TH SDS got worsen in A than B (see Figure 1 and 2)
- At 2° visit, Δ H-SDS (-1.20±1.31 vs. 0.21±0.33, p 0.017) was lower in A than B.

2. Biochemical and instrumental data at baseline

Basal LH (3.15±2.44 vs. 0.49±0.50 mUI/ml, p 0.009), estradiol levels (29.51±19.12 vs. 12.65±6.94 pg/ml, p 0.001) and median ovarian volume (3.37±1.04 vs. 1.92±0.75 ml, p 0.006) were significantly higher in A than in B.

Figure 1: Changes in Height SDS over GnRHa therapy in Group A

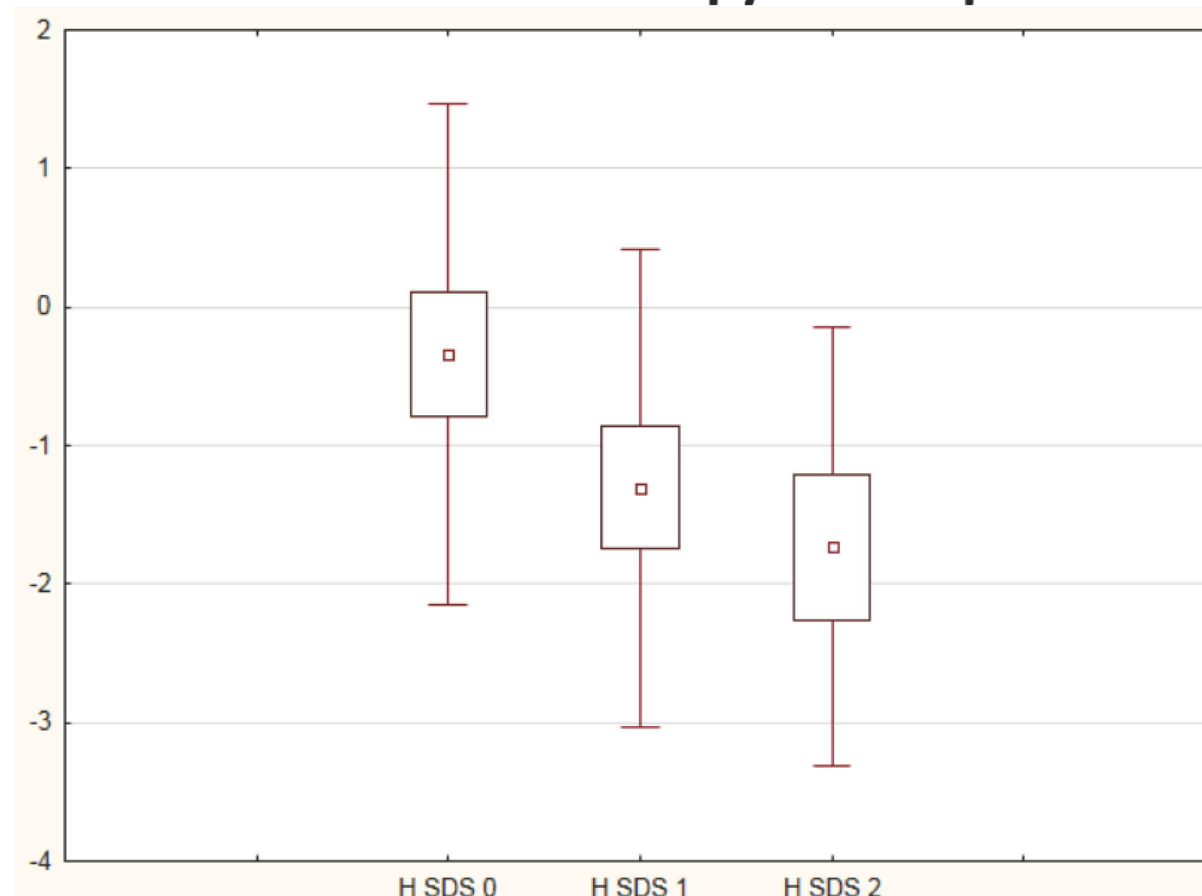
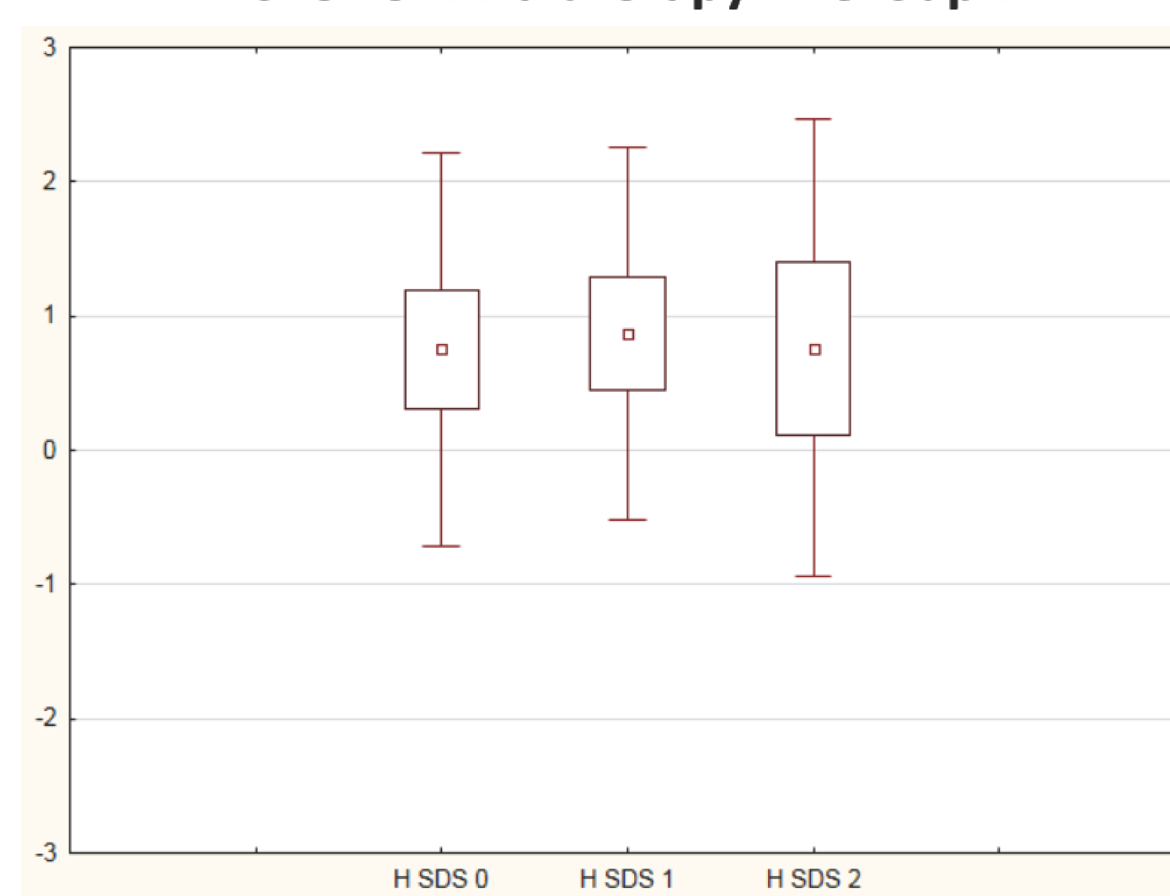


Figure 2: Changes in Height SDS over GnRHa therapy in Group B



3. Therapeutical data

		Group A	Group B
Stimulation Tests Y/N (num, %)		9/7, 56/44%	10/1, 91/9%
GnRHa Therapy Y/N (num, %)		14/2, 88/12%	11/0, 100/0%
Time dosage	28 days (num,%)	7/14, 50%	11/11, 100%
	21 days (num,%)	7/14, 50%	0/11, 0%

- GnRHa was effective in both groups decreasing gonadotropins and estradiol levels and signs of pubertal progression.

Conclusion:

- CPP seems to progress rapidly in CP : a more intense activation of HPG-axis could be supposed.
- Growth failure could partially mislead the diagnosis of CPP in CP.
- In CP, growth failure seemed to worsen during follow-up despite GnRHa.
- The complex management of these patients should be considered when a decision to treat has to be performed. Parents should be adequately supported in order to ensure the best therapeutic choice for each case.

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