Comparison between serum vitamin D levels in precocious pubertal girls and normal girls

Joon woo Baek, Yeon Joung Oh, Min Jae Kang, Il Tae Hwang, Seung Yang

Department of Pediatrics, Hallym University, College of Medicine, Seoul Korea

<DISCLOSURE STATEMENTS>

Baek JW, Oh YJ, Kang MJ, Hwang IT, Yang S have no relevant financial relationships to disclose or conflict of interest to we solve.

OBJECTIVES

- **Vitamin D deficiency has been associated with chronic diseases, such as diabetes mel litus, obesity and autoimmune disease.**
- **However, There are only a few studies ab out the correlation between Vitamin D leve ls and precocious puberty in girls.**
- **In the previous study, vitamin D levels m ay be associated with precocious puberty.**
- **We also aimed to re-evaluate the relation ship between serum 25-hydroxyvitamin D (25(OH)D) and precocious puberty in girls**

METHODS

- **155 girls with central precocious puberty (CPP) and 45 control girls.**
- **Anthropometric measurement and serum level of 25(OH)D were estimated for all subjects.**
- **The serum 25-hydroxy-vitamin D (25OHD) level was measured by radioimmunoassay.**
- **Pubertal status was assessed and documented by one pediatric endocrinologist.**
- **The clinical and laboratory parameters from the CPP and control groups were compared using the Student t-test.**
- **The odds ratios (ORs) of precocious puberty depending on vitamin D levels were calculated by binary logistic regression.**
- **Statistical analysis was performed using IBM SPSS ver. 21.0 (IBM Co., Armonk, NY, USA).**
- **Statistical significance was defined as $P<0.05$.**
- **Results are described as mean±standard deviation (SD) unless otherwise stated**

Month	CPP group	Control group	*P*-value
Dec~Feb	14.9±3.8 (52)	17.6±5.0 (16)	0.024
Mar~May	16.5±5.4 (18)	15.8±5.1 (5)	0.799
Jun~Aug	21.1±4.9 (34)	22.0±5.1 (18)	0.544
Sep~Nov	17.6±6.2 (51)	18.5±5.8 (6)	0.750
Total	17.3±5.6 (155)	19.3±5.5 (45)	0.042

	CPP	Control	Total	OR (95% CI)	*P*-value
25(OH)D(ng/ml)				2.35(1.18-4.66)	0.017
<20	113	24	137		
≥20	42	21	63		
Total	155	55	200		

OR, Odds ratio; CI, confidence interval; 25(OH)D, 25-hydroxyvitamin D
*Chi=square test

RESULTS

- **Mean 25(OH)D level of CPP group was 17.3±5.6ng/mL, which was lower than the control group(19.0±5.3ng/mL).**
- **There was significant difference in the mean serum 25OHD concentration between the precocious puberty group and the control group (P=0.042).**
- **After 25(OH)D levels be classified by month(season), Significant difference in the mean serum 25(OH)D concentration between the two groups was only winter (Dec~Feb).**
- **113 of the 155 girls with CPP (72.9%) had 25(OH)D deficiency (defined as serum 25(OH)D <20 ng/mL) and 38 (24.5%) had 25(OH)D insufficiency.**
- **Of the 45 girls in the control group, 25(OH)D deficiency was seen in 24 subjects (53.3%), 20 subjects (44.4%) had 25(OH)D insufficiency, and 1 subjects (2.2%) had sufficient serum 25(OH)D (defined as serum 25(OH)D >30 ng/mL).**
- **The prevalence of 25(OH)D was significantly higer odds ratio (OR, 2.35; 95% CI, 1.18-4.66, P=0.017) among CPP group than controls.**

CONCLUSIONS

- **Our results showed that vitamin D level was significant association with precocious puberty.**
- **We also recommend further studies are required to identify the correlation vitamin D levels and precocious puberty.**

DOI: 10.3252/pso.eu.55ESPE.2016

Poster presented at: ESPE 2016 PARIS 10-12 SEPTEMBER