CLINICAL FEATURES AND PUBERTAL TIMING IN GIRLS WITH PREMATURE ADRENARCHE

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Introduction

Premature adrenarche is defined as the development of axillary and/or pubic hair in association of the DHEA-S concentrations >108.4 nmol/l (40 µg/dl) before the age of 8 in girls. This retrospective study aimed to investigate the clinical presentation, metabolic status, growth velocity and pubertal timing of girls with premature adrenarche.

Method

Medical records of 117 patients were investigated. Pubertal onset was regarded as breast enlargement (Tanner stage-2) and/or elevation of baseline LH level to 1 mIU/ml or stimulated LH to 5 mIU/ml.

Results

Mean adrenarche age of 117 girls was 6.96 ± 0.82 years. The complaint was pubic hair in 105 (%89.7), axillary hair in 63 (%53.8), adult type axillary odour in 31 (%26.5) patients. Prematurity (<37th week) was present in 17 (%14.5) patients while low birth weight (SGA) was present in 9 (%7.6). Hypertension was the most common (%62.6) finding in family history. Eighty-two patients had normal body mass index, while 17 (%14.7) had obesity, 15 (%12.9) had overweight and only two had under-nutrition. Mean DHEA-S level was 95.02 µg/dl and it was negatively correlated with birth weight and gestational age. Growth velocity, bone age, volumes of ovaries and uterus were positively correlated with height SDS, weight SDS and testosterone levels, indicating the effects of estrogen which is produced by the aromatization of androgens. Puberty was started in 37 girls, mean age of pubertal timing was 8.28 ± 0.95 and a significant decrease was found when compared with mean age in healthy population. Treatment with GnRH-analogue was needed in ten (%8.4) patients.

Table-3. Age of Pubertal Onset

Table-3. Mean Age of Pubertal Onset in Girls with Premature Adrenarche and Healthy Turkish Girls

	n	Age of Pubertal Onset Mean±SD	[b]t	p
Bundak et al.	394	10,10±1,00	10,619	<0,001**
Study Group	37	8,27±0,96		

[b]Independent samples t test   **p<0,01

Conclusion

Pubertal timing was diminished in girls with premature adrenarche, suggesting the necessity of following patients in terms of puberty precocious and rapidly progressive puberty. Monitoring the growth and pubertal signs are important especially in premature and SGA children

Table-1. Relationship with low birth weight

Table- 1. Comparison of Patients with and without history of low birth weight (SGA)

	SGA Median	Non-SGA Median	z	p
Weight SDS	1,19±1,02 (1,07)	0,09±1,17 (-0,03)	-2,637	0,008**
Height SDS	0,98±1,06 (0,92)	0,06±1,22 (-0,28)	-2,334	0,020*
BMI SDS	0,96±0,94 (0,91)	0,07±1,22 (0,28)	-1,987	0,047*
Bone age	8,63±1,41 (8,50)	8,66±1,93 (8,20)	-0,264	0,792
Age of adrenarche	6,94±0,83 (7,10)	7,06±0,74 (7,50)	-0,400	0,689
Growth velocity (cm/year)	6,71±2,14 (6,60)	5,27±2,31 (4,40)	-1,604	0,109
Growth velocity SDS	1,54±2,48 (1,01)	-0,25±2,76 (-1,59)	-1,706	0,088
DHEAS (µg/dl)	91,43±40,99 (87,60)	146,25±60,98(148,10)	-2,803	0,005**
T. testosteron(ng/ml)	0,18±0,12 (0,13)	0,17±0,09 (0,15)	-0,163	0,870
Fasting glucose (mg/dl)	87,74±7,94 (87,00)	81,38±13,63 (80,65)	-1,821	0,069

[a]Mann Whitney U testi   *p<0,05   **p<0,01

SGA: Small for gestational age, BMI: Body mass index, DHEAS: dehydroepiandrostenedione-sulphate

Table-1. Relationship with prematurity

Table-2. Comparison of Patients with and without history of prematurity

	Premature Median	Non-Premature Median	[a]z	p
Weight SDS	1,16±1,08 (1,06)	0,52±1,05 (0,54)	-2,080	0,038*
Height SDS	0,94±1,11 (0,90)	0,51±1,09 (0,81)	-1,302	0,193
BMI SDS	0,95±0,97 (0,90)	0,41±1,03 (0,43)	-1,715	0,086
Bone age	8,63±1,46 (8,50)	8,70±1,39 (8,00)	-0,121	0,903
Age of adrenarche	6,95±0,84 (7,00)	7,06±0,70 (7,50)	-0,384	0,701
Growth velocity (cm/y)	6,74±2,28 (7,00)	6,00±1,84 (6,00)	-1,146	0,252
Growth velocity SDS	1,50±2,69 (1,04)	1,02±2,10 (0,82)	-0,602	0,547
DHEAS (µg/dl)	90,15±42,63 (78,00)	118,05±52,01(98,15)	-2,228	0,026*
T.testosteron(ng/ml)	0,18±0,11 (0,13)	0,19±0,11 (0,13)	-0,207	0,836
T. cholesterol (mg/dl)	167,37±30,36(169,20)	159,36±27,88(154,00)	-0,857	0,392
HDL (mg/dl)	52,21±11,30 (51,20)	56,27±10,96 (58,00)	-1,064	0,287
LDL (mg/dl)	97,28±27,26 (97,00)	89,98±22,33 (87,70)	-0,705	0,481
Triglycerides (mg/dl)	80,36±39,06 (70,50)	69,40±18,19 (68,00)	-0,386	0,699
Fasting glucose (mg/dl)	87,28±8,36 (87,00)	87,25±9,61 (86,10)	-0,178	0,859

[a]Mann Whitney U test   *p<0,05   **p<0,01

BMI: Body mass index, DHEAS: dehydroepiandrostenedione-sulphate

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Puberty

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