Adult height and growth pattern in patients with classic congenital adrenal hyperplasia

Ga Hyun Lee, Heung Sik Kim, Se Jin Kim Seok Jin Kang
Department of Pediatrics
Keimyung University School of Medicine

Background

The purpose of this study was to obtain objective data on adult height with classic congenital adrenal hyperplasia patients and analyze the affecting factors on adult height
Also we evaluated growth pattern during age increases

Methods

Retrospectively reviewed the medical records of 40 patients with classic CAH who reached AH at Pediatric endocrinology clinic of Severance hospital from 1977 to 2015. Male [n=19] : 9 salt-wasting (SW), 10 simple-virilizing (SV)Female [n=21]: 8 SW, 13 SV. We also analyzed the affecting factors on AH, and assessed growth patterns with serial height SDS dividing into following stages of growth : early childhood (0-4.99 years), mid-childhood (5-9.99 years), and adolescence (10-15 years_

Results

Table 1 Clinical characteristics of CAH patients

	Males with CAH (n=19)			Females with CAH (n=21)		
Type	**SW (9)**	**SV (10)**		**SW (8)**	**SV (13)**	
Current age	22.1 ± 5.13 (16-33)	22.4 ± 6.11 (16-36)	0.912	23.3 ± 5.12 (19-33)	29.7 ± 8.13 (17-42)	0.096
Age at diagnosis	0.82 ± 0.99 (0.1-3.0)	6.21 ± 4.03 (0.1-15.0)	0.002	0.61 ± 0.83 (0.1-2.0)	6.7 ± 10.03 (0.1-38)	0.007
Treatment duration	21.2 ± 4.69 (15.5-30.0)	16.2 ± 6.55 (7.0-28.0)	0.067	22.6 ± 5.53 (17.1-32.8)	23.0 ± 8.09 (4.0-35.0)	0.419
Hydrocortisone dose	35.0 ± 10.00 (15.0-50.0)	37.0 ± 11.60 (20.0-60.0)	0.692	31.3±13.56 (20.0-60.0)	34.0±14.04 (10.0-60.0)	0.518
MPH	173.2 ± 3.29 (167.5-176.5)	171.8 ± 3.70 (166.0-178.0)	0.387	159.8 ± 2.96 (156.0-164.5)	157.7 ± 2.97 (151.0-162.0)	0.141
AH	165.8±11.99 (145.5-186.4)	159.8 ± 6.57 (146.0-169.0)	0.215	154.8 ± 8.53 (135.0-161.0)	154.4 ± 5.19 (143.1-165.0)	0.901

Table 2 Affecting factors on adult height

	Males with CAH (n=19)	Females with CAH (n=21)
AH (cm)	162.7 ± 9.72	154.5 ± 6.45
MPH (cm)	172.5 ± 3.40	158.7 ± 2.96
P value	< 0.001	0.002
AH SDS	-2.18 ± 1.98	-1.20 ± 1.39
MPH SDS	-0.12 ± 0.63	-0.20 ± 0.60
P value	< 0.001	0.002

Table 3 Serial height SDS – Growth pattern

	Males with CAH (n= 12)			Females with CAH (n= 13)		
Period (year)	**Early childhood (0-5y)**	**Mid-childhood (5-10y)**	**Adolescence (10-15y)**	**Early childhood (0-5y)**	**Mid-childhood (5-10y)**	**Adolescence (10-15y)**
Height SDS for CA	0.5 ± 2.51	0.8 ±2.26	0.2±1.62	-0.4 ± 1.40	-0.2± 2.01	-0.3± 1.42
AH SDS		-1.6 ± 1.98			– 0.81 ± 1.45	

Conclusion

AH (162.7 ± 9.72 cm) was significantly shorter than the MPH (172.5 ± 3.40 cm) in male patients *(P <0.001).* Similarly, AH (154.5 ± 6.45 cm) was significantly shorter than the MPH (158.7 ± 2.96) in female patients *(P=0.002).* The affecting factors on AH were analyzed that they were not significantly associated with subtype, age at diagnosis, dose of steroid, except MPH.
Height SDS for chronologic age showed gradual decrement during childhood to adolescence