

The Effect of Adrenal Androgens on Skeletal Maturation and Growth

There are few instances when the effect of gonadal steroids on growth and skeletal maturation can be distinguished from those of adrenal steroids. Wierman et al have elegantly examined the interrelationship of adrenal and gonadal function in 29 patients with sexual precocity by measuring DHAS, a steroid produced almost exclusively in the adrenals, in these patients before and during treatment with the LHRH analogue (LHRHa [D-Trp 6-Pro 9-NET]). The authors have correlated the findings with changes in skeletal maturation and predicted height, and they have established the following salient points:

(1) Only 10 of 29 patients studied had coincident premature adrenarche as determined by adolescent

values of DHAS ($\geq 60 \mu\text{g/dl}$).

(2) The use of LHRHa did not alter the DHAS levels in patients with adrenarche.

(3) The predicted heights of patients with sexual precocity *but without* adrenarche increased significantly more than those with adrenarche as a result of LHRHa therapy.

(4) The change in bone age/change in chronological age ratio was greater over a period of 1 to 4 years in patients with associated adrenarche than in those without.

(5) The presence of pubic hair did not correlate with DHAS levels before therapy.

(6) Sexual hair regressed in patients without adrenarche when treated with LHRHa but not in those with adrenarche.

On the basis of these findings the authors conclude:

(1) Adrenarche is not under the control of gonadotropins and the

factor(s) that induce adrenarche remain obscure.

(2) The data presented suggest that adrenal androgens contribute significantly to epiphyseal advancement during adolescence.

(3) LHRHa therapy is potentially most effective in increasing the height of children with sexual precocity if they do not have adrenarche in association with the sexual precocity.

Wierman ME, Beardsworth DE, Crawford JD, et al: *J Clin Invest* 1986;77:121.

Editor's comment—*This paper is well worth reading and digesting completely. It presents data that provide insight into the separate occurrences of gonadarche and adrenarche and it also reviews what we currently know and do not know about the relationship of adrenarche to skeletal maturation.*