

## Effects of Cyproterone Acetate on Statural Growth in Children With Precocious Puberty

For the treatment of precocious puberty (PP), drugs with three different actions are available: progestational steroids with anti-gonadotropic activity (eg, medroxyprogesterone acetate); progestins with additional anti-androgenic effects (eg, cyproterone acetate or CPA); and luteinizing-hormone-releasing hormone (LHRH) analogues, which block the pulsatile secretion of the gonadotropins from the hypophysis. With all three types of drugs, it is possible to suppress the sexual

development of patients.

Less satisfactory is the effect on longitudinal growth and skeletal maturation. Untreated girls with idiopathic PP usually attain an adult height of between 146 and 154 cm (Thamdrup [1961]; Sigurjonsdottir and Hayles [1968]). Treatment with medroxyprogesterone acetate does not produce an increase in adult height. Opinions concerning CPA are contradictory. In fact, outcome of therapy has been difficult to evaluate, since only predicted heights and no measured heights have been available. LHRH analogues have not been tested for a long enough period for reliable judgment.

In a multicenter study, Sorgo et al recently ascertained the suc-

cess of long-term administration of CPA in 44 patients with PP, 31 of whom had idiopathic PP. The investigators measured adult height. Twenty patients had received CPA in a dosage of  $117 \pm 6$  mg/m<sup>2</sup>/day (group A) and 24 in a dosage of  $60.8 \pm 2.4$  mg/m<sup>2</sup>/day (group B); the duration of treatment averaged 4.8 years. The chronologic age (CA) of female patients was 5.45 years at start of treatment and the bone age (BA) was 8.57 years. Thus, BA exceeded CA by 3.12 years. During therapy, height standard deviation scores for chronologic age (SDS<sub>CA</sub>) dropped from 2.54 to 1.28 in group A, whereas group B showed no significant change. Height SDS<sub>BA</sub> did not change in either group. The height velocity

scores for CA and BA quickly decreased and reached subnormal values by the second or third year of treatment. At the same time, skeletal maturation expressed by BA/CA fell from very high (2 to 3) to normal values (around 1.0). Thus, after initiation of treatment, no further deterioration or relative height loss occurred. No significant differences between the two groups were found. Also, selecting only the idiopathic cases of PP, no difference in adult height was encountered in the groups: group A measured 153.3 cm, group B 153.4 cm.

Sorgo W, Kiraly E, et al. *Eur J Pediatr* 1985;145.

**Editor's comment**—*This large study confirms that high-dose and low-dose treatment with CPA does not increase statural growth in patients with idiopathic PP. The results are particularly important because the parameter used was measured, not predicted, final height. This makes a great difference, when compared with the findings of most earlier publications.*

*It is critical to mention that investigators should not mix children with idiopathic PP with those who have McCune-Albright syndrome, since most patients with the latter condition do not have increased secretion of gonadotropin. It is not surprising that patients with McCune-Albright syndrome have significantly diminishing relative height during CPA treatment—which is of minor value in this condition.*

*Patients with idiopathic PP, however, did not have deteriorating growth (final height) prognosis. Predicted and final height did not significantly differ. In our opinion, this may represent a therapeutic success, although a limited one. Observations by Bierich (1980) and Murram et al (1984) predicted that final height gradually diminishes in young children with idiopathic PP who remain untreated.*