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Delayed puberty

Many good arguments to treat

Constitutional delay of puberty and growth occurs in otherwise normal adolescents with no underlying illness who have relatively short stature associated with delayed puberty, delayed epiphyseal maturation, and a height prognosis appropriate for their parental centiles.[1] Because it is a variant many doctors have been reluctant to treat it.

The diagnosis of constitutional delay of growth and puberty should be made on anthropometric grounds as biochemical assessment is often misleading in delayed puberty[2] and such patients require practical help rather than intensive investigations. When the diagnosis is in doubt, especially in the presence of extreme short stature and rapidly decelerating growth, the opinion of a paediatric endocrinologist should be sought.

Spinal growth is relatively delayed compared with leg length during the pubertal growth spurt, and normal boys experience a stage of development with relatively long legs before attaining normal adult proportions.[3] Whether children with untreated constitutional delay of growth and puberty attain their optimal height has recently been disputed.[4,5] Interestingly, adults who did not receive treatment for constitutional delay of growth and puberty had relatively short spinal length compared with leg length.[4,5] Indeed at presentation of constitutional delay this sign of segmental disproportion is so reliable that its absence points to an alternative diagnosis.

Psychological problems are common in children with delayed puberty and short statue, especially in boys.[6] So far these problems have been the only indication for therapeutic intervention. In clinical practice boys more commonly present with constitutional delay of growth and puberty than girls for social reasons and possibly because of the sensitivity of the gonadotroph to endogenous gonadotrophin releasing hormones.[7] Their symptoms may be particularly distressing; deviant behaviour and severe psychological problems may result. These may interfere with education at a time when academic achievement is of lifelong importance, and the deviant behaviour may be so severe that it causes problems with the law (such as shoplifting and vandalism) or even results in suicide.

Intervention with sex steroids[8,9] or anabolic steroids[10,11] is an effective and safe treatment which brings forward the timing of the growth spurt without decreasing the height potential. Much lower doses of these therapeutic agents should be used than were commonly used in the 1950s and 1960s.[9,11] High dose regimens may be counterproductive by inducing psychological disturbance and also causing rapid epiphyseal maturation and reduced final height.

Recent data, using bone densitometry, have now suggested the risk of osteoporosis as another important reason for treating substantially delayed puberty. Studies in men whose constitutional delay of growth and puberty was untreated showed significantly reduced mineral density of the spine[12]—putting them at greater risk of fractures at later life. Peak spinal bone density is achieved at a relatively young chronological age—15 years in girls and 17 years in boys.[13] Androgen treatment does not normalise spinal bone density in men with hypogonadotrophic hypogonadism,[14] which emphasises the importance of the timing of the secretion of sex steroids in the normal pubertal age range.[14]

Should constitutional delay of growth and puberty be regarded as a disorder rather than a normal variant? The prevention of osteoporosis and the attainment of appropriate skeletal proportions may be added to psychological disturbance as indications for the treatment of constitutional delay of growth and puberty. Perhaps the time has come to alter our attitudes towards treatment.

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