PERSONAL VIEW

Short but normal

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The use of growth hormone in short normal children remains a controversial issue. Many studies continue to evaluate the benefits of treatment only in terms of the number of centimetres gained.[1–3] Before asking who might *respond* to growth hormone, we should first ask who *needs* it. It is some 13 years since the Wessex growth study (WGS) began and it is appropriate to draw some evidence based conclusions about the normality, or otherwise, of the short normal child.[4]

Rational intervention assumes some abnormality, physical or psychological, that can be corrected. Where short stature is the result of growth hormone deficiency (GHD), the case for intervention is clear and uncontroversial: final adult height is compromised and the underlying endocrine disorder is associated with a variety of physiological abnormalities. Disorders of mood and performance have also been linked to GHD, especially in adults, but while these may be of interest, a psychological assessment is not required to justify the use of growth hormone.[5]

In the short but otherwise normal child, the indications for treatment are less clear. Despite the fact that short stature per se is not a disease, two distinct lines of reasoning have nevertheless been proffered in defence of growth hormone therapy for these children, each claiming to demonstrate the abnormality of short stature. First, it has been inferred that the rate of growth of short children is itself abnormal.[6] Second, short stature is commonly perceived to be associated with social and psychological disadvantage.[7–11]

The WGS has challenged both these widely held beliefs. In 1986 a large cohort of *normal* short children was recruited from the community to observe, without intervention, their long term growth, and to establish whether short stature, at any age, has an adverse effect on school performance and psychological functioning in an otherwise unselected population.[4]

No evidence has been found that short normal children grow abnormally. This makes the not uncommon diagnosis of "idiopathic growth failure" in such children, in either the short or long term, difficult to sustain.[2 12] A thorough investigation of the reliability of height data has shown that the imprecision inherent in all height measurement makes any short term growth data liable to misinterpretation.[13–15] Indeed, it is of some concern that height velocity, often assessed over very short periods of time, is still claimed to be the key to a diagnosis of GHD and even growth hormone "insufficiency".[16–18]

In the longer term, it is evident that the mean rate of growth of the WGS children has been appropriate for their height.[19] Although, in absolute terms, short children will naturally grow more slowly than those of average stature, in relative terms, those who are healthy grow just as well as their peers and are no more likely to fall across height centiles. A velocity on the 25th centile is adequate to maintain a height on the third; it does not itself constitute growth failure, nor will it, as has been supposed, lead to dwarfism.[20] However unreliable the current pharmacological and physiological tests for GHD may be, the implications of diagnosing growth failure on the basis of equally unreliable auxological data are all too clear.

The belief that most short normal children are disadvantaged, socially or psychologically, has also been founded on evidence that the WGS has shown to be unreliable.[21 22] Most studies have, understandably, recruited subjects from the clinic, where those with the greatest difficulties are likely to be found. This does not, as has been claimed,[23] justify carrying out psychometric testing exclusively on clinic referred children. Rather, it serves to reinforce the impression that short stature is an inevitable handicap, thereby resulting in an increase in demand for treatment, both from and for those who were previously unconcerned. The WGS recruited short children, not from the clinic, but from the community at large. Their progress compared with matched controls of average stature has, to date, given little cause for concern.[22 24] Indeed, this study (and subsequently even two clinic based studies[23 25]) has demonstrated the normality of the self esteem, behaviour, and academic achievement of most short normal children. It is possible that the disadvantage of short stature becomes evident only in adulthood. Should this be so, it would be difficult to recommend treatment before the appearance of any symptoms. In any case, increasing the height of the shortest 1%, 3%, or 5% of the population can never eliminate short stature from society—it simply means that a new group of children would find itself the shortest.[26]

Thus, according to available evidence, the two principal arguments, auxological and

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psychological, that have been used to demonstrate the supposed abnormality of short stature in childhood, are untenable. In the absence of clear pathology, growth hormone therapy must for the present be viewed as cosmetic, and the ethics, let alone cost, of what has been termed "plastic endocrinology" deserve consideration. Prescribing a drug to induce physical change in an otherwise healthy body is likely to have a stigmatising effect, conveying dislike or at least disapproval on the part of the parents and doctor.[27] If nothing else, it turns a person into a patient. Many short normal children have nevertheless embarked on such treatment since recombinant human growth hormone became available in 1985. Moreover, the recently revised UK standards now available for height screening ensure that no "abnormally" short child can escape detection.[28] Even where no treatment is offered, the process of screening itself may create anxiety where none existed before. As Illich has pointed out, diagnosis always increases stress.[29] It also "isolates a person in a special role, and separates him from the normal and healthy". By this argument, even labelling a person as "short" creates a new category of person who is at best different, and at worst disadvantaged. Physicians and parents must also bear in mind that the pressure to identify and to treat short stature stems both from genuine concern, and, inevitably, from the pharmaceutical industry itself. In 1860, William Farr warned his audience that they were entering an era where " . . .men have the power to modify their race."[30] It would be unfortunate if we were to let ourselves be persuaded that an otherwise healthy child, who simply deviates from a statistical norm, is somehow less than perfect.

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