

Does Growth Hormone Treatment Improve Final Height Attainment of Children V Intrauterine Growth Retardation?

Results obtained with growth hormone (GH) treatment in 24 prepubertal (19 males, 5 females) intrauterine growth retarded (IUGR) children (ages 2 to 9 years; mean, 6.3 years) were reported. All patients' heights were less than the 3rd percentile. The mean growth velocity (GV) was -0.76 standard deviation (SD) for age. All had normal levels of GH during pharmacologic testing and/or overnight sampling. Eighteen were considered to have the morphologic features of Russell-Silver syndrome; 6 did not. Subcutaneous GH was given daily for 3 years at doses of either $15 \text{ IU/m}^2/\text{wk}$ ($n=11$) or $30 \text{ IU/m}^2/\text{wk}$ ($n=13$) the first year. All received $30 \text{ IU/m}^2/\text{wk}$ for the following 2 years. Puberty did not occur during the 3 years in any of the patients.

Mean GV (SD for age) increased during the first year to $+1.4$ with GH $15 \text{ IU/m}^2/\text{wk}$ and to $+3.6$ with GH $30 \text{ IU/m}^2/\text{wk}$. It remained at $+1.5$ SD the second year and $+1.1$ the third year. There was great variability in individual results, with no differences between sexes or between the Russell-Silver patients and the others. However, there was no improvement of height SD score (SDS) for bone age. Therefore, the height prognosis did not increase (-1.6 SD at the onset of treatment and -1.5 at the end). Results were similar regardless of the dose received the first year.

The authors do not offer a clear-cut answer to the question asked in the article's title. They only note that there was no decrease in height for bone age, which usually occurs in IUGR children during the late prepubertal years. Thus, they postulate that these children could possibly reach a better final height than otherwise would have occurred. They also raise the idea that

treatment may be of psychologic benefit because of the advanced tempo of growth.

Stanhope R, Preece MA, Hamill G. *Arch Dis Child* 1991;66:1180.

Editor's comment: *IUGR is a major cause of significant short stature, with a frequency approximating 1% of the total population. Although the positive short-term effect of GH in many children with abnormal birth lengths has been known for many years, the long-term effect on ultimate stature has not been known. The current study, which employed an excellent methodology, clearly shows that the value of GH in increasing ultimate height at least in Russell-Silver-associated short stature (and probably other types of IUGR) remains uncertain. The question is of great practical importance because of the handicap of severe short stature and the high cost of GH for treatment over many years. This study is not encouraging except in relation to increasing the tempo of growth, which can be important psychologically. Large-scale studies looking at ultimate growth, as well as tempo of growth, are taking place, and we must wait until these are completed to answer the question, "Does GH treatment improve final height attainment of children with IUGR?" Since this question will not be answered immediately, the routine or even frequent use of GH for IUGR patients cannot be encouraged on the basis of published data.*

J. C. Job, MD