Target Growth Hormone Doses to IGF-1 Levels

BY BETSY BATES
Los Angeles Bureau

SAN DIEGO — Short children grew taller when their growth hormone doses were adjusted to their insulinlike growth factor 1 levels rather than to their weight, according to randomized study results. “IGF-1 levels do matter,” said Dr. Pinchas Cohen, professor and director of research and training in the division of endocrinology at the University of California, Los Angeles.

In all, 172 children diagnosed with growth hormone deficiency or idiopathic short stature were enrolled in the 2-year trial sponsored by Novo Nordisk Inc., and the Lucile Packard Foundation for Children’s Health. The children were aged 3-15 years and significantly below normal height for their age, with a mean standard deviation score of -2.63. They also had low levels of IGF-1, the core mediator of growth hormone action on linear growth, Dr. Cohen reported at the annual meeting of the Endocrine Society.

The complex study design featured a control group of 34 children who received a conventional 40 mcg/kg per day dose of growth hormone. The other two groups received targeted, adjustable doses of growth hormone based on their IGF-1 levels at 3-month checkups.

One group (70 children) received growth hormone in amounts necessary to achieve normal IGF-1 levels. The other group (68 children) received enough growth hormone to drive their IGF-1 levels two standard deviations above the norm.

The three groups achieved mean IGF-1 levels of +0.4, +0.4, and +2.0 standard deviation scores in the first 9 months of the study, and doses of 41 mcg/kg per day, 33 mcg/kg per day, and 110 mcg/kg per day, and 110 mcg/kg per day were required to sustain these levels.

The big difference in height was seen in children whose growth hormone dose was aimed at raising their IGF-1 levels to two standard deviations above the norm. In this group, children with growth hormone deficiency grew 45% more, and children with idiopathic short stature grew 58% more than children in the other groups.

Dr. Cohen serves as a consultant or receives research support from several companies that manufacture human growth hormone, including Novo Nordisk.

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