

Burned Children Benefit From Growth Hormone

BY SHERRY BOSCHERT

INDIAN WELLS, CALIF. — Severe burns in children typically stunt growth in the first 2 years after injury, but growth curves can be normalized with some dosages of recombinant human growth hormone, a prospective, double-blind study of 206 patients found.

Children with burns covering more than 40% of their total body surface

area were randomized to receive placebo or one of three doses (0.05, 0.1, or 0.2 mg/kg per day) of subcutaneous recombinant human growth hormone (rhGH) or placebo starting at discharge from the hospital through 1 year after being burned.

They were examined for treatment effects at 6, 9, 12, 18, and 24 months post burn.

The 105 patients on placebo were at

the 33rd percentile for growth on standard growth curves at baseline and at all follow-up time points.

Growth returned to normal in 37 patients on 0.05 mg/kg per day rhGH at the 12- and 24-month follow-ups and at all follow-up time points in 41 patients in the 0.1-mg/kg per day rhGH group, with significantly better growth, compared with the placebo group, Dr. David N. Herndon and his associates reported at

the annual meeting of the American Surgical Association.

Paradoxically, 23 patients given the highest dose of rhGH (0.2 mg/kg per day) showed less growth than did the other rhGH groups—even though the highest dose produced the greatest improvements in lean body mass and in some other parameters measured, said Dr. Herndon, chief of staff at the Shriners Burn Institute and professor and chair of surgery at the University of Texas Medical Branch, both in Galveston. Dr. Ludwik K. Branski, also of the university, was the lead investigator in the study.

The limited growth on high-dose rhGH might be related to a significant decrease in bone mineral content and a

The highest dose of rhGH produced the greatest improvements in lean body mass and in some other parameters measured but less growth than the smaller doses.

significant increase in levels of osteocalcin (a marker of bone resorption) in that group, he suggested. “This may be because we did not give them enough calcium or enough vitamin D to allow the growth-potentiating effects on bone to express themselves by increased bone mineral content,” he speculated.

The few adverse events all occurred in the high-dose group: hypercalcemia in two patients and glucose intolerance in one patient that necessitated discontinuation of rhGH.

In addition to measuring growth, rhGH levels, lean body mass, bone mineral content, and osteocalcin levels, the investigators assessed levels of insulin-like growth factor body protein 3 (a mediator of growth hormone’s effects), resting energy expenditure, cardiac output, percent body fat, and parathyroid levels. “The 0.1-mg/kg per day dose had salutary effects in all body systems and did not reach a dose that was dangerous in any particular group,” and thus can be recommended for extensively burned children, Dr. Herndon said.

Commenting on the study, Dr. Basil A. Pruitt Jr. cautioned that more information is needed to evaluate the findings. “Since food intake and exercise can influence lean body mass and body weight,” it would have been helpful to have daily exercise and dietary logs in the study, said Dr. Pruitt of the University of Texas Health Sciences Center, San Antonio.

Although approximately two-thirds of each group were males, it also would be helpful to compare males with males and females with females to eliminate any potential sex bias, he suggested. Dr. Herndon said that analysis will be done.

Dr. Herndon and his associates reported having no conflicts of interest related to this study. ■

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