

Growth Hormone in Short Children: Beyond Medicine?

The increasing use of rhGH in short children with non-GH deficient (GHD) short stature, whether or not data support the efficacy of such treatment, may lead to its use being perceived as a cosmetic “enhancement”. Drs. Bolt and Mul discuss the merits of the use of rhGH in such children and whether such treatment is “in the medical realm”. Employing a disease-oriented model, rhGH would be administered only to patients with documented GHD or identified abnormal state (e.g., Turner syndrome) to restore health and normal functioning. The authors reject this approach because the differences between normal and abnormal growth and function are often indistinct. On the other hand, they also reject the “client approach” to prescribing of rhGH in which one would administer it “on demand” for any and all types of short stature including familial and idiopathic, because this approach might lead to “medicalization” of many perceived and apparent differences between individuals and make patients of otherwise healthy persons. Bolt and Mul believe the proper goal of medicine is to prevent or relieve suffering, both demonstrable and subjective, and advocate this approach to deciding when the administration of rhGH is or is not warranted. Suffering, while perhaps not always quantifiable, can be perceived by the family and physician. Thus, children with non-GHD short stature may be eligible for treatment with rhGH if s/he demonstrates present suffering or the potential for future suffering. They conclude that because the impact of short stature upon the functional status of normal adults is minor, treatment with rhGH “should take place in a research setting”.

Bolt LLE and Mul D. *Acta Paediatr* 90:69-73,2001.

Editor’s Comment: *The suffering individual is anguished, tortured, bitter and sad. However, it may not always be easy to identify the suffering short child.*

Firstly, the majority of short, otherwise normal children are brought to the office of the pediatric endocrinologist by their parents who are often more concerned about the height of their child than is the child himself. Thus, it is likely that it is the parent who is “suffering” rather than the child. Drs. Bolt and Mul do not address the issue of whether rhGH should be administered to a short child to alleviate parental suffering. Secondly, suffering related to short stature is seldom due exclusively to height, but reflects a constellation of behavioral, learning and social problems. As Macklin¹ points out in a companion commentary, the discomfort of the short-statured child may pale when compared to the physical suffering imposed by the numerous medical procedures that accompany treatment with, and the administration of rhGH. Although the “goal of medicine” involves all of the interrelated components delineated by the authors - disease-oriented, client-related, relief of suffering - this reviewer adheres to the precept that medicine is primarily a science and that medical decision making should be based upon valid scientific data. To date, there are limited and conflicting data relative to the growth promoting efficacy of rhGH therapy of the non-GHD short child and even fewer data concerning any psychosocial benefits of treatment.² Thus, I concur with the recommendation of Drs. Bolt and Mul that such treatment be undertaken in the context of a research environment.

References

1. Macklin R. Growth hormone in short children: medically appropriate treatment. *Acta Paediatr* 90:5-6,2001.
2. Guyda HJ. Four decades of growth hormone therapy for short children: what have we achieved? *J Clin Endocrinol Metab* 84:4307-4316,1999.

Allen Root, MD

Extended Life-Span Conferred by Cotransporter Gene Mutations in *Drosophila*

These investigators demonstrate that in the adult fruit fly, *Drosophila melanogaster*, heterozygous inactivating mutations in a newly identified gene *Indy* (for *I’m not dead yet* from the film “Monty Python and the Holy Grail”) double the active, fertile, and fecund life span of this insect. *Indy* encodes a 572 amino acid sodium dicarboxylate cotransporter, a membrane protein that shepherds the uptake and re-uptake of di- and tricarboxylic acid intermediate metabolites (e.g., succinate, citrate) of the Krebs cycle across cell membranes of organs responsible for metabolism and storage of fat, glycogen, and protein (e.g., the liver in

mammals). The investigators suggest that heterozygous loss-of-function mutations in *Indy* decrease the rate of absorption and utilization of metabolites, thus acting functionally to extend life span in a manner similar to that of partial caloric restriction.

Rogina B, et al. *Science* 290:2137-2140, 2000.

Editor’s Comment: *Energy restriction has been demonstrated to extend life span in worms, mammals, and insects, but the mechanism(s) by which decreased calories does (do) so have not been identified. It may*