

# Special Report: 25th Annual Meeting of the European Society for Pediatric Endocrinology— August 31-September 3, 1986, Zurich, Switzerland

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In a round table discussion that opened the meeting, Drs. Raiti and Kaplan reported on the use of biosynthetic human growth hormone (hGH) preparations in the United States, while Drs. Job (France) and Preece (England) reported on their use in Europe in patients with classic pituitary dwarfism. In all studies, the results were comparable with those obtained with native pituitary hGH. Initially, patients developed high titers of antibodies to growth hormone. Subsequent improvements in purification techniques significantly reduced antibody incidence to that seen with the highly purified native pituitary preparations. Low titers are clinically meaningless and do not inhibit growth.

Drs. Albertson-Wiklund (Sweden), Bierich (Germany), and Brook (England) discussed the use of hGH in nonclassic hypopituitary short stature. The results were excellent in patients with constitutional delay of growth and adolescence and in those with partial growth hormone deficiency (GHD). Spontaneous growth hormone (GH) secretion was diminished in both types of patients. Thus, hormone treatment serves as replacement therapy. Girls with Turner's syndrome also were successfully treated in many cases.

Dr. Prader (Switzerland) reported the results of two large longitudinal growth studies in Zurich. According to the data, the secular acceleration of growth and maturation has been constantly positive

for decades in young men, but this appears to be no longer true for infants. Prior to puberty, body height and growth velocity are identical for both sexes. Differences appear with the onset of the pubertal growth spurt, which starts at age 10 in girls and at age 12 in boys. This growth spurt is much more rapid in boys than in girls, and explains the difference in height between adult men and women. Sex hormones are responsible for the pubertal growth spurt but not the final height. In contrast, the midgrowth spurt, which occurs at age 7, is independent of sex and gonads and corresponds to the adrenarche.

Stanhope et al (England) reported on the mechanism of the pubertal growth spurt induced by pulsatile gonadotropin-releasing hormone (GnRH) treatment. Twenty-six normal short patients received GnRH subcutaneously for 90 minutes each night for ten to 16 months. The girls immediately began to secrete increased amounts of GH. The pulse amplitude was increased but not the number of pulses. In contrast, boys first demonstrated a growth deceleration and diminution of GH secretion. During maturation and coinciding with a testicular volume of 10 ml, GH secretion increased and the pubertal growth spurt occurred. Hindmarsh et al, who are in the same investigative group, found a highly significant positive correlation between growth velocity and circadian GH secretion. This led these researchers to administer hGH subcutaneously, 2 IU each night for six-month peri-

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ods, to 17 children with short stature. A gain in growth velocity (SDS) from  $-0.49$  to  $+2.86$  was observed.

Most idiopathic GHD is attributed to perinatal lesions. However, the pathogenesis of these processes is still unclear. Charlesworth et al (England) studied high-resolution computed tomographic scans of the pituitary and hypothalamus of five GHD patients. Definitive enhancing lesions were found in the anterior hypothalamus in each case. Obviously, most cases of pituitary dwarfism arise from hypothalamic damage. These findings are in accord with numerous reports concerning growth-releasing factor (GRF) tests. In the majority of cases, the patient's own GH secretion can be stimulated by exogenous GRF.

Argente et al (France) presented interesting correlations between plasma levels of GRF (by radioimmunoassay) and sexual maturation. At midpuberty, plasma GRF levels increased fivefold in girls but only twofold in boys over prepubertal values. Patients with idiopathic delayed puberty had markedly lower values.

Garnier et al (France) explored the continuing difficulties in determining the cause of short stature. This group investigated hGH secretion in 54 children with growth failure by evaluating nocturnal sleep and GH release to GRF and by performing various pharmacological tests. They concluded that the GRF test does not differentiate among atypical growth disorders.

The final height of 22 patients with hormone deficiencies treated with long-term GH correlated significantly with the midparental height and inversely with the height at onset of therapy, according to a study by Frisch et al (Austria). Eight children had isolated GHD, and 14 suffered from multiple hormone deficiencies. The duration of treatment was  $6.6 \pm 3$  years, and the average GH dose

was 9 IU/week. No correlations were found between final height and the standard deviations of chronological age, the chronological age itself, or bone age. Also, no correlation was found with insulin-like growth factor I levels or with GH levels obtained following provocative tests. Patients who had gonadotropin deficiency had a better prognosis with respect to height than those with idiopathic GHD.

The Henning Andersen Prize for the best paper was awarded to Drs. Maes, Amand, and Ketelslegers (Belgium). They fed rats a protein-poor diet for one week. The capacity of the liver membrane to bind GH, the affinity constants, and the basal somatomedin-C (Sm-C) levels were similar in this group of rats and controls. However, in the protein-deprived rats the increase in Sm-C levels after GH stimulation was only one third that of controls. These investigators concluded that in rats, protein malnutrition induces a GH postreceptor defect.

## Letter From the Editor

Dear Colleague:

Welcome to the third year of publication of *Growth, Genetics, and Hormones*. The Editorial Board has worked industriously to provide you with updated summaries of topics of interest to pediatric endocrinologists and geneticists and to provide particularly pertinent abstracts from the literature. We have especially enjoyed providing editorial comments on the abstracts and summaries of meetings we have attended.

The first issue of Volume 3 has departed somewhat from our usual format. We thought that you might enjoy a historical perspective of Dr. Lawson Wilkins, the pioneer in pediatric endocrinology and, in many respects, in genetics as well. Should your response to this presentation be positive, we will consider presenting further historical perspectives on Dr. David Smith, the Lawson Wilkins Pediatric Endocrine Society, and others in the future.

The second issue of Volume 3 will be devoted in large part to Turner's syndrome. Dr. Judith Hall will contribute a major review article and discuss many aspects of Turner's syndrome in both children and adults. There will also be an update on constitutional delayed growth and adolescence by Dr. Jürgen Bierich. An article regarding antibodies against growth hormone will be included. The author will be Dr. Louis Underwood.

The third issue will include an article on basic genetic concepts and chromosome linkage. This superlative presentation by Dr. Thaddeus Kelly provides a wealth of information for those who do not specialize in genetics but wish to deepen their understanding of the subject. We encourage you to set aside a few hours for studious review of Dr. Kelly's article; it will be well worth your time and professional interest.

The articles for the fourth issue of Volume 3 have not yet been chosen. The members of the Editorial Board encourage you to send to us your suggestions for future issues. Our goal this year is to highlight the most recent information available and to address your educational needs in the fields of growth, genetics, and hormones. We extend our best wishes for the coming year.

For the Editorial Board,



Robert M. Blizzard, M.D.  
Chairman