

Preface

The molecular era ushered in the cloning of the growth hormone (GH) gene and the production of unlimited amounts of GH through recombinant technology. The continuing momentum of research from basic science to clinical evaluation has brought unprecedented advances to the understanding of GH biology for the clinical endocrinologist. This book endeavours to distill the new information of relevance to the endocrinologist spanning the last 20 years. It contains five sections covering physiology, molecular genetics, GH deficiency, acromegaly and pharmacotherapy.

The first section on physiology focuses on GH action. A review of the structure and function of the GH receptor is followed by a perspective on the regulatory role of ghrelin on GH secretion. Attention is drawn to the pattern of GH secretion as an important determinant of tissue action. The metabolic actions of GH are diverse affecting fat, carbohydrate and protein homeostasis in humans.

The second section on genetics covers pituitary function and adenomas. Transcription factors in pituitary cell type development and the disease phenotypes resulting from loss of function mutations causing isolated or combined GH deficiency are complemented by a timely review of associated structural abnormalities identifiable by modern day imaging. This section also presents new and fascinating information on familial pituitary adenomas, their genotype and phenotype.

The section on adult GH deficiency spans the epidemiology and diagnosis of GH deficiency with a strong reminder for the clinician that the transition period represents a critical time of somatic maturation, occurring years after cessation of linear growth. Long-term global experience in replacement therapy has reconfirmed the safety and efficacy of GH in restoring body composition and fitness, with scant evidence for malignancy risk.

The section on acromegaly focuses on management, giving practical guides to the value of GH and IGF-1 measurements, the place of somatostatin analogues and of radiotherapy while reminding the reader as to why evaluating the quality of life is an important part of management. Compelling evidence is provided for clinicians to strive for tight control based on epidemiological evidence that mortality is returned to that of the general population when this is achieved.

The section on GH pharmacology takes the reader through innovative developments of long-acting GH formulations with some products on the threshold of clinical use. While there is much abuse of GH in the community, this section provides a balanced review of the effects of GH supplementation in ageing and in sports where recent data indicate an enhancing effect on a selective aspect of performance.

This book integrates a wealth of information for the paediatric endocrinologists, adult endocrinologists, endocrine scientists and internists interested in the human biology of GH.

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Growth Hormone Related Diseases and Therapy
A Molecular and Physiological Perspective for the
Clinician

Ho, K. (Ed.)

2011, XIV, 414 p., Hardcover

ISBN: 978-1-60761-316-9

A product of Humana Press