

# PREFACE

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Four hundred and fifty years ago, Eustachius described the adrenal glands in his *Atlas of Anatomy*. Two centuries later, Winslow gave a more complete description, and a hundred years later, only in the middle of last century, the physiological significance of the adrenal glands became apparent, with the description of adrenal insufficiency by Addison and the conclusive experimental evidence produced by Brown-Sequard. Up to the 1930s, the products of the adrenal cortex and their roles were completely unknown. In 1950, the Nobel prize in Medicine or Physiology was awarded to Kendal, Reichstein, and Hench for the isolation, identification, and first therapeutic use of cortisone. It is tempting to compare the pace of data acquisition and concept generation in the adrenal field to that of the technological development of humanity. Indeed, new and exciting concepts in the field of adrenal physiology and pathophysiology have been emerging in an exponential fashion. This tremendous influx of new knowledge is without parallel in the history of adrenal gland studies. Our aim in editing *Adrenal Disorders* was first to select from the existing huge pool of novel information the most relevant to clinical practice and second to incorporate this knowledge into the existing body of clinical knowledge. We have recruited experts who have been active contributors, with the conviction that the best scientist to explain a new concept is frequently the one involved in its generation.

The first part of *Adrenal Disorders* concerns new developments in our understanding of the physiology of the adrenal cortex and medulla. In the first section of this part of the book, we have included chapters on ontogeny, on steroidogenesis, and on the generation of adrenal zonation. The second section deals with the newer concepts regarding the secretion and metabolism of adrenal products. Thus, we have included chapters on the pharmacology and catabolism of glucocorticoids, on the physiologic role of 11 $\beta$ -hydroxysteroid dehydrogenase system, on adrenal androgens, and on StAR protein. Finally, we have included two chapters on the physiology of the adrenal medulla and the significance of the intra-adrenal paracrine/autocrine regulatory networks, composed of locally produced cytokines, neuropeptides, steroids, and catecholamines.

The second part of *Adrenal Disorders* concerns new developments in our understanding of the diseased adrenals. The first section deals with disturbances in the homeostasis of cortisol production. In the first chapter, a concise overview of hyper- and hypocortisolism is given. Two chapters follow that present new data on ACTH resistance and the ectopic ACTH syndromes. The ensuing chapters analyze the different Cushing's and pseudo-Cushing's syndromes and their differential diagnoses, including the combined CRH/dexamethasone test, bilateral simultaneous inferior petrosal sinus sampling, and the desmopressin test. The second section is devoted to new concepts regarding adrenal tumors, including the roles of oncogenes/tumor suppressor genes in adrenocortical tumorigenesis, and novel, albeit yet unsatisfactory therapeutic approaches in adrenal cancer, as well as a chapter on adrenal incidentalomas. The third section includes chapters on hereditary adrenal diseases, including congenital adrenal hyperplasia, micronodular adrenal disease, congenital lipoid adrenal hyperplasia, congenital adrenal hypoplasia, and two chapters with novel, integrated information on the involvement of the adrenals in two systemic conditions, HIV-1 infection, and generalized obesity. The next section deals with mineralocorticoids and the syndromes of mineralocorticoid excess and aldosis-

terone synthase deficiency. *Adrenal Disorders* ends with an extensive chapter describing newer developments in the field of adrenomedullary tumors.

The editors are indebted to the authors for their hard work and willingness to write the chapters of this book. We recognize today's importance of dedicating most of an investigator's effort to the production and publication of primary data, and this doubles our gratefulness. Thanks to the authors, *Adrenal Disorders* is current, which will hopefully make it useful to other adrenal investigators and to colleagues who apply the knowledge presented in their research, teaching, or clinical practice.

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