

Foreword

In the last decades, the pivotal role exerted by hormones, cytokines and peptides on the cardiovascular system has become increasingly clear. On the other hand, the discovery that the heart is not just targeted by peptides and steroid hormones, but acts itself as an 'endocrine organ' playing a critical role in fluid and electrolyte homeostasis is extremely fascinating. These findings had a relevant clinical impact and, nowadays, not just endocrinologists but also internists are familiar with the concept that the endocrine system and the cardiovascular system are closely related. Indeed, hormonal dysfunction is often associated with cardiovascular alterations; at the same time, cardiovascular diseases are generally associated with endocrine and metabolic alterations. Apart from an impressive number of elegant basic studies, clinical studies focusing on patients with hormonal excess or deficiency before and during optimized treatment were of major importance; these clinical conditions represented appropriate models to better understand the effect of the various hormones on morphology and function of the cardiovascular system. Considering the well-characterized increase in cardiovascular morbidity and mortality due to metabolic derangement in diabetes, hypertension, dyslipidemia, metabolic syndrome and obesity, and taking also into account that the adipocyte is now recognized as an endocrine organ producing molecules that play another major role in the cardiovascular system, it is clear why the topic 'cardiovascular issues in endocrinology' is really hot.

We are therefore proud to present this volume of the series *Frontiers of Hormone Research* entitled *Cardiovascular Issues in Endocrinology* edited by two recognized experts in the field, Riccarda Granata and Jörgen Isgaard. The volume provides an authoritative, updated overview of molecular effects on endocrine disorders underlying cardiovascular diseases, as well as the cardiovascular consequences of endocrine and metabolic disorders.

We do believe that this book will be attractive and useful for endocrinologists as well as for cardiologists and internists, and would finally thank the editors, as well as the authors, for their great job.

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Preface

It was a great pleasure indeed to accept the invitation to work on this book about ‘cardiovascular topics in endocrinology’. Having worked in this field of research for many years, it is still fascinating to dive into the ever-expanding knowledge about the interactions between the endocrine and cardiovascular systems.

One of the personal landmarks in this field was published in 1994 in a paper in which cardiovascular abnormalities were described in adult patients with growth hormone (GH) deficiency, and substitution therapy with GH improved a number of cardiac and vascular variables. In the Discussion, the authors speculated that GH might play a future role in the treatment of heart failure. This triggered a lot of research activities with successful GH treatment in different animal models with heart failure. Moreover, a pioneering study from Naples published in the *New England Journal of Medicine* in 1998 reported spectacular improvements in a small number of patients with heart failure treated with GH for 3 months. Since then, for various reasons, no major, large, placebo-controlled trial confirming these positive results has been published. However, this particular field is still being explored and recent studies point to multiple hormonal deficiencies in subsets of patients with heart failure.

It is important to note that almost all endocrine diseases, if not treated or controlled, have cardiovascular manifestations. Interestingly, not only GH deficiency but also GH excess is harmful for cardiovascular functions, e.g. in acromegaly, where shortened life expectancy and increased mortality is mostly due to cardiovascular complications in uncontrolled disease. Moreover, Cushing’s syndrome and diabetes are well-known metabolic and cardiovascular manifestations, as well as hypo- and hyperthyroidism. In recent years, both adipose tissue and the heart have been increasingly recognized as organs with partial endocrine functions, which produce adipokines and brain natriuretic peptide, respectively, and influence a number of cardiovascular parameters. Primary aldosteronism as a cause for secondary hypertension is still a great challenge to detect and diagnose properly; however, new important discoveries have been made regarding the genetics of this probably underestimated cause of hypertension.

Hormones as treatment tools are also a controversial topic in many areas where solid, large, randomized, prospective trials are lacking or provide conflicting results.

The increased use of testosterone in partially androgen-deficient middle-aged and elderly men is a challenge for health care systems and the scientific community since it is still unclear if benefits outweigh risks and costs for such treatment. Hormones such as incretins or ghrelin have potentially beneficial and protective cardiovascular effects and warrant more and larger controlled trials to confirm their potential as treatment tools in metabolic and cardiovascular diseases. Replacement therapy with hormones for postmenopausal women and glucocorticoids in the treatment of adrenal insufficiency has had a long tradition in modern medicine. However, important cardiovascular complications related to treatment have been recognized and need to be addressed for long-term safety in these patient groups.

We are very grateful to the authors who contributed interesting chapters to this book with excellent and up-to-date reviews of their respective scientific field. All of them have contributed with landmark findings in this particular topic of research and we are very proud to have them all aboard on this book project. It is now our hope that this book will provide important new knowledge in cardiovascular endocrinology and that it will also inspire new scientific endeavors in this ever-evolving and -expanding field in medicine.

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