
Endocrinology

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Within the health sciences, Endocrinology has an unique and pivotal role. This old, but continuously new science is the study of the various hormones and their actions and disorders in the body. The matter of Endocrinology are the glands, i.e., the organs that produce hormones, active on the metabolism, reproduction, food absorption and utilization, growth and development, behavior control, and several other complex functions of the organisms. Since hormones interact, affect, regulate, and control virtually all body functions, Endocrinology not only is a very complex science, multidisciplinary in nature, but is one with the highest scientific turnover. Knowledge in the Endocrinological sciences is continuously changing and growing. In fact, the field of Endocrinology and Metabolism is one where the highest number of scientific publications continuously flourishes. The number of scientific journals dealing with hormones and the regulation of body chemistry is dramatically high. Furthermore, Endocrinology is directly related to genetics, neurology, immunology, rheumatology, gastroenterology, nephrology, orthopedics, cardiology, oncology, gland surgery, psychology, psychiatry, internal medicine, and basic sciences. All these fields are interested in updates in Endocrinology. The aim of the MRW in Endocrinology is to update the Endocrinological matter using the knowledge of the best experts in each section of Endocrinology: basic endocrinology, neuroendocrinology, endocrinological oncology, pancreas with diabetes and other metabolic disorders, thyroid, parathyroid and bone metabolism, adrenals and endocrine hypertension, sexuality, reproduction, and behavior.

More information about this series at <http://www.springer.com/series/14021>

Felipe F. Casanueva • Ezio Ghigo
Editors

Hypothalamic-Pituitary Diseases

With 54 Figures and 41 Tables

 Springer

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Series Preface

Is there an unmet need for a new MRW series in Endocrinology and Metabolism? It might not seem so! The vast number of existing textbooks, monographs and scientific journals suggest that the field of hormones (from genetic, molecular, biochemical and translational to physiological, behavioral, and clinical aspects) is one of the largest in biomedicine, producing a simply huge scientific output. However, we are sure that this new Series will be of interest for scientists, academics, students, physicians and specialists alike.

The knowledge in Endocrinology and Metabolism almost limited to the two main (from an epidemiological perspective) diseases, namely hypo/hyperthyroidism and diabetes mellitus, now seems outdated and closer to the interests of the general practitioner than to those of the specialist. This has led to endocrinology and metabolism being increasingly considered as a subsection of internal medicine rather than an autonomous specialization. But endocrinology is much more than this.

We are proposing this series as the *manifesto* for “**Endocrinology 2.0**”, embracing the fields of medicine in which hormones play a major part but which, for various historical and cultural reasons, have thus far been “ignored” by endocrinologists. Hence, this MRW comprises “traditional” (but no less important or investigated) topics: from the molecular actions of hormones to the pathophysiology and management of pituitary, thyroid, adrenal, pancreatic and gonadal diseases, as well as less common arguments. Endocrinology 2.0 is, in fact, the science of hormones, but it is also the medicine of sexuality and reproduction, the medicine of gender differences and the medicine of wellbeing. These aspects of Endocrinology have to date been considered of little interest, as they are young and relatively unexplored sciences. But this is no longer the case. The large scientific production in these fields coupled with the impressive social interest of patients in these topics is stimulating a new and fascinating challenge for Endocrinology.

The aim of the **MRW in Endocrinology** is thus to update the subject with the knowledge of the best experts in each field: basic endocrinology, neuroendocrinology, endocrinological oncology, pancreatic disorders, diabetes and other metabolic disorders, thyroid, parathyroid and bone metabolism, adrenal and endocrine

hypertension, sexuality, reproduction and behavior. We are sure that this ambitious aim, covering for the first time the whole spectrum of Endocrinology 2.0, will be fulfilled in this vast Springer MRW in Endocrinology Series.

Andrea Lenzi, M.D.

Series Editor

Emmanuele A. Jannini, M.D.

Series Co-Editor

Volume Preface

Hypothalamic-pituitary diseases are a common although underestimated and underdiagnosed condition, with relevant clinical implications. They can be associated both with hormone hyper- and hyposecretion and so the management of hypothalamic-pituitary diseases is one of the most difficult tasks for the endocrinologist.

The most frequent hypothalamic-pituitary disease is a functioning or non-functioning tumor of the hypothalamic-pituitary region, usually associated with panhypopituitarism secondary to tumor growth or to its treatment with surgery or irradiation. Less commonly, hypopituitarism is due to nontumoral disorders including infiltrative lesions, infective processes, vascular alterations, traumatic brain injury, empty sella, or genetic disorders. Finally, hypothalamic-pituitary dysfunctions may occur as functional consequences of systemic disorders or as a consequence of long-term administration of drugs.

It is essential to perform validated diagnostic procedures in order to promptly diagnose hypothalamic-pituitary dysfunctions so as to prevent long-term consequences. At the same time, diagnosis is complex as no single test has sufficient sensitivity to identify all patients with hypothalamic-pituitary disorder. Imaging and genetic tests are becoming essential tools – in association with hormonal assays – for the diagnosis and management of hypothalamic-pituitary disorders.

In this volume, we have tried to provide the most up-to-date informations on the pathophysiology, diagnosis, and treatment of both main organic and functional hypothalamic-pituitary dysfunctions.

Some chapters are also dedicated to the complex interactions that the hypothalamus-pituitary system has with energy, glucose, and bone metabolism.

We believe we have included in this volume many of the most scientifically exciting and clinically relevant areas in contemporary neuroendocrinology.

A fascinating update on selected issues in basic and clinical research, this book is of great interest to both neuroendocrinologists and endocrinologists working on pituitary diseases and related issues. We hope this volume will be a valid tool for the broader scientific community dealing with the diagnosis and management of hypothalamic-pituitary diseases.

Felipe F. Casanueva
Ezio Ghigo

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About the Editors



Felipe F. Casanueva

- *Professor of Medicine – Universidad de Santiago de Compostela (USC)*
- *Head of Department of Endocrinology and Nutrition – Hospital Universitario de Santiago (CHUS)*

Has been President of the following scientific societies:

- *Sociedad Gallega de Endocrinología y Nutrición (SGENM), 1986–1989*
- *Sociedad Española de Endocrinología y Nutrición (SEEN), 1993–1996*
- *European Federation of Endocrine Societies (EFES), 1998–2001*
- *The Pituitary Society, 2008–2009*
- *International Society of Endocrinology (ISE), 2010–2014*
- *Sociedad Española para el estudio de la Obesidad (SEEDO), 2011–2016*

Has written 48 chapters on international books and textbooks and delivered more than 200 lectures by invitation at International Congresses. His current H-index is 79. Dr. Casanueva has published more than 600 papers in international journals with a cumulative Impact Factor of 1981,76.

He has received several AWARDS for RESEARCH at national and international levels, such as:

- *Xunta de Galicia de Investigación (1992)*
- *Sociedad Española de Endocrinología y Nutrición, to his Professional Career (2002)*
- *Jose Varela Montes to the Health Science Area Research (2005)*

- *Rey Jaime I* to the Medical Research (2005)
- *Geoffrey Harris Prize* of Neuroendocrinology (2006)
- *Novoa Santos* (2008)
- *Fundacion Lilly* of Biomedical Research Clinic (2012)
- *Fundacion Danone* – Professional Career – *Dr. Carlos Martí Hennberg* (2015)
- *European Hormone Medal* – *European Society for Endocrinology* (2016)

And, he has been named

- Honorary Doctorate in Medicine of the:
 - Universidad de Lódz (Poland, 2008)
 - Universidad de Erciyes (Turkey, 2013)
 - Universidad de Belgrado (Serbia, 2014)
- Honorary Member of the *European Society of Endocrinology (ESE)*, Poland 2014
- Full member of the “Real Academia de Medicina y Cirugia de Galicia” (RAMYCGA), A Coruña, 2013
- Honorary Member of the “Agencia Española de Nutricion y Ciencias de la Alimentacion” (AEN), A Coruña, 2015



Ezio Ghigo

- Full Professor of Endocrinology and Metabolism, School of Medicine, University of Turin – since 1999
- Chairman of the Department of Medicine, University Hospital – A.O.U. Città della Salute e della Scienza di Torino – Presidio Molinette – Turin – since 2008
- Dean of the School of Medicine – University of Turin – since 2010
- Vice Rector for Health Care – University of Turin – since 2010
- Chairman of Postgraduate School of Sport Medicine – School of Medicine – University of Turin

He is member of the following scientific societies:

- Italian Society of Endocrinology (President 2011–2013)
- Italian Society of Diabetes
- Italian Society of Andrology

- European Endocrine Society (Vice President 2005–2009)
- American Endocrine Society
- European Neuroendocrine Association
- Growth Hormone Research Society
- International Society of Gynecological Endocrinology

He has written more than 250 original articles published on international journals with high impact factor, more than 100 publications including reviews, book and textbook chapters, and letters to the editor.

He has delivered more than 500 lectures by invitation at National and International Congresses, including those of the European Endocrine Society, American Endocrine Society, International Society of Endocrinology, and Italian Society of Endocrinology.

He has received several AWARDS for RESEARCH at national and international levels, such as:

- The Italian Society of Endocrinology award for young investigators (1986)
- The Italian Society of Endocrinology award for his Scientific Career (2001)
- “Gold Medal Lecture” award of the British Society for Endocrinology (2004)
- “Geoffrey Harris Prize” of the European Endocrine Society (2011)

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