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MICHAEL J. AMINOFF, FRANÇOIS BOLLER, DICK F. SWAAB

97

3rd Series

HEADACHE

Edited by:
GIUSEPPE NAPPI
MICHAEL A. MOSKOWITZ

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Foreword

Migraine and other headaches are among the most frequent symptoms encountered in medicine. It has been estimated that at least 40% of neurological consultations are triggered by headache-related problems. The very high frequency of headache has made some physicians wonder whether one should call a condition that affects so many people a "disease." Headache sufferers, however, know better and have been relying for centuries on the knowledge of physicians to alleviate their symptoms. The editors of the previous series of the *Handbook of Clinical Neurology* certainly recognized the importance of the problem and, following four volumes dealing with neurological functions and their disturbances, they dedicated the first nosological volume (volume 5 of the first series) to headaches. They commented that the volume reflected the extent of our knowledge and ignorance about headache at that time (1968). As the reader will see, we have come a long way since then. In the second series, a volume on headaches was published in 1985, and the preface to that volume stated that this Cinderella of academic neurology had been transformed into an attractive princess courted by a growing circle of admirers. This is even truer today.

The present volume is part of the third series of the *Handbook*, for which we have editorial responsibility. In order to provide insight into physiological and pathogenetic mechanisms, and a basis for new therapeutic strategies for neurological disorders, we have specifically ensured that the neurobiological aspects of the nervous system in health and disease are covered, as well as more clinical aspects of neurological disease. During the last half-century, dramatic advances in the clinical and basic neurosciences have occurred, and these are emphasized in each volume of the *Handbook*. The present volume deals with various aspects of headaches. Until a few years ago, relatively little could be done in terms of therapeutic intervention and prevention of headaches, and in the headache volumes in the earlier series only few chapters dealt with therapy. Advances in our understanding of the biochemical background of headaches coupled with advances in fields as diverse as pharmacology, epidemiology, genetics, neuroimaging, interventional radiology, surgery, and even clinical psychology have profoundly altered our approach to headache. In the present volume, for example, no less than 15 chapters cover therapy, including prevention and management. Our goal is to provide basic researchers with the foundations for new investigative studies. We also intend to give clinicians a source reference to enable them to gain a thorough knowledge and understanding of the clinical features and management of the many manifestations of headaches.

As series editors, we reviewed all the chapters and made suggestions for improvement, but we were delighted to read such scholarly and comprehensive accounts of different aspects of headaches. We are grateful to the two volume editors, Professor Giuseppe Nappi and Professor Michael Moskowitz, for their untiring effort in the preparation of this work. Our gratitude extends to all those who contributed their time and expertise to summarize developments in their field and helped put together this outstanding volume. In addition to the print form, the series is now available electronically on Elsevier's ScienceDirect site. This makes the *Handbook* more accessible to readers and will also facilitate search for specific information. As always, we are especially grateful to the team at Elsevier for their unfailing and expert assistance in the development and production of this volume.

Michael J. Aminoff
François Boller
Dick F. Swaab

Preface

Significant advances in the basic and applied brain sciences have led to a veritable revolution in the headache field over the past 25 years. This revolution was generated in part by the recognition that headache disorders are among the most burdensome health-care problems worldwide. Not only do they impact unfavorably on the finances of medical care, but they also reduce the quality of life of headache sufferers and their families. It is difficult to overstate the need to expand our knowledge base in this field and to continue our quest for better treatments in order to reduce the monetary and human cost of headaches; hence the motivation for this volume.

It may be hard for the reader to comprehend how far we have advanced over the past 25–30 years without mentioning just a few of the seminal developments in the headache field. These include the headache classification system, the discovery of the trigeminovascular system, and the introduction of the triptans for acute treatment. Moreover, developments in other fields such as genetics and genomics have contributed to the emergence of migraine genetics, which has identified specific genes causing mutated ion channels and ion pumps that underlie familial hemiplegic migraine. It is fair to say that many of the tools used to advance our understanding of headache were merely in the mind's eye of the field when the predecessor to this volume, volume 48 in the *Handbook of Clinical Neurology*, was published in 1985. For example, the blood oxygen level-dependent (BOLD) technique to assess functional activation was discovered in the 1990s and used shortly thereafter to confirm the importance of cortical spreading depression to migraine aura and to identify activated cortical and brainstem regions during headache. The design and analysis of large epidemiological studies and the methodologies for clinical trials have been highly refined over the past 20 years, and the value of evidence-based medicine and translational research is now widely accepted, even demanded by the headache community.

This volume is an exhaustive and up-to-date account of the cultural developments and the scientific advances that, in the period since the publication (in 1985) of the previous volume on headache in the *Handbook*, have revolutionized understanding of both migraine and other headaches. The evolution of the concept of primary headache can be charted, essentially, through three important milestones: 1982, the year in which the International Headache Society (IHS) was founded in London; 1988, the year that saw the publication of the first IHS classification of headaches, a ground-breaking development in the field as it was the first time that precise criteria for diagnosing the various forms of headache had been formulated on the basis of empirical data (evidence-based diagnostic criteria) or, in areas where the literature lacked sufficient data, on the basis of expert consensus; and finally, 2004, the year that, in the wake of more than 15 years of intense work aimed at validating and expanding the first version, brought us the second edition of the IHS classification (*International Classification of Headache Disorders*, 2nd edn: ICHD-II).

Headache classification is a dynamic and ongoing process and, immediately after the publication of ICHD-II, it proved necessary to revise the classifications of medication-overuse headache (MOH) and chronic migraine (CM). These changes also highlighted the need for a standardization of the general diagnostic criteria for secondary headaches. According to ICHD-IIR, MOH cannot be diagnosed with certainty as long as the putative cause – medication overuse – continues to be present.

Many of the authors who have contributed to this book have been both witnesses to and protagonists on the front line of headache science. Its contents, rigorous and completely up to date, ranges from nosographical categorizations, based on the explicit recording of the classic signs and symptoms, to the emerging concept of migraine as a model of a complex, polygenic disease characterized by an environmental component and by heterogeneity as regards clinical phenotype, age at onset, gender, severity, comorbidities, and outcomes.

The book includes chapters dealing with general aspects of headache (socioeconomic, in particular), the contribution made by the biological sciences to furthering understanding of the pathophysiology of headache, and

the management of headache and related problems. The main body of the book is devoted to primary and secondary headaches. The book ends with chapters intended to clarify a series of controversial issues: pathogenetic (chronobiological, endocrinological, and neuroimaging correlates), nosographic (i.e., migraine, vertigo, and headache in children), and treatment-related (new advances).

We are deeply appreciative of the invaluable contributions of Giorgio Sandrini (Pavia) and Gabriella Buzzi (Rome) to this volume. Without their efforts, the volume would never have been realized.

Giuseppe Nappi
Michael A. Moskowitz

Dedication

For my wife Emilia, my children Rossella and Roberto, and in memory of my parents Rosinella and Rubino Nappi. Their love and patience have constantly given me confidence and strength.

Giuseppe Nappi

To my Cherished Family: Mary, Jenna, Mattia, Jacob, and especially my mother Clara

Michael A. Moskowitz

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