
Preface

The seeker after truth is not one who studies the writings of the ancients and, following his natural disposition, puts his trust in them, but rather the one who suspects his faith in them and questions what he gathers from them, the one who submits to argument and demonstration [...] Thus, the duty of the man who investigates the writings of scientists, if learning the truth is his goal, is [...] applying his mind to the core and margins of its content, attack it from every side. He should also suspect himself as he performs his critical examination of it, so that he may avoid falling into either prejudice or leniency.

Ibn al Haytam (“Alhazen”) (965–1039)

Since the beginning of written accounts almost three millennia ago, disorders of consciousness have constantly intrigued and fascinated scholars and physicians. With the beginning of modern-era intensive care in the middle of the twentieth century, and particularly the continuous developments of technical and computer technologies, allowing easier recordings, more compact data storage, and smoother analyses, the last few decades have experienced a dramatic increase in the interest devoted to the study and therapy refinements of these patients. Given their non-invasiveness, the relatively broad availability, and the opportunity to study brain function in real time, neurophysiological investigations are routinely applied to complete clinical and radiological examinations in this setting, and represent a paramount tool for both clinical and scientific purposes.

This book is intended to cover in a single work clinical and research information related to the whole spectrum of neurophysiology applications in patients with disorders of consciousness. Its content spans from clinical aspects related to the management of patients in the intensive care unit, including EEG, evoked potentials, and related implications in terms of prognosis and clinical management (the first section, focusing on the acute setting and more clinical), to explorative research applications in subjects with ongoing consciousness impairment (the second section, devoted to the chronic patients, and more research-bound). While the first chapters give up-to-date information for the interested clinician, the following ones highlight the latter scientific developments, which open new exciting avenues in this field including an outlook on neuroimaging at the end. Given its interdisciplinary character, the book is directed to neurologists, neurophysiologists, neuro-intensive-care specialists, nursing personnel, clinical neurophysiology technologists, and researchers.

As compared to the several, already existing excellent publications in this field, this book reflects the lively interplay between clinical and research applications; we are very proud of the work by all the authors of the chapters, top experts in their respective fields, who provided the current state of the art. Each chapter has been thoroughly reviewed by us in order to minimize redundancy and incongruence; furthermore, a cross-referencing between chapters allows the reader a rapid overview of related topics across the book. However, as with each work written by several authors, some double coverage of distinct items is unavoidable; we believe that this may provide the reader with a spectrum of the existing knowledge, which cannot be summarized as a monolithic feature. The citation of the great medieval Arab scholar reminds us that knowledge is constantly evolving, and that only a critical and honest debate will allow identifying the best direction towards it.

Lausanne, Switzerland
Liège, Belgium

Andrea O. Rossetti
Steven Laureys

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Rossetti, A.O.; Laureys, S. (Eds.)

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