BOOK REVIEW

EEG in Clinical Practice

Edited by Kurupath Radhakrishnan, Jagarlapudi MK Murthy, Chaturbhuj Rathore

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The science and art of EEG recording, interpretation and reporting require in depth neurophysiological knowledge, visual pattern recognition skills and clinical acumen. While common epileptiform and normal patterns in adults are easily recognized by most EEG scientists and neurologists, uncommon variants, certain paediatric patterns, coma patterns, ictal rhythms and sometimes simple state- and age-related variations require a greater degree of competency in EEG. Too often routine EEG is misinterpreted, leading to the erroneous diagnosis of epilepsy, the incorrect determination of epileptic seizure type or syndrome, the wrong treatment and sometimes patient harm. Formal training in EEG, both theoretical and practical, is widely recognized in adult and paediatric neurology training programs, and by the ASEPA with its EEG courses and certification process.

There are numerous EEG textbooks and EEG atlases published, many occupying the shelves of medical offices and EEG laboratories. Unfortunately, EEG is not easily learnt from textbooks, and often, such books are only rarely utilized in clinical practice. Finding the right balance of theoretical foundations, clinical scenarios and illustrative examples is a challenge for authors and editors of books on EEG. And with the plethora of different digital EEG systems available and the numerous montages used in different laboratories, illustrating EEG examples in a clinically-useful way is challenging. *EEG in Clinical Practice*, edited by Drs Radhakrishnan, Murthy and Rathore (Manipal Universal Press, 2018), rises to the challenge and presents a clinically-relevant textbook on EEG, packed with EEG examples and complemented by just the right amount of theoretical and clinical background.

Chapter 1 is a concise background to the neurophysiological, technical, practical and historical aspects of EEG and is a must read by all EEG scientists and neurologists; more detailed and formidable chapters on the topics can be found in other textbooks, for those interested. Artifacts are dealt with in Chapter 2, before chapters on normal and abnormal EEG patterns, making a clear statement to the reader of their importance in EEG. Normal waking and sleep EEG patterns in adults and children are dealt with across several chapters, a little repetitively due to the age split. Epileptiform EEG abnormalities, background EEG abnormalities and non-epileptiform EEG variants are covered in several chapters in a logical manner. Particularly pleasing is the clear explanation and use of the term "epileptiform". Special chapters are devoted to EEG patterns in neonates, epileptic encephalopathies, specific neurological disorders and ICU. Magnetoencephalography and high frequency oscillations are briefly covered in specific chapters, MEG seeming a little inappropriate in this book directed largely to the practicing clinician. A useful replacement chapter might have been one specifically dealing with ictal rhythms, given their occasional recording in routine EEG and their importance in EEG monitoring; instead, focal and generalized seizures are covered within the relevant chapters on epileptiform patterns. In a fitting conclusion to the book, Dr Radhakrishnan takes the bull by the horns in Chapter 21 and deals with practical issues of EEG recording, reading and reporting, outlining the applications of EEG in different clinical settings and listing approaches, requirements, caveats and pitfalls of EEG. This and the first Chapter are superb "bookends" to the information provided in between on EEG in specific settings. The glossary at the end is another treat in this book.

EEG in Clinical Practice is complemented by excellent EEG figures, the majority being 10-15 second epochs of 16-20 channel EEG. These are all displayed page-width, not column-width or landscape, and do not require the reader to stop reading and rotate the book 90 degrees. All EEG figures seem to be

from digital recordings and are reproduced in high-resolution. Borders, montages, channel labels and channel colours vary throughout, due to the multiauthor contributions, and may annoy the reader slightly. However, it actually helps to concentrate the reader's attention on waveforms and checking montages, as is necessary in real EEG practice, rather than locking into pattern recognition on a single system and montage. In future revised editions, the editors might look to reduce this variability slightly with some greater consistency of presentation.

In addition to EEG figures, most chapters have key points listed in well-formatted tables, simple diagrams demonstrating complex aspects of neurophysiology, and MRI scans of underlying patient pathologies. The latter is particularly pleasing in an EEG textbook, recognizing that EEG is no longer an isolated neurophysiological discipline, the EEG reader typically being a clinical neurologist having access to patient's clinical and imaging data from electronic records and PACS in their hospital.

EEG in Clinical Practice is excellent addition to the range of books available on EEG. If one wanted a single EEG textbook that served as a technical reference and illustrative atlas, this is it. For neurologists in training who are early in their formal EEG learning, and for neurologists in practice who missed out on formal EEG training, I strongly recommend this book. Not just for the shelf in your office or laboratory, but to read, to reflect upon and to refer.

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