BOOK REVIEW

Textbook of Neuroanesthesia and Neurocritical Care: Volume II – Neurocritical Care

Neurocritical care (NCC) of the critically ill patient with neurological diseases and conditions is a relatively new medical subspecialty. And although neurologists and neurosurgeons provide the majority of NCC, anesthesiologists are becoming more involved in this area. Indeed, in the United States, subspecialty certification in NCC is also offered by the American Board of Anesthesiology (ABA), and the first ABA examination on this topic will be administered in 2021. The book, “Textbook of Neuroanesthesia and Neurocritical Care: Volume II - Neurocritical Care,” then, is timely. The book has 33 chapters and over 70 authors who come from the United States, as well as Western Europe and Asia; the editors are both from South Asia and are well regarded in the areas of neuroanesthesia and NCC.

The book has 9 parts that include fundamentals, intensive care management, neuromonitoring, systemic care, supportive care, pain management, ethical considerations, near misses, and recent advances. In the fundamentals part, the majority of the discussion concerns patient and fluid management of the neurocritically ill patient. The authors suggest that intravenous fluids should be considered as drugs and then go on to discuss fluid management in patients with traumatic brain injury (TBI), acute respiratory distress syndrome (ARDS), acute kidney injury, subarachnoid hemorrhage (SAH), spinal cord injury (SCI), neuroinflammation, cerebral salt wasting syndrome, syndrome of inappropriate antidiuretic hormone secretion, hypo-/hypernatremia, and hypokalemia.

Part II entitled “Intensive Care Management” comprises 10 chapters that include a discussion of neurological dysfunction or abnormal conditions such as myasthenia gravis, Guillain–Barré syndrome, neuromuscular disorder, status epilepticus (SE), stroke, SAH, TBI, and traumatic SCI. The chapters in this part have a similar structure: they start with an introduction, then discuss testing, prognosis and/or outcome, treatment, and end with a summary or conclusion.

Neuromonitoring is discussed in part III. Multimodal monitoring has become an important component of care of the severely brain-injured patient in the NCC unit. Multimodal monitoring includes cerebral hemodynamics (intracranial pressure, cerebral perfusion pressure, transcranial Doppler), oxygen metabolism (brain tissue oxygen tension [PbtO2], jugular venous bulb oximetry [SjvO2], near-infrared spectroscopy), microdialysis, functional state (electroencephalogram [EEG], quantitative EEG [qEEG], somatosensory evoked potential), and neuroimaging (computed tomography [CT]: plain CT, CT angiography, CT perfusion; magnetic resonance imaging [MRI]: MR angiography, MR perfusion, MR spectroscopy, functional MRI; positron emission tomography; single photon emission CT).

In parts IV through VI, the authors address supportive care, including nutrition and how nutrition changes during critical illness, nursing care, physiotherapy, psychological care, and pain management including both nonpharmacological and pharmacological measures. Issues related to Ethical Considerations are in part VII. In that part, brain death and organ donation are discussed.

In part VIII, in the discussion about near-misses in the NCC unit, the authors address common complications including ventilator-associated pneumonia, ARDS, venous thromboembolism (including deep venous thrombosis, pulmonary embolism), fever, sepsis, and cerebral resuscitation after cardiac arrest in NCC. Tables and illustrations are included. Discussion concerning prophylaxis and management help guide readers to manage these issues for patients during their NCC unit stay.

At the end of this book, in the Recent Advances part, protective effects of therapeutic hypothermia and “targeted temperature management (TTM)” are discussed. Then, in the book’s closing chapters, evidence-based practice in neuroanesthesia and neurointensive care is described. For example, in a table describing the management of patients with acute ischemic stroke, for each topic, the level of evidence and current recommendations according to the American Heart Association and the American Society of Anesthesiologists are listed.

Above all, a successful NCC depends on harmonious collaboration among neurologists, neurosurgeons, intensivists, specially trained nurses, and associated other providers. Not everyone knows everything and the book contains a wealth of useful, practical advice for the neurointensivists and neuroanesthetists. Yet, some areas of discussion are only minimally discussed, such as perioperative myocardial injury, dementia, and neurodegenerative diseases including Alzheimer disease (AD) and idiopathic Parkinson disease (PD). Future editions might cover these areas in more detail.

The book is well written. It will serve not only as an invaluable resource for intensivists and NCC physicians but also for residents, fellows, and trainees. Anesthesiologists who are not specifically trained in neuroanesthesia or neurointensive care will also find this book helpful and worth purchasing.

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