

Preface

Neurocritical Care in Neurosurgery



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Neurosurgery is a technologically sophisticated interdisciplinary specialty. Neurologic centers of excellence incorporate multidisciplinary approaches, including physicians and medical professionals having diverse expertise. In response, the neurocritical care unit (NCCU) has quickly become the point of care for all patients with severe neurologic injury in the tertiary Neuroscience center. Patients treated in the NCCU include not only ventilated patients but also neurologic patients requiring specific neurologic interventions such as ICP monitoring and hypothermia. This has resulted in a body of knowledge that distinguishes Neurocritical care as a distinct field within critical care, with specialty-trained, neuroscience-focused physicians operating in multidisciplinary teams. As the terrain in clinical neurosciences becomes more complex, the issues surrounding the care of neurosurgical patients becomes more challenging. The proliferation of NCCUs and a still-palpable lack of detailed understanding of the medical management concerns of these patients have fueled the need for a variety of educational forums on this topic.

In this issue of the *Neurosurgery Clinics of North America*, we have focused on Neurologic Critical Care. We have chosen a variety of topics that are essential to the care of patients in the NCCU. Clinicians who work in the NCCU must master both general and neurologic ICU technologies that often

are the focus of other subspecialties. We have included sections that meet these challenges. Neurosurgeons and clinicians working in the NCCU need to understand the appropriate management of ventilators and the proper use of devices to monitor intracranial pressure. We have provided comprehensive reviews designed to update knowledge about these devices as well as new devices, including microdialysis and parenchymal brain oxygen sensors. These new technologies increasingly allow for more optimal management of physiologic parameters affecting the metabolic state of the brain. Knowledge about the use and interpretation of transcranial Dopplers (TCD) has long been an NCCU mainstay. TCDs are used for the diagnosis of intracranial disorders such as vasospasm. New studies have clarified the appropriate use of TCD in the NCCU. We have included commentary from some of the leading international experts on TCDs. Hypothermia is now used in cardiac ICUs as well as neuro ICUs. In addition to improving outcomes in cardiac arrest, it is frequently used in patients to reduce refractory ICP and has potential efficacy in other types of brain injury. We have included information focused on its present applications in the NCCU including techniques and strategies based on the practical experiences of leaders in the field.

The care of critically ill patients with neurosurgical and neurologic diagnoses can be quite

challenging and we hope this issue enables the reader to apply current concepts to care for this interesting and challenging group of patients. We wish to thank our colleagues in the field of Neurosurgery and Critical Care Neurology who made this issue possible. It is through their dedication to academic and clinical pursuits that we were able to complete this issue of the *Neurosurgery Clinics of North America*. We would also like to thank Jessica McCool for her expert editorial skills, administrative efficiency, and good humor. We also thank the publishers at Elsevier for their support and interest in producing this volume.

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