

Preface



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Guest Editors

Anyone who has been privileged enough to care for the critically ill over the past 15 years can speak of the rapid evolution of many facets of ICU medicine. Few areas have shifted more than the area of sedation and mechanical ventilation. These inextricably linked components of critical care represent the cornerstones of what we do for patients during their vulnerable course in the ICU. In a nutshell, we have progressed from a culture that embraced nearly universal deep sedation for days on end, with harsh methods of blowing too much air into patients' lungs, to a "kinder and gentler" approach that involves keeping patients much more awake and interactive while delivering much less injurious and smaller puffs of air. Although data from sepsis studies indicate, without a doubt, that early delivery of resuscitation, antibiotics, and other forms of interdisciplinary care are paramount during the first 24 hours to 48 hours of ICU care, a pivotal concept that captures what has changed about sedation and mechanical ventilation is that the timing of their removal (formerly referred to as "weaning," but this term describes a process that is too slow for many patients) turns out to have a very large influence on improving length of stay, cost of care, and complication rates. In short, for sedation and mechanical ventilation, less is more.

Landmark cohort investigations and an emerging body of clinical trials in the last decade have made us acutely aware that patients' brains in the ICU are vulnerable to acute and long-lasting injury that we used to pay very little attention to over the course of diseases such as sepsis and ARDS. Our patients' brains manifest the acute injury as delirium, now thought of as a key feature of the multiple organ dysfunction syndrome. That acute delirium likely represents neuronal injury that, in time, often evolves into a longer-term cognitive impairment, functionally resembling a form of dementia with executive dysfunction and memory deficits. Our role as health care professionals, of course, is to minimize this injury and to reduce any iatrogenic components that are modifiable. These goals have led us to generate this issue of *Critical Care Clinics*.

Routinely administered sedative and analgesic medications, though important for the relief of pain and anxiety, significantly influence patient outcomes independent of comorbidities and severity of illness. The realization that these medications may

contribute to both acute and long-term cognitive impairment, and possibly adversely affect quality of life, further attest to the fact that sedation paradigms must continue to evolve through the rigor of science, rather than opinion, in order to optimize recovery for our sickest patients.

This state of the art *Critical Care Clinics*, with contributions from many world-renowned experts in the field of sedation/analgesia and outcomes research, will provide the reader with a comprehensive review of the latest literature that guide quality improvement projects to provide improved safety in all ICUs. This issue of *Critical Care Clinics* will cover the basic pharmacology of available sedative and analgesic medications, including the role of inhalational anesthetics in critically ill patients, followed by articles identifying the importance of target-based and protocolized sedation, as well as the role of daily spontaneous awakening trials (SATs) and spontaneous breathing trials (SBTs). The articles cover, in detail, conventional agents such as benzodiazepines and propofol, while at the same time detail the use of alternatives such as remifentanyl and dexmedetomidine. Because of the importance of the brain as an organ dysfunction and its independent role in survival and long-term functional outcomes, we have included two articles on the assessment and management of this new frontier in critical care. This issue also offers the pediatric ICU specialist a fresh outlook on the evaluation of delirium in children. Other special topics in this issue include the pharmoeconomics of sedation, and the role of sedative and analgesic medications in sleep disturbance, long-term cognitive impairment, and immunomodulation.

We hope that you, as the readers of the *Critical Care Clinics*, will find our articles informative and use the information learned to enhance the care of your critically ill patients around the world.

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