

CONTENTS

Foreword	xiii
Amal Mattu	

Preface	xv
Peter M. C. DeBlieux and Tiffany M. Osborn	

Severe Sepsis and Septic Shock: Improving Outcomes in the Emergency Department	603
Michael H. Catenacci and Kaira King	

With an increasing incidence of sepsis, increasing use of the emergency department by populations at risk, and an increase in time spent in the emergency department awaiting hospital admission, emergency medicine practitioners are offered a valuable opportunity to make a significant difference in the fight against sepsis. By administering appropriate antibiotics in a timely fashion, removing possible sources of infection, practicing early goal-directed hemodynamic optimization, using lung-protective ventilation strategies, and judiciously using corticosteroids and intensive insulin therapy, the goal of reducing mortality from sepsis can be achieved.

Trauma	625
Hugo Bonatti and James Forrest Calland	

In terms of cost and years of potential lives lost, injury arguably remains the most important public health problem facing the United States. Care of traumatically injured patients depends on early surgical intervention and avoiding delays in the diagnosis of injuries that threaten life and limb. In the critical care phase, successful outcomes after injury depend almost solely on diligence, attention to detail, and surveillance for iatrogenic infections and complications.

Venothromboembolism

649

J. Matthew Fields and Munish Goyal

This article focuses on the clinical presentation, diagnosis, and management of veno-thromboembolism, including deep venous thrombosis (DVT) and pulmonary embolism (PE), from the perspective of the emergency physician. The discussion is divided into two sections: DVT and PE. Because veno-thromboembolism is a continuum, certain aspects, such as background, incidence, the use of D dimer, and anticoagulation of both DVT and PE, are discussed together. Heavier emphasis is placed on topics germane to the emergency physician, and considerations for special populations are reviewed.

Critical Care Aspects in the Management of Patients with Acute Coronary Syndromes

685

Robin M. Naples, James W. Harris,
and Chris A. Ghaemmaghami

The spectrum of acute coronary syndromes (ACS) includes several clinical complexes that frequently cause critical instability in affected patients. This article focuses on several critical care aspects of these unstable ACS patients. The management of cardiogenic shock can be particularly challenging because the mechanical defects are varied in cause, severity, and specific treatment. Complications of fibrinolytic therapy are potentially deadly and arrhythmias are relatively common in the ACS patients. Discussions on the management of these problems should help the emergency physician more effectively to treat critically ill patients with ACS.

Ensuring Emergency Medicine Performance Standards for Stroke and Transient Ischemic Attack Care

703

Marian P. LaMonte

This article reviews emergency medicine evaluation and management performance standards for cerebrovascular event patients and provides a practical process for ensuring high quality care. Areas of practice that most frequently generate questions and controversy are highlighted. The term "cerebrovascular event" is used throughout the text when both stroke and transient ischemic attack apply to the discussion. Recommendations are based on literature review and the author's experience with the successful certification of multiple primary stroke centers and appointments in neurology, emergency medicine, and nursing specialties.

Critical Care Toxicology

715

Christopher P. Holstege, Stephen G. Dobmeier,
and Laura K. Bechtel

Emergency physicians are regularly called on to care for critically poisoned patients. This article reviews the general approach and

management of the critically poisoned patient. Specific clinical characteristics are identified that may clue the clinician into a specific toxin class as a diagnosis. Appropriate testing in the poisoned patient is reviewed. Complications of poisoning that may bring a rapid demise of the critically ill poisoned patient are highlighted and the management of those complications is discussed.

Monitoring the Critically Ill Emergency Department Patient

741

Michael E. Winters, Michael T. McCurdy, and Jeff Zilberstein

Many critically ill patients are remaining in the emergency department for extended periods of time, and delays in diagnosis and/or therapy may increase patient morbidity and mortality. All emergency physicians use monitoring modalities in critically ill patients to detect early cardiovascular compromise and impaired oxygen delivery before disastrous collapse occurs. The authors hope the discussion in this article regarding the monitoring of oxygenation, ventilation, arterial perfusion pressure, intravascular volume, markers of tissue hypoxia, and cardiac output will help the EP provide optimal care for this complicated patient population.

The Use of Vasopressors and Inotropes in the Emergency Medical Treatment of Shock

759

Timothy J. Ellender and Joseph C. Skinner

Shock is a final common pathway associated with regularly encountered emergencies including myocardial infarction, microbial sepsis, pulmonary embolism, significant trauma, and anaphylaxis. Shock results in impaired tissue perfusion, cellular hypoxia, and metabolic derangements that cause cellular injury. The clinical manifestations and prognosis of shock are largely dependent on the etiology and duration of insult. It is important that emergency physicians, familiar with the broad differential diagnosis of shock, be prepared to rapidly recognize, resuscitate, and target appropriate therapies aimed at correcting the underlying process. This article focuses on the basic pathophysiology of shock states and reviews the rationale regarding vasoactive drug therapy for cardiovascular support of shock within an emergency environment.

Emergency and Critical Care Imaging

787

J. Christian Fox and Zareth Irwin

Care for patients who have time-sensitive disease processes in the emergency department and critical care settings is optimized with rapid diagnosis and intervention. Recent advances in medical imaging have increased portability, decreased image acquisition time, improved data resolution, and increased use of noninvasive studies. This article discusses the use of portable imaging techniques such as bedside ultrasound and radiography as well

as CT and CT angiography in the diagnosis and care of critically ill patients.

Antibiotics in the Intensive Care Unit: Focus on Agents for Resistant Pathogens

813

David F. Volles and Trisha N. Branan

Antibiotic resistance is increasing faster than the drug industry can develop and market new antibiotics. Medical personnel commonly must deal with the resistant gram-positive pathogens including MRSA and VRE, in addition to the problem gram-negative bacteria, *Pseudomonas*, *Acinetobacter*, and ESBL producing strains of *Klebsiella* and *E. coli*. Clinicians should be familiar with treatment strategies for these resistant pathogens. Because of the lack of novel agents to treat resistant infections, clinicians must use antibiotics judiciously and appropriately to limit further development of resistance. Early, appropriate cultures of the blood, urine, sputum and suspected source, ideally obtained before antibiotic initiation, allow for future de-escalation of antibiotics, or the decision to discontinue antibiotics.

Noninvasive Positive Pressure Ventilation in the Emergency Department

835

Mei-Ean Yeow and Jairo I. Santanilla

Noninvasive positive pressure ventilation (NPPV) is becoming more commonplace, both in the ICU and also in the Emergency Department. This article addresses the rationale and mechanism of action for NPPV. A review of the indications for using NPPV and a discussion detailing the initiation of NPPV follows. NPPV has been shown to decrease length of hospital stay and the need for intubation in patients who have chronic obstructive pulmonary disease and acute cardiogenic pulmonary edema. NPPV should be considered for most patients who have respiratory distress who are being considered for intubation. After NPPV is initiated, very close monitoring and follow-up must be employed to identify those patients who are at risk for treatment failure.

Mechanical Ventilation

849

Jairo I. Santanilla, Brian Daniel, and Mei-Ean Yeow

Over the past several years, there has been an introduction of numerous modes of mechanical ventilation, each with their own advantages and limitations. This article reviews the common modes of mechanical ventilation, new technologies, and specific ventilator strategies that have been shown to be beneficial. In addition, it reviews the steps that should be taken when troubleshooting a ventilator.

Index

863