Chapter 38: Pediatric Critical Care Medicine

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INTRODUCTION

FOCUS POINTS

1. Noninvasive positive pressure ventilation and high-flow nasal cannula are two important management strategies for respiratory failure of diverse etiologies in children.
2. Non-conventional modes of mechanical ventilation and respiratory adjuncts are commonly employed, and frequently serve as rescue therapies in children with severe respiratory failure.
3. Acute respiratory distress syndrome is a heterogeneous disease with high-mortality risk when associated with multi-organ failure.
4. Insufficient oxygen delivery to meet the tissue metabolic demands defines shock.
5. Nutrition support and attention to electrolyte and glucose derangements are important in the care of the critically ill child.
6. Acute kidney injury is common in critically ill children and often requires treatment by renal replacement therapy.
7. Sepsis, commonly encountered in critically ill children, requires early recognition and early source control for successful treatment.
8. Patients with traumatic brain injury often suffer from secondary brain injury, which significantly increases morbidity and mortality. Treatment should focus on reducing secondary injury by maintaining an appropriate cerebral perfusion pressure.
9. Critical illness comes with the cost of highly complex care, and as such, hospital-acquired conditions are frequent and lead to an increased morbidity and mortality. Every physician caring for a critically ill child is responsible for helping to prevent these conditions.

The field of pediatric critical care medicine is relatively young, having been established in the 1980s.[1] Prior to its formalization, many different types of physicians cared for critically ill children, including pediatric anesthesiologists. The focus on physiology, pharmacology, resuscitation, bedside care, life-sustaining technology, and procedural interventions is a shared focus between the two fields. This chapter will introduce the pediatric anesthesiologist to common disease states and management strategies undertaken in the pediatric intensive care unit (PICU), to allow for a common language and understanding between the pediatric anesthesiologist and intensivist.