01 - SECTION 1 Respiratory Critical Care

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Approach to the Patient

with Critical Illness The care of critically ill patients requires a thorough understand ing of pathophysiology and centers initially on the resuscitation of patients at the extremes of physiologic deterioration. This resuscita tion is often fast-paced and occurs early when a detailed awareness of the patient's chronic medical problems may not yet be possible. While physiologic stabilization is taking place, intensivists attempt to gather important background medical information to supplement the real-time assessment of the patient's current physiologic condition. Numerous tools are available to assist intensivists in the assessment of pathophysiology and management of incipient organ failure, offer ing a window of opportunity for diagnosing and treating underlying disease(s) in a stabilized patient. However, despite these tools, ongo ing clinical bedside assessment is imperative for care of the critically ill patient. Indeed, the use of interventions to support the patient, such as mechanical ventilation and renal replacement therapy, is commonplace in the intensive care unit (ICU). An appreciation of the risks and benefits of such aggressive and often invasive interven tions is vital to ensure an optimal outcome. Nonetheless, intensivists must recognize when a patient's chances for recovery are remote or nonexistent and must counsel and comfort dying patients and their significant others if an initial trial of invasive supportive care is either not effective or is not appropriate for the patient's current condition. Critical care physicians often must redirect the goals of care from resuscitation and cure to comfort when the resolution of an underly ing illness is not possible. The COVID-19 pandemic has heightened the need and priority for effective critical care practices (Chap. 205), as well as the need for additional support for post-ICU care and recovery for ICU survivors TABLE 311-1 Calculation of SOFA Scorea SYSTEM

Respiration Pao2/FIo2, mmHg (kPa) ≥400 (53.3) <400 (53.3) <300 (40) <200 (26.7) with respiratory support Coagulation Platelets, × 103/μL ≥150 <150 <100 <50 <20 Liver Bilirubin, mg/dL (μmol/L) <1.2 (20) 1.2–1.9 (20–32) 2.0–5.9 (33–101) 6.0–11.9 (102–204)

12.0 (204) Cardiovascular MAP ≥70 mmHg MAP <70 mmHg Dopamine <5 or

dobutamine (any dose)b Dopamine 5.1–15 or

epinephrine ≤0.1 or norepinephrine ≤0.1b Central nervous system Glasgow Coma Scalec

13–14 10–12 6–9 <6 Renal Creatinine, mg/dL (μmol/L)

<1.2 (110) 1.2–1.9 (110–170) 2.0–3.4 (171–299) 3.5–4.9 (300–440) or <500 or urine output, mL/d aAdapted from JL Vincent et al: Working Group on Sepsis-Related Problems of the European Society of Intensive Care Medicine. The SOFA (Sepsis-related Organ Failure Assessment) score to describe organ dysfunction/failure. Intensive Care Med 22(7):707, 1996. bCatecholamine doses are given as μg/kg per min for at least 1 h. cGlasgow Coma Scale scores range from 3 to 15; higher score indicates better neurological function. Abbreviations: FIo2, fraction of inspired oxygen; MAP, mean arterial pressure; Pao2, partial pressure of oxygen.

Critical Care Medicine PART 8 ASSESSMENT OF ILLNESS SEVERITY In the ICU, illnesses are frequently categorized by degree of severity. Numerous severity-of-illness (SOI) scoring systems have been devel oped and validated over the past three decades. Although these scoring systems have been validated as tools to assess populations of critically ill patients, their utility in predicting individual patient outcomes at the bedside is not clear. Their utility may be more applicable toward defining patient populations for clinical trial outcomes and broader epidemiologic studies. SOI scores are also useful in guiding hospital administrative policies, directing the allocation of resources such as nursing and ancillary care, and assisting in assessments of quality of ICU care over time. Scoring system validations are based on the prem ise that age, chronic medical illnesses, and derangements from normal physiology are associated with increased mortality rates. All existing SOI scoring systems are derived from patients who have already been admitted to the ICU. Nevertheless, there has been increased recent clinical use of scoring systems due to revised consensus guidelines for definitions of sepsis, as will be detailed below. The most commonly utilized scoring systems are the SOFA (Sequen tial Organ Failure Assessment) and the APACHE (Acute Physiology and Chronic Health Evaluation). There has been more recent interest in the use of a “quick” SOFA, or qSOFA, scoring system for prognosti cation of sepsis outcomes. ■ ■THE SOFA SCORING SYSTEM The SOFA scoring system is composed of scores from six organ systems, graded from 0 to 4 according to the degree of dysfunction (Table 311-1). The score accounts for clinical interventions; it can be measured repeatedly (i.e., each day), and rising scores correlate with increasing mortality. The most recent sepsis consensus conference guidelines incorporated an increase of at least two points in the SOFA score from baseline as diagnostic of sepsis in the setting of suspected or documented infection. Patients with suspected infection can be predicted to have poor outcomes typical of sepsis if they have at least two of the following clinical criteria: respiratory rate ≥22 breaths/min, altered mental status, or systolic blood pressure ≤100 mmHg. Recently, a new bedside clinical score using two or more of the above clinical criteria has emerged and is termed quick SOFA (qSOFA). qSOFA is intended to screen patients for risk of poor outcomes from sepsis from SCORE <100 (13.3) with respiratory support Dopamine >15 or epinephrine >0.1 or norepinephrine >0.1b

> 5.0 (440) or <200

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