

Resuscitation

Sepsis and septic shock constitute an emergency, and treatment should begin right away.

Resuscitation with IV crystalloid fluid (30 mL/kg) should begin within the first 3 h.

Saline or balanced crystalloids are suggested for resuscitation.

If the clinical examination does not clearly identify the diagnosis, hemodynamic assessments (e.g., with focused cardiac ultrasound) can be considered.

In patients with elevated serum lactate levels, resuscitation should be guided toward normalizing these levels when possible.

In patients with septic shock requiring vasopressors, the recommended target mean arterial pressure is 65 mmHg.

Hydroxyethyl starches and gelatins are not recommended.

Norepinephrine is recommended as the first-choice vasopressor.

Vasopressin should be used with the intent of reducing the norepinephrine dose.

The use of dopamine should be avoided except in specific situations—e.g., in those patients at highest risk of tachyarrhythmias or relative bradycardia.

Dobutamine use is suggested when patients show persistent evidence of hypoperfusion despite adequate fluid loading and use of vasopressors.

Red blood cell transfusion is recommended only when the hemoglobin concentration decreases to <7.0 g/dL in the absence of acute myocardial infarction, severe hypoxemia, or acute hemorrhage.

Infection Control

So long as no substantial delay is incurred, appropriate samples for microbiologic cultures should be obtained before antimicrobial therapy is started.

IV antibiotics should be initiated as soon as possible (within 1 h); specifically, empirical broad-spectrum therapy should be used to cover all likely pathogens.

Antibiotic therapy should be narrowed once pathogens are identified and their sensitivities determined and/or once clinical improvement is evident.

If needed, source control should be undertaken as soon as is medically and logistically possible.

Daily assessment for de-escalation of antimicrobial therapy should be conducted.

Respiratory Support

A target tidal volume of 6 mL/kg of predicted body weight (compared with 12 mL/kg in adult patients) is recommended in sepsis-induced ARDS.

A higher PEEP rather than a lower PEEP is used in moderate to severe sepsis-induced ARDS.

In severe ARDS ($P_{aO_2}/F_{iO_2} < 150$ mmHg), prone positioning is recommended, and recruitment maneuvers and/or neuromuscular blocking agents for ≤ 48 h are suggested.

A conservative fluid strategy should be used in sepsis-induced ARDS if there is no evidence of tissue hypoperfusion.

Routine use of a pulmonary artery catheter is not recommended.

Spontaneous breathing trials should be used in mechanically ventilated patients who are ready for weaning.

General Supportive Care

Patients requiring a vasopressor should have an arterial catheter placed as soon as is practical.

Hydrocortisone is not suggested in septic shock if adequate fluids and vasopressor therapy can restore hemodynamic stability.

Continuous or intermittent sedation should be minimized in mechanically ventilated sepsis patients, with titration targets used whenever possible.

A protocol-based approach to blood glucose management should be used in ICU patients with sepsis, with insulin dosing initiated when two consecutive blood glucose levels are > 180 mg/dL.

Continuous or intermittent renal replacement therapy should be used in patients with sepsis and acute kidney injury.

Pharmacologic prophylaxis (unfractionated heparin or low-molecular-weight heparin) against venous thromboembolism should be used in the absence of contraindications.

Stress ulcer prophylaxis should be given to patients with risk factors for gastrointestinal bleeding.

The goals of care and prognosis should be discussed with patients and their families.

Abbreviations: ARDS, acute respiratory distress syndrome; ICU, intensive care unit; PEEP, positive end-expiratory pressure.

Source: Adapted from A Rhodes et al: Surviving Sepsis Campaign: International guidelines for management of sepsis and septic shock: 2016. *Crit Care Med* 45:486, 2017.

The initial management of infection requires several steps: forming a probable diagnosis, obtaining samples for culture, initiating empirical antimicrobial therapy, and achieving source control. More than 30% of patients with sepsis require source control, mainly for abdominal, urinary, and soft-tissue infections. The mortality rate is lower among patients with source control than among those without, although the timing of intervention is debated. Antibiotic delay may be deadly. For every 1-h delay among septic patients, a 3–7% increase in the odds of in-hospital death is reported. Thus, international clinical practice guidelines recommend the administration of appropriate broad-spectrum antibiotics within 1 h of recognition of sepsis or septic shock. For empirical therapy, the