Common Sense Approach to Managing Sepsis

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KEYWORDS

• Sepsis • Resuscitation • Hemodynamic monitoring • Antibiotics • Critical care • Fluids

KEY POINTS

- Sepsis is frequent and deathly.
- The clinical management of patients with sepsis may be guided by applying the Surviving Sepsis Campaign guidelines together with common sense and flexibility based on patient-specific and setting-specific characteristics.
- Use 250-mL to 500-mL fluid boluses; continue only if there is clinical improvement.
- Use norepinephrine.
- Give broad-spectrum antibiotic early; de-escalate when the microbe is identified or the patient improves.

Sepsis is a syndrome, defined as life-threatening organ dysfunction caused by a dysregulated host response to infection.[1] It is a global health challenge resulting in many deaths, prolonged suffering among survivors and relatives, and high use of resources both in developed and developing countries.[2,3]

Patients with sepsis may progress in disease severity from infection with a modest degree of organ dysfunction and in-hospital mortality of approximately 10% to severe circulatory impairment (ie, septic shock), to mortality rate above 40%.[4] This chain of progression represents a window of opportunity, in which correct identification of the patient and appropriate interventions and monitoring are likely to improve outcomes. Thus the recently updated clinical practice guidelines from the Surviving Sepsis Campaign (SSC) categorize sepsis and septic shock as medical emergencies for which treatment and resuscitation should begin immediately.[5] The diagnosis and care of patients with sepsis is complex because of the pathophysiologic involvement

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of several organ systems and many of the biological processes are far from understood.[6,7] Diagnosis and care are also complex because patients present with sepsis to different settings in the health care system (eg, prehospital, emergency department, operating room, ward, or intensive care unit [ICU]). The patients, therefore, have to be identified and cared for by different health care professionals.[7] Together this may lead to delayed diagnosis and less optimal treatment and care pathways for patients with sepsis.

The key items in the initial management of the patient with sepsis are microbiological culture and antibiotics, hemodynamic monitoring and interventions, source control, and supportive care, which for the severe cases most often occur in an ICU.

This narrative review discusses how to optimize the management of patients with sepsis by the application of the updated SSC guidelines and common sense.

THE SURVIVING SEPSIS CAMPAIGN GUIDELINES AND CARE BUNDLES

The 2016 SSC guidelines article represent the work of a consensus committee of 55 international experts representing 25 international organizations.[5] The guidelines are based on the best available evidence systematically synthesized and presented using the Grades of Recommendation Assessment, Development and Evaluation (GRADE) approach,[8] which was facilitated by methods experts. The 93 specific suggestions and recommendations are rarely supported by high-quality evidence. Only 7 are based on high-quality evidence, 28 on moderate evidence, and 58 on low-quality or very-low-quality evidence. Only 4 of the 26 statements on initial management, that is, screening, diagnosis, initial resuscitation, antibiotics, and source control, are based on moderate or high-quality evidence; the vast majority is based on low-level or very-low-level evidence. Also, there are 4 strong recommendations based on low-level evidence,[5] 1 of which is on initial fluid management, that is, the use of a fixed volume of 30 mL/kg for all patients with septic shock.

To operationalize the guidelines, SSC care bundles were developed together with the Institute for Healthcare Improvement. After the 2015 revision, the bundles now consist of 7 specific management goals to be completed before 3 hours or 6 hours within diagnostics (lactate measurement and blood culture), interventions (broad-spectrum antibiotics, fixed volume fluids, and vasopressors), and reassessment of the circulation in case of severe impairment (http://www.survivingsepsis.org/Bundles/Pages/default.aspx). In the 2016 guidelines, only 2 of the 7 items included in the revised bundles were graded as moderate quality of evidence (use of antibiotics and vasopressors); the remaining 5 were graded as low quality or very low quality of evidence.[5] Adherence in clinical practice to the items in the bundles has repeatedly been found to be low even with the use of focused implementation strategies.[9–11] The low compliance rates may indicate that the SSC guidelines are not standard of care in all settings.

HOW SHOULD THE SURVIVING SEPSIS CAMPAIGN GUIDELINES BE USED?

There has been vivid debate about how clinicians and heath care systems should use clinical practice guidelines, such as the SSC guidelines. On one hand, guidelines may be seen as a tool to provide the clinical application of the evidence base synthesized by experts through clear recommendation.[12] On the other hand, often guidelines are outdated, may contain few recommendations based on high-quality evidence, and may be used for legal or restrictive administrative purposes.[12] Guidelines may be colored by academic and fiscal conflicts of interest, and some investigators have argued that they cause regression toward the mean of care — poor performing