Evidence-Based Management of Sepsis

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Sepsis is a potential life-threatening oncologic emergency. Early recognition and prompt intervention can decrease the morbidity and mortality associated with sepsis. The Surviving Sepsis Campaign Guidelines Committee updated its recommendations in 2012, outlining specific evidence-based interventions to manage sepsis.

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Evidence-Based Interventions

To address the growing incidence of sepsis, a panel of experts convened to develop recommendations for sepsis management. The Surviving Sepsis Campaign (SCC) Guidelines Committee first published Guidelines for the Management of Severe Sepsis and Septic Shock in 2004,
and these guidelines were updated in 2013 (Dellinger et al., 2004, 2013). The latest guidelines include groups of interventions that should be completed within 3, 6, and 24 hours, as well as ongoing support (see Figure 1). The initial resuscitation (within the first three hours of diagnosis of sepsis) includes measuring lactate level, administering 30 ml/kg of crystalloid to treat either hypotension or increased lactate, and obtaining blood cultures prior to initiating antibiotic administration, followed by administering broad-spectrum antibiotics (Dellinger et al., 2013). A normal blood lactate level is 1–2 mmol/l; a lactate level greater than 4 mmol/l is an indicator of tissue hypoperfusion. In patients with normal blood pressure, increased lactate can be an indicator of tissue hypoperfusion, impending sepsis, and organ dysfunction (O’Leary, 2011).

To restore intravascular volume in hypotensive patients or those with abnormal lactate, fluid resuscitation is needed. Administering 30 ml/kg of fluid over 10–15 minutes can provide the patient with a quick increase in volume when compared to increasing maintenance fluids, which can take several hours. The Institute for Healthcare Improvement (IHI, 2013) recommended prompt administration of broad-spectrum antibiotics immediately after blood cultures to improve sepsis outcomes by reducing mortality.

The six-hour bundle is initiated when interventions from the three-hour bundle are not successful in alleviating hypotension. Administering vasopressors, measuring central venous pressure (CVP), central venous oxygen saturation (ScvO2), and again measuring lactate level are included in this bundle (Dellinger et al., 2013). Vasopressors are used to maintain a mean arterial pressure greater than 65 mm Hg. When persistent arterial hypotension or initial lactate greater than 4 mmol/l exists, a central venous catheter should be placed and fluid resuscitation repeated until a CVP greater than 8 mm Hg and ScvO2 greater than 70% is maintained (Dellinger et al., 2013). If the initial lactate was elevated, it should be measured again within six hours.

The 24-hour management bundle can be started immediately but should be completed within 24 hours (Dellinger et al., 2013). This bundle includes administering a low-dose corticosteroid when the addition of vasopressors does not maintain adequate blood pressure, blood glucose between the lower limit of normal and 150 mg/dl, and, for mechanically ventilated patients, inspiratory plateau pressure less than 30 cm H2O (Dellinger et al., 2013; III, 2013). Supportive therapy to reduce the incidence of complications, including maintaining adequate nutrition, prevention of deep vein thrombosis, stress and pressure ulcers prevention, and prevention of further infections, also is addressed in the management guidelines (Dellinger et al., 2013).

Quality of Evidence

The SCC Guidelines Committee used the Grading of Recommendations Assessment, Development, and Evaluation system to evaluate the quality of evidence to make recommendations (see Figure 2). All recommendations in the SSC guidelines mentioned previously received ratings ranging from 1A–2C.

Conclusion

Sepsis and septic shock can lead to devastating consequences for patients. Early recognition and evidence-based management can decrease the morbidity and mortality associated with sepsis. The guidelines provide evidence-based-specific steps that must be implemented at 3, 6, and 24 hours (Dellinger et al., 2013). Oncology nurses must become familiar with the guidelines set forth to manage sepsis from initiation of treatment throughout care, including supportive interventions. Because sepsis can lead to death of the patient if it is not recognized in a timely manner, knowledge of interventions can assist the nurse to act swiftly and advocate for the best care for their patients.

References


Institute for Healthcare Improvement.
