Sepsis in the Intensive Care Setting

Katie Mojzisik

Otterbein University, katie.mojzisik@otterbein.edu

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What is Sepsis?

- Sepsis is a complex systemic illness. According to Krowe et al. (2016), neutropenic sepsis is a frequent complication in cancer patients. Although the underlying disease is curable, once transferred to the ICU with sepsis these patients have poor outcomes.

- Patients who develop sepsis are commonly admitted to an Intensive Care Unit. Working on the Medical Intensive Care Unit (MICU) at the James Cancer Hospital, we see septic cancer patients often. This cancer diagnosis places patients at a higher risk of developing sepsis. Some patients also have a high risk due to decreased immunity from chemotherapy treatments. Oncology patients can become septic from the common cold or flu, they are highly susceptible to many infections that a typical person can defend from. According to Vioral and Wentley (2015), neutropenic sepsis results as a post-cancer treatment complications and is considered an oncologic emergency. Neutropenic sepsis can result in mortality, especially if it is not identified at an early stage.

Pathophysiological Processes

- According to Dunkley and McLeod (2015), states that sepsis is characterized severe tissue hypoperfusion and organ dysfunction.

Signs and Symptoms:

- Hypotension
- Confusion
- Decreased level of consciousness
- Tachypnea
- Bounding pulse
- Oliguria
- Hypoesthesia that may lead to respiratory failure
- Increased lactate levels

Underlying Pathophysiology

- Hypotension and increased lactate levels
- Hypoesthesia that may lead to respiratory failure
- Increased lactate levels

Significance of Pathophysiology

- Hypotension is at greatest concern, Hypotension is the inability to form clots can stop the spreading of infection, help healing, and stop clotting. In sepsis the exaggerated inflammatory response disrupts this normal process creating an excess of platelet plugs and fibrin in the microvasculature. (Dunkley & McLeod, 2015). Also there is a deficit of clotting factors which lead to coagulopathy dysfunction and interference with blood supply to organs.

- Hypoxemia that may lead to increased risk of developing blood clot or the inability to form clots which places the patient at a higher bleeding risk.

- The inflammatory response is a patient's innate defense to an infectious insult. In sepsis this response is exaggerated releasing cytokines which create an increased systemic vasoconstriction and renal permeability. This increased permeability allows fluids to move from the vasculature to the interstitial space creating edema, shock, and hypotension.

- Complement System: marks foreign substances to be destroyed by phagocytosis by leukocytes. (Dunkley & McLeod, 2015), states that sepsis is characterized severe tissue hypoperfusion and organ dysfunction.

- Hypoxemia occurs as the result of the exaggerated innate response to the infectious insult to the patient.

- Changes in coagulation can lead to increased risk of developing blood clot or the inability to form clots which places the patient at a higher bleeding risk.

- Hypoxemia that may lead to respiratory failure

- Increased lactate levels

Implications of Nursing Care

- Blood glucose measurement must be considered due to insulin resistance that can occur with sepsis with appropriate interventions to follow.
- Typically patients are placed on sliding scale insulin to treat patient's stress induced glycemic changes. (Dunkley & McLeod, 2015).

- Hypoxemia that may lead to respiratory failure
- Increased lactate levels

References


Additional Sources

Mark, S. T., & McLeod, M. H. (2015). Time to appropriate antibiotic therapy is an independent determinant of post-infection ICU and hospital length of stay in patients with sepsis. Critical Care Medicine, 43(10), 2181-2186.

Conclusion

- Sepsis is a complex illness, it is a result of an exaggerated immune response to a foreign pathogen. Nursing management is crucial in sepsis management. Quick identification of the pathogen and appropriate antibiotic therapy are the key factors of decreasing patient mortality and improving patient’s outcomes.

- Hypoxemia is at great concern, according to Dunkley and McLeod (2015). Blood cultures must be obtained upon ICU admission before antibiotic therapy is initiated. Blood cultures should be obtained from a peripheral vein vs. sputum and from an invasive line the patient presents with. These blood cultures can narrow antibiotic therapy to the particular infectious organism, typically broad-spectrum antibiotics will be started on admission until the results of the blood cultures.

- Hypoxemia that may lead to respiratory failure
- Increased lactate levels