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Seth Whitlow
seth_whitlow@hotmail.com

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Sepsis to Septic Shock
Seth Whitlow RN, BSN
NURS 5330

Background

Sepsis has long been part of medicine and conceptualized using multiple definitions. Without consistent and reproducible criteria the extensive pathophysiology associated with sepsis is difficult to diagnose and treat. The CDC reports approximately 1.5 million patients are diagnosed with sepsis each year (Sepsis, 2016). Treatment guidelines are ambiguous and patients incur a prolonged hospital stay while receiving complex therapy. Patients diagnosed with sepsis reflect increased hospital mortality risk of 10% and those who develop septic shock increase their mortality risk greater than 40% (Singer, et al., 2016). In 2016, a task force consisting of international healthcare clinicians who lead the world in sepsis pathophysiology, clinical trials and sepsis guidelines convened a consensus to develop updated definitions and criteria related to sepsis. Singer, et al. (2016) proposed sepsis is a “life-threatening organ dysfunction caused by dysregulated host response to infection”. Furthermore, septic shock is the body’s response to a known bacterial infection and lead to vascular instability and multiple organ dysfunction syndrome. Sepsis is the cause of an advanced disease where circulatory, cellular, and metabolic abnormalities reflect increased patient mortality. Source (Laszlo, et al., 2015)

Signs / Symptoms

Sepsis is a diagnosis that can affect anyone susceptible to an infection. Sepsis and septic shock are a major threat to the body. The dynamic nature of sepsis leads to challenges in the management of sepsis. The overwhelming and sometimedsxemating nature of proven threat of sepsis leading to a deadly and expensive diagnosis seen throughout healthcare. Since national consensus and guidelines have been implemented there has been improvements in outcomes, while the rate of sepsis has also increased. This is due to rising cost in diagnosis, rapid delivery of antibiotic therapy, and supportive treatment to septicorgan failure. Critical care nurses play a vital role in early detection and initiation of sepsis guidelines. If sepsis persists, first line drug therapy should be inotropic. Mechanical ventilation may be indicated for sustained hypoxemia with PaO2 <75 mmHg. Davis, 2016. It is the healthcare practitioner’s role to optimize the host defense and response to an infectious organism (Gotts & Matthay, 2016). In 2002, the Surviving Sepsis Campaign started a quality improvement program to optimize the host defense to infection. The Surviving Sepsis Campaign (2015) has developed a series of guidelines for the treatment of sepsis and septic shock. In 2016, a task force consisting of international healthcare clinicians who lead the world in sepsis pathophysiology, clinical trials and sepsis guidelines convened a consensus to develop updated definitions and criteria related to sepsis.

Pathophysiology

Pathophysiology involves the differences in the immune response to infection (Singer et al., 2016). The normal host reaction to pathogens involves adequate immune response including innate and adaptive immunity. Sepsis involves the pro-inflammatory mediators transitions beyond the local site to wreak systemic influences which become generalized (Laszlo, et al., 2015). Basic sepsis pathophysiology involves increasing cardiac output when systemic vascular resistance is decreased given biventricular deterioration. General abnormalities associated with sepsis include excessive alterations in endothelium along with microcirculatory impairment (Gotts & Matthay, 2016). Treatment guidelines are predominantly derived from the blood stream, lungs, kidneys and GI tract.

Risk Factors

Risk factors associated with sepsis include: ICU admission, Bacteremia, Age > 65 yr, African Americans > risk of developing sepsis, Male > female, Immunocompromised, Comorbidities (ie Diabetes, Cancer), Previous hospitalization, Community acquired pneumonia Source: (Prescott, et al., 2015), (Sepsis, 2016), (Mendible Risk Factors

Implications to Nursing Care

In 2002, the Surviving Sepsis Campaign started a quality improvement initiative to improve knowledge related to sepsis, improve diagnosis, and develop guidelines of care. Amongst the various strategies is the Surviving Sepsis Campaign Bundles (SSC B). These guidelines focus care to satisfy elements that, when done collectively, improve patient outcomes. Nurses represent a vital role in the healthcare continuum for recognizing early signs and symptoms related to sepsis. Many healthcare institutions have customized the SSCB which allows the ICU nurse to initiate established protocol based on agreed upon criteria (Surviving Sepsis, 2015). One approved diagnostic tool is use of the quick SOFA (sequential organ failure assessment) score. A positive screen reflects 2 of 3 criteria including: respiratory rate > 22 bpm, Glasgow coma scale < 15, and/or SBP < 100 mmHg (Gotts & Matthay, 2016).

Conclusions

Patients suffering from invading microorganism develop sepsis that often deteriorates to septic shock. It is a common disease process with a vast and complex progression through multiple systems in the body. The dynamic nature of sepsis leads to challenges in the management of sepsis. The overwhelming and sometimedsxemating nature of proven threat of sepsis leading to a deadly and expensive diagnosis seen throughout healthcare. Since national consensus and guidelines have been implemented there has been improvements in outcomes, while the rate of sepsis has also increased. This is due to rising cost in diagnosis, rapid delivery of antibiotic therapy, and supportive treatment to septic organ failure. Critical care nurses play a vital role in early detection and initiation of sepsis guidelines. If sepsis persists, first line drug therapy should be inotropic. Mechanical ventilation may be indicated for sustained hypoxemia with PaO2 <75 mmHg. Davis, 2016. It is the healthcare practitioner’s role to optimize the host defense and response to an infectious organism (Gotts & Matthay, 2016).