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Sepsis & Emergency Management

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Sepsis & Emergency Management
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Introduction

Sepsis is a potentially life-threatening complication of an infection and a leading cause of death in the United States (Cawcutt & Peters, 2014). Sepsis is a systemic inflammatory response syndrome (SIRS) to invading microbiome. SIRS is divided into multiple phases (Cawcutt & Peters, 2014). The images above show inflammatory, thrombotic, and fibrinolytic responses to infection (kibimage, 2015).

Pathophysiological Process

SIRS pathophysiology is complex and multifactorial but can be explained in three mechanisms all of which release mediators that result in systemic inflammatory response.

• The pro-inflammatory response
• Failure of the compensatory anti-inflammatory response to act
• Immunoparalysis

There are three phases of inflammatory response

• Release of bacterial toxins
• Release of mediators in response to infections which include pro-inflammatory cytokines and anti-inflammatory cytokines
• The effects of specific mediators (Sagy et al., 2013)

An imbalance exists between excessive pro-inflammatory responses resulting in SIRS. At the same time an excessive compensatory anti-inflammatory reaction (CARS) results in inappropriate immunosuppression. Multiorgan dysfunction occurs when there is an imbalance between SIRS and CARS and homeostasis is violated (Sagy et al., 2013). The figure below shows inflammatory, thrombotic, and fibrinolytic responses to infection (kibimage, 2015).

Inflammatory Responses

SEPSIS

SIRS = Meet 2 of the following 4:
• Temperature >38°C or <36°C
• Heart rate of >90 beats/min
• Respiratory rate of >20 breaths/min
• WBC count of >12,000 cells/ml

The images above (kibimage, 2015) imply how early recognition and diagnosis are critical to properly managing sepsis. As initiation of early goal directed therapy and protocols are put in motion mortality rates from severe sepsis are reduced. THINK SEPSIS.

Significance

Millions of patients are seen for sepsis yearly, initiatives working to reduce mortality rates have gained attention because the success has been sparse. The study by Harrison, Thongprayoon, Kashyap, Chute, Goyal, Pickering, and Horwitz (2015) attempts to determine the delay in early recognition and treatment of sepsis by analyzing collected patient data, orders, and nursing interventions. Equipping nurses with the proper tools allows effective analysis and increases critical thinking. The gathering of information, analysis, and forming an appropriate potential diagnosis is fundamental in critical thinking in the ED. Working with the first responders, ED nurses are key to early recognition of sepsis.

References


Nursing Implications

Many patients are seen daily in the ED. Triage nurses play a vital role in early recognition of sepsis. Assigning an acuity and appropriate protocols for illness are imperative in early recognition and treatment for sepsis. When a patient meets two of the SIRS criteria in the ED, immediate testing should be initiated.

Sepsis protocols:
• Immediate physician notification
• Two large bore intravenous accesses
• Blood cultures and lab draws
• Fluid resuscitation
• Antibiotic therapy

Excellent nursing care includes completing all protocol orders in a timely manner. Every clinician should have a basic understanding of the incidence, clinical features, and treatment of sepsis, particularly given the rising incidence and the mortality benefit of early treatment (Cawcutt and Peters, 2014).

Conclusion

The causes of sepsis are multifactorial but can include virtually any infectious organism (Remick, 2007). Early recognition of sepsis is not always straightforward and clinical signs at presentation can be misleading, especially in patients presenting to the ED, due to frequent comorbidities or variable demographic characteristics (Pizzolato et al. 2014). Nurses critically thinking while following the nursing process will only warrant success in early recognition of sepsis in the ED.


The purpose of this report is to bring awareness to first responders, emergency room (ER) nurses. Like myocardial infarction and stroke have been a leading cause of death in the United States (Cawcutt & Peters, 2014). Sepsis is a systemic inflammatory response syndrome (SIRS) to invading microbiome. SIRS is divided into multiple phases (Cawcutt & Peters, 2014). The images above show inflammatory, thrombotic, and fibrinolytic responses to infection (kibimage, 2015).

Pathophysiology of sepsis which involves three mechanisms of SIRS: 1) the pro-inflammatory response, 2) failure of the compensatory anti-inflammatory response, and 3) immunosuppression. As well as the three phases of SIRS: 1) release of bacterial toxins, 2) release of mediators, and 3) effects of excessive specific mediators (Sagy et al., 2013).

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