

Overview of Sepsis in Surgery

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ABSTRACT

Sepsis in surgery is a common complication that can be life-threatening. It is defined as a systemic inflammatory response to an infection and can progress to septic shock and multiple organ failure. Sepsis in surgery is a serious complication that affects many surgical patients. Early prevention, identification and treatment are essential to improve patient outcomes.

KEYWORDS: Sepsis, surgery, complications

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INTRODUCTION

Sepsis in surgery is a common complication that can be life-threatening. It is defined as a systemic inflammatory response to an infection and can progress to septic shock and multiple organ failure. Postoperative sepsis is one of the main causes of morbidity and mortality in surgical patients, and its prevalence ranges between 5% and 30%, depending on the type of surgery and the population studied.

Sepsis in surgery affects patients of all ages and is associated with longer length of hospitalization, higher cost of medical care, and increased mortality. The mortality rate from postoperative sepsis varies depending on the patient's age, comorbidity, and severity of infection. In general, mortality from postoperative sepsis ranges from 10% to 30%.

Sepsis in surgery is a serious complication that can delay a patient's recovery, increase hospitalization time, and in severe cases, lead to death. In addition, postoperative sepsis can have long-term effects on a patient's quality of life, such as the development of sleep disorders, chronic pain, and cognitive dysfunction.

METHODS

For the realization of this article, an exhaustive bibliographic review of the scientific literature available in the PubMed and Scopus databases was carried out. We used the terms "sepsis", "surgery" and "postoperative complications" as keywords for the search. We selected studies dealing specifically with sepsis in surgery and analysed data on epidemiology, risk factors, pathophysiology, diagnosis and treatment.

Physiopathology

The pathophysiology of sepsis is complex and characterized by an uncontrolled inflammatory response and dysfunction of

organ systems. In response to infection, inflammatory and chemotactic mediators are released, such as tumor necrosis factor-alpha, interleukin-1, and interleukin-6. These inflammatory mediators activate leukocytes and cause systemic vasodilation, resulting in decreased peripheral vascular resistance and increased capillary permeability, leading to hypovolemia and hypotension.

The microorganisms associated with sepsis vary according to the age group in surgical patients. In young patients, bacterial infections are the most common causes of sepsis, and the organisms most frequently implicated are streptococci and staphylococci. In elderly patients, fungal infections are more common and associated with higher mortality. The profile of the microorganisms that cause sepsis also varies depending on the type of surgery being performed. For example, in patients undergoing abdominal surgery, intra-abdominal infections and surgical complications related to the intestine are the most common causes of sepsis.

Risk factors

There are several risk factors that increase the likelihood of a patient developing postoperative sepsis, such as advanced age, obesity, diabetes, high blood pressure, chronic kidney disease, chronic obstructive pulmonary disease, immunodeficiency, and smoking. In addition, certain types of surgery, such as major abdominal surgery, are associated with an increased risk of postoperative sepsis.

Diagnosis

The diagnosis of sepsis in surgery is based on the presence of an infection and a systemic inflammatory response. Signs and symptoms of sepsis include fever, tachycardia, tachypnea, leukocytosis or leukopenia, hypotension, and alterations in organ function. Early diagnosis is essential for the effective

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treatment of sepsis and the use of clinical rating scales, such as the Simplified Sepsis Scoring System (Sepsis-3), is recommended.

Treatment

Treatment of sepsis in surgery is based on identifying and controlling the source of infection, administering antibiotics

and supporting the affected organs. It is essential to maintain good hydration and stabilize blood pressure and oxygenation. In severe cases, life support in the intensive care unit, including mechanical ventilation and renal replacement therapy, may be necessary.

Sepsis-3 Criteria	Punctuation
Temperature	<36°C o >38°C
Heart rate	>90 beats/min
Respiratory rate	>20 breaths/min
Blood cell count	<4,000 cells/ μ L or >12,000 cells/ μ L
Arterial blood gases (PaO ₂) / inspired fraction of oxygen (FiO ₂)	<300 mm Hg
Kidney function	Serum creatinine >1.2 mg/dL
Liver function	Serum bilirubin >1.2 mg/dL
Coagulation	Thrombocytopenia (platelet count <100,000 cells/ μ L)
Central nervous system	Impaired mental status
Score de Sepsis-3	2 or more

DISCUSSION

Sepsis in surgery is a serious problem that affects many surgical patients. It is a common complication after surgery and can be caused by various factors, such as intraoperative contamination, failure in asepsis and antisepsis, decreased immunity, inappropriate use of antibiotics and poor management of postoperative pain. Sepsis in surgery can prolong hospital stay, increase health care costs, and decrease patients' quality of life.

Diagnosing sepsis in surgery can be challenging because the signs and symptoms can be similar to other common postoperative conditions. Sepsis-3 is a useful tool for diagnosing sepsis in surgical patients, but its use is not yet universally adopted in all hospitals and clinics. In addition, implementing sepsis prevention interventions in surgery can be challenging due to the complexity and variability of risk factors.

Treatment of sepsis in surgery is based on the prompt identification and management of the underlying infection. Broad-spectrum antibiotics are commonly used to treat sepsis, but additional surgical interventions may also be needed to control the infection. Proper postoperative pain management can also help prevent sepsis in surgical patients. It is important for healthcare professionals to be familiar with the signs and symptoms of sepsis in surgery and know how to manage it appropriately to prevent complications and improve patient outcomes.

CONCLUSION

Sepsis in surgery is a serious complication that affects many surgical patients. Early prevention, identification and treatment are essential to improve patient outcomes. The implementation of sepsis prevention and diagnosis protocols

in surgery, as well as the education and training of health professionals, can help prevent and treat sepsis effectively. Collaboration between surgeons, anesthesiologists, nurses and other healthcare professionals is critical to achieving optimal patient care and preventing serious complications such as sepsis. Ultimately, comprehensive and coordinated care is needed to ensure the safety and well-being of patients.

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