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RESENHA

Surviving Sepsis Campaign International Guidelines for the Management of Septic Shock and Sepsis-Associated Organ Dysfunction in Children

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According to the World Health Organization, sepsis is the leading cause of admission to Pediatric Intensive Care Units (PICU) and death in the pediatric population.

Therefore, it is essential that pediatricians, in all areas of medical practice, from the emergency room to the intensive care unit, can promptly diagnose and manage cases of sepsis.

The definition of sepsis has remained the same since 2005, although management guidelines have been recently updated. The Surviving Sepsis Campaign (SSC), an initiative devised to reduce pediatric morbidity and mortality due to sepsis, had its most recent set of guidelines published in 2020. They comprise 77 recommendations emanated from a panel consisting of 49 international experts from 12 international organizations, in addition to three methodologists and three members of the general public.

A few important changes have been made to the pediatric sepsis management guidelines, including the following:

- Time to start antibiotic therapy from a diagnosis of sepsis: Antibiotic therapy must be started within one hour in children with signs of septic shock. In pediatric patients with sepsis but without signs of hemodynamic instability, antibiotics can be started within three hours of diagnosis, so that there is enough time to collect specimens for cultures and perform other required tests.
- Fluid therapy: As of this update, fluid management guidelines for pediatric patients with sepsis differ based on the availability of a PICU. For children without access to a PICU, fluids should be administered sparingly due to the risk of adverse effects associated with fluid therapy such as acute respiratory failure. For patients without access to a PICU without hypotension, fluid bolus therapy is not recommended, and only fluid maintenance therapy should be prescribed. In individuals with hypotension, fluid bolus therapy is recommended but up to a limit of 40 ml/kg (in aliquots of 10-20 ml/kg) in the first hour. Patients admitted to hospitals with a PICU can be offered volume replacement with greater safety, with the administration of fluid bolus therapy within the first hour of diagnosis at a rate of 40-60 ml/kg (aliquots of 20 ml/kg). In both cases, it is essential to pay attention to signs of fluid overload, at which time volume replacement must be discontinued.

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Balanced crystalloid solutions such as Ringer's are also recommended over 0.9% saline.

- Use of amines: When indicated, the drugs of choice are adrenaline or noradrenaline, with dopamine no longer being recommended. A peripheral line can be used initially to deliver diluted amine solution until a deep venous line is available.

Vasopressin might be needed in cases of refractory shock despite the availability of weak evidence.

Vasodilators may be required in cases of hypoperfusion and poor cardiac function despite insufficient availability of supportive evidence.

- Hemodynamic monitoring: Clinical markers (heart rate, blood pressure, capillary refill time, level of consciousness, and urinary output) are important in patient reassessment, but insufficient to differentiate between shock hemodynamic profiles (hot vs. cold shock) or titrate amines.

Therefore, advanced hemodynamic monitoring (bedside echocardiogram; measurement of cardiac index, systemic vascular resistance, and central venous saturation) should be used whenever possible.

Pediatricians – and general pediatricians in particular – must be aware of the changes made to the pediatric sepsis guidelines, since children with sepsis often arrive from outpatient care and emergency units, where they should be diagnosed and prescribed treatment promptly to have better outcomes.

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