

key points

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Dr Phillip Bland

Former GP, Dalton-in-Furness, UK

Sepsis is the clinical consequence of systemic inflammation

triggered by an infective agent. In sepsis the immune response is not brought under control so the inflammation escalates and causes tissue damage, which can progress to multiorgan failure. The clinical features of sepsis are: fever; tachycardia, with no other explanation; tachypnoea, with no other explanation; leukocytosis or leucopenia. To meet the International Pediatric Sepsis Consensus Conference definition, a patient should have two of these features, one of which should be fever or abnormal white cell count, in the presence of infection.

In previously healthy children presenting in the community,

bacterial infection is by far the most common cause. In the neonatal period, group B streptococcus, coliforms, such as *E. coli*, and *Staphylococcus aureus* are the usual culprits. In older infants and preschool children, the introduction of effective immunisation has virtually eliminated *Haemophilus influenzae type b* sepsis. However, the vaccines in the current universal schedule do not protect against all strains of meningococcus, and only protect against the 13 most common strains of pneumococcus, so we will continue to see these infections, albeit less often.

There is currently no vaccine against group A streptococcus.

Children with invasive group A streptococcal disease may present with septicaemia, or with streptococcal toxic shock. Staphylococcal sepsis is uncommon in the absence of focal disease, such as skin abscesses, cellulitis, osteomyelitis, or necrotising pneumonia. Gram-negative sepsis may be associated with urinary tract infection, particularly in infants, or patients with abnormal renal tracts.

Every time a child who has symptoms or signs suggestive

of infection is assessed, it is important to consider whether this could be sepsis. This may seem obvious in a child presenting with fever, but not all children with sepsis present with high fever or focal signs. It is imperative to ask about recent fevers or rigors, recent surgery or injury, symptoms which may identify the focus of infection, and any other risk factors for sepsis. It is particularly important to ascertain whether there has been a change in the child's behaviour, such as irritability, lethargy, difficulty in waking or confusion, and whether their colour has changed, particularly if the child is pale, mottled, or has cold hands and feet despite having a fever.

Temperature, heart rate, respiratory rate, and in children

under 12 years capillary refill time, should be measured. Blood pressure should always be taken in children over 12. Hypotension is a preterminal event in children with sepsis, so do not be reassured if the blood pressure is still normal. All children who meet any of the high-risk criteria, as defined by NICE, need to be referred urgently, usually by 999 ambulance. Children with impaired immunity who meet any of the moderate- to high-risk criteria should also be referred urgently. Whatever the measurements, the gut feeling that a child is unwell should never be ignored.