Can you spot the signs and symptoms of sepsis?

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Emma Hammett of First Aid for Life provides a complete guide to sepsis.

It is estimated that 250,000 people in Britain develop sepsis every year and in excess of 52,000 people die from it. The mortality rate is extremely high and even non-fatal outcomes are frequently life changing. These include post-traumatic stress disorder (PTSD), amputations, major organ failure, brain damage, chronic pain fatigue and more.

If caught early, the outcome of sepsis is encouraging, and most people make a full recovery. The Sepsis Trust estimate that at least 14,000 lives could be saved simply by improved public and professional awareness of the signs and symptoms of sepsis.

Sadly, early signs and symptoms are easy to miss by both patients and healthcare professionals. This delay has major implications to patient outcome and survival.

What is sepsis?

Sepsis arises due to the body's abnormal response to an infection. The immune system usually works to fight germs (such as bacteria, viruses and fungi) and infection in

the body. However, for reasons that are not fully understood, sepsis results in the immune system going into overdrive and attacking healthy organs and other tissues.

What damage does it cause?

This inflammation causes injury to the body's tissues and organs. The initial, localised infection spreads into the bloodstream and

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is circulated around the body, spreading and increasing the damage. This life-threatening breakdown in circulation can lead to organs all over the body being affected, including the brain, lungs, heart, skin and kidneys. Lack of circulation to extremities frequently leads to amputations.

What causes sepsis?

Sepsis can be triggered by an infection in any part of the body. The most common causes of sepsis are the following:

1. Pneumonia
2. Urinary tract infections
3. Intra-abdominal infections (such as a burst ulcer or hole in the bowel)
4. Skin infections (an infected cut or bite)
5. A wound from trauma or surgery, including dental infections
6. Soft tissue infections such as a leg ulcer.

Most cases are caused by common bacteria which wouldn't normally induce illness. Trauma is responsible for 2-3% of reported cases.

Is it linked to meningitis?

Meningitis causes less than 1% of adult cases of sepsis. However, it is the cause of around 10% of cases in children.

Whilst most cases of meningitis are viral and therefore not life-threatening (or sepsis-inducing), a minority are bacterial infections and can lead to sepsis. Both conditions are serious and so it is important to be able to recognise common early signs and symptoms.

Who gets sepsis?

It is not yet known why the body has the initial abnormal reaction to an infection. Even apparently fit and healthy people are affected.

Any dental work, from cleaning to root canals, may cause bleeding, creating an opening where bacteria could enter the body. Whilst dental professionals always endeavour to keep everything as clean as possible, sometimes infections may develop, just as they do after surgery on any other part of the body.

As a dental professional, if you suspect a patient you are treating already has an infection, it may be necessary to prescribe an antibiotic. Antibiotics are not generally prescribed for a local abscess, although they may be indicated if the infection is severe, has spread, or for patients who have a compromised or weakened immune system. It is vital that the patient understands the importance of completing the course of antibiotics even if they start to feel better. It may be necessary to drain the infection which could assist with the reduction of pain and swelling.

Fig. 1 Signs and symptoms of sepsis in adults

Fig. 2 Signs and symptoms of sepsis in children

Fig. 3 Signs and symptoms of sepsis in babies

have sepsis. If a child under five has one of these symptoms it is important to speak to a doctor and say you're worried about sepsis (Fig. 2).

Signs and symptoms that could indicate meningitis or sepsis in babies include: no wet nappy for 12 hours; tense, bulging fontanelle; refusing food and vomiting; unusual cry, moaning; drowsy, floppy and unresponsive; pale, blotch skin, spots/rash; convulsions/seizures; rapid breathing or grunting; fever, cold hands and feet; does not want to be touched or held (Fig. 3).

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'Children tend to deteriorate faster, and therefore it is particularly important for those in regular contact with children to be fully informed and vigilant as to likely signs and symptoms.'

Patient education is key

Patients should be advised how to spot early signs of infection and advised on early treatment and when they should seek additional advice. It is also good practice to discuss more serious signs and symptoms of possible sepsis and advise them what to look out for and when they should seek urgent medical advice.

For some patients it may be advisable to prescribe prophylactic antibiotics in advance of invasive dental treatment.

Early recognition and treatment are vital

The Sepsis Trust stress the importance of prompt diagnosis and treatment and claim that earlier intervention could prevent 50% of the existing mortality.

Children tend to deteriorate faster, and therefore it is particularly important for those in regular contact with children to be fully informed and vigilant as to likely signs and symptoms.

Signs and symptoms of sepsis

In adults

Initial symptoms can often be flu-like and feeling seriously unwell. Signs of fever with cold hands and feet, or sometimes even an abnormally low temperature along with feeling extremely unwell, should be cause for concern (Fig. 1).

If you think you have these symptoms or are worried about one of your patients, seek urgent medical advice.

In children

Any child who: feels abnormally cold to touch; looks mottled, bluish or has very pale skin; has a rash that does not fade when you press it; is breathing very fast; has a 'fit' or convulsion; is very lethargic or difficult to wake up might be critically ill. If a child has one or more of these symptoms call 999 and say you're worried about sepsis. See Figure 2.

Any child under the age of five who is not feeding; is vomiting repeatedly or has not urinated or had a wet nappy for 12 hours might

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DOI: 10.1038/s41407-019-0123-5