

Septicaemia

Septicaemia is the presence of disease-causing bacteria in the blood. The human body is host to a range of different bacteria that live harmlessly in various places such as the mouth, skin, bowel and genital tract. However, these bacteria can cause disease if they get into the bloodstream, particularly if a person is unwell or if their immune system isn't strong enough to keep the invading organisms under control.

This is why people with pre-existing medical conditions are most likely to get septicaemia. Severe infections, such as those of the lung, will also often give rise to septicaemia. Septicaemia is fatal in about one in four cases because of the effects of large numbers of multiplying bacteria and the toxins they release in the blood. The bacteria strains most commonly responsible include *Escherichia coli* (*E. coli*), *Pneumococcus*, *Klebsiella*, *Pseudomonas*, *Staphylococcus* and *Streptococcus*. Other terms for septicaemia include bacteraemia and blood poisoning.

Symptoms

Septicaemia sometimes has no symptoms. When there are symptoms, they can include:

- Sudden high fever with chills
- Generally feeling unwell
- Gastrointestinal symptoms including nausea, vomiting and diarrhoea
- Abdominal pain
- Confusion and anxiety
- Shortness of breath
- Rapid heart rate (tachycardia).

A healthy body fights septicaemia

Good health is the best defence against septicaemia. The immune system usually manages small-scale invasions of bacteria in the bloodstream so quickly that symptoms don't even have a chance to develop. Tooth brushing, for example, can push mouth bacteria into the bloodstream via the gums and may cause a short-lived case of septicaemia. However, a person who has a pre-existing medical condition is at risk because their immune system is already taxed and may not have the strength to fight off the bacteria. Newborns and the very elderly are also at increased risk.

High risk situations

Factors that increase the risk of developing septicaemia include:

- Chronic or severe illness
- Certain medical conditions including diabetes mellitus, heart disease, liver disease and kidney disease
- Severe bacterial pneumonia
- Severe burns to the skin
- Any abscess (for example dental, skin or following operation)
- Any disease or treatment that provokes ulceration of the bowels
- Substance abuse, such as alcoholism
- Intravenous drug use
- Malnutrition, which weakens the immune system
- Long term antibiotic treatment that changes the ratio of bacteria in the body by killing some strains and not others
- Immune suppression therapy, such as that used to manage HIV infection
- Pressure sores on the skin, also known as bed sores

- An open wound
- Major trauma.

Medical treatment may cause septicaemia

If a person has any type of medical treatment that requires invasive equipment, for example catheters, there is a risk that unfamiliar strains of bacteria may be introduced into their body. Examples of invasive treatments that can cause septicaemia include:

- Some dental treatments, such as drainage of an abscess.
- Surgery involving sites that naturally contain bacteria, such as the bowels.
- Long term placement of artificial parts, such as prosthetic joints.
- Bladder catheters, particularly if the person has urinary tract infections.
- Long term use of intravenous needles.
- Ostomy tubes, such as a colostomy (the bowel empties through a surgical hole in the abdominal wall instead of through the anus).

Complications can be fatal

Without medical treatment, the bacteria in the bloodstream can cause serious and potentially lethal complications, including:

- **Endocarditis** - inflammation of the inner lining of the heart (endocardium).
- **Pericarditis** - inflammation of the membrane that encloses the heart (pericardium).
- **Meningitis** - inflammation of the membranes that enclose the brain and spinal cord (meninges).
- **Osteomyelitis** - bone infection.
- **Infectious arthritis** - joint infection.
- **Septic shock** - severe drop in blood pressure, which can lead to organ failure. This is also known as sepsis.

Diagnosis methods

Septicaemia is diagnosed by medical history, physical examination, and blood tests to check for the presence of bacteria. The blood may be tested and cultured a few times to identify the bacteria and monitor the numbers. However, the bacteria may be difficult to grow in the laboratory. Other diagnostic tests may be carried out on:

- Urine
- Cerebrospinal fluid
- Pus from an abscess
- Phlegm from the lungs.

Treatment options

Septicaemia is treated with intravenous antibiotics. Since quick treatment can be life saving, the doctor will usually start antibiotic treatment immediately, even before the test results that identify the bacteria strain come back from the laboratory. In this case, two or three different types of antibiotics may be used at the same time. When the tests have identified the particular bacteria causing the septicaemia and which antibiotics are best for cure, the antibiotic treatment is then altered to treat those particular bacteria. Other management options depend on the cause of the infection and the presence of complications, but may include:

- Removal of the invasive piece of equipment - for example, the catheter
- Surgical removal or drainage of the primary infection site, such as an abscess
- Intravenous fluids to help maintain blood pressure in the case of septic shock
- Intravenous drugs to boost blood pressure in the case of septic shock.

Where to get help

- Your doctor

- NURSE-ON-CALL Tel. 1300 60 60 24 – for expert health information and advice (24 hours, 7 days)
- Emergency department of your nearest hospital
- Always call an ambulance in an emergency Tel. 000

Things to remember

- Bacteria in the bowels, urinary tract, mouth and skin can cause disease if they get into the bloodstream.
- People with medical conditions are more susceptible to septicaemia, especially if they need invasive treatment such as long term catheterisation or intravenous needles.
- Septicaemia is treated with antibiotics.
- Early treatment is essential.

This page has been produced in consultation with, and approved by:

Southern Health

Content on this website is provided for education and information purposes only. Information about a therapy, service, product or treatment does not imply endorsement and is not intended to replace advice from your doctor or other registered health professional. Content has been prepared for Victorian residents and wider Australian audiences, and was accurate at the time of publication. Readers should note that, over time, currency and completeness of the information may change. All users are urged to always seek advice from a registered health care professional for diagnosis and answers to their medical questions.

For the latest updates and more information, visit www.betterhealth.vic.gov.au

Copyright © 1999/2012 State of Victoria. Reproduced from the Better Health Channel (www.betterhealth.vic.gov.au) at no cost with permission of the Victorian Minister for Health. Unauthorised reproduction and other uses comprised in the copyright are prohibited without permission.