

Meningitis and Septicaemia Explained

Meningitis and septicaemia

Meningitis is a word that strikes fear into most people. Every year in the UK there are some 3,300 cases of meningitis and septicaemia (septicaemia is the blood poisoning form of the disease). This breaks down as the equivalent of 9 people every day becoming ill with meningitis, a death occurring almost every day and a further 2 of those who survive being left with life-altering after effects as severe as brain damage, deafness and multiple amputations. One third of cases in the UK are in babies under one-year-old – the group most at-risk, followed by teenagers and young adults.

Meningitis is the inflammation of the meninges – the protective linings of the brain. Septicaemia is the blood poisoning form of the disease where bacteria spread into the bloodstream and infect the body. Meningitis can be caused by viruses or bacteria. Whilst viral meningitis can be very nasty, it is almost never life-threatening and most people will soon make a full recovery. Bacterial meningitis is more serious and most cases in the UK are caused by meningococcal bacteria.

Anyone of any age can get meningitis or septicaemia, but various factors can increase the risk.

- Age is one of the main risk factors
- Geographical location - some countries have higher rates of meningitis and septicaemia than others. For example, many kinds of meningitis are much more common in developing countries than elsewhere. The only way to address this is through vaccination
- Environmental factors - exposure to smoke, for example, can make you more susceptible to infection
- Medical conditions and immunodeficiencies (weaknesses in a person's immune system)

Meningitis in babies

Babies are at higher risk of bacterial meningitis than any other age group. They can get all of the main types of meningitis and septicaemia that affect older children and adults, including meningococcal, pneumococcal and Hib. There are also other types of meningitis and septicaemia that particularly affect babies: Group B Streptococcal (GBS), E.Coli and Listeria to name just a few.

Vaccines provide excellent protection against some forms of meningitis, but it is important to be aware that there are still forms of the disease for which there are no vaccines. Since babies are most at-risk from meningitis it is important to know the symptoms as prompt diagnosis could save a life.

Newborn babies are also particularly susceptible to bacterial meningitis. This is because their immune system hasn't had the time to develop and defend them against these bacteria because they will not have completed the childhood immunization schedule until 13 months and because there are no vaccines to protect against many of the kinds of meningitis that babies are exposed to. For details of the childhood immunisation schedule and all the different strains of meningitis, visit www.meningitis.org/disease-information

Meningococcal disease

Meningococcal infection is the most common cause of bacterial meningitis in the UK and Ireland. Meningococcal bacteria (*Neisseria meningitidis*) can cause meningitis or septicaemia, or a combination of these diseases.

There are several strains or 'groups' of meningococcal bacteria including (A,B,C,W135,Y and Z). In the past 50 years, most meningococcal disease in the UK and Ireland has been due to Meningococcal Group B (MenB) and Meningococcal Group C (MenC).

Meningococcal disease affects around 2,000 people in the UK and Ireland every year and about 1600 cases are laboratory-confirmed. Now that there is a very effective MenC vaccine, 85% of cases are caused by MenB infection.

The disease can affect anyone of any age, but mainly affects babies, pre-school children and young people. Meningococcal meningitis and septicaemia are life-threatening diseases, but most people affected do recover. Septicaemia on its own is more likely to be fatal than meningitis. Most survivors make a full recovery without long-term after effects, but some are left with disabilities or with problems that can alter their lives. A quarter of survivors find that the effects of the disease reduce their quality of life.

Meningococcal infection is an important cause of illness globally. There are an estimated 1.2 million cases and 135,000 deaths worldwide each year. In the African 'meningitis belt' alone epidemics can cause more than 100,000 cases of meningitis and 10,000 deaths in a single year, nearly all of them due to Meningococcal Group A (MenA).

Meningococcal bacteria are common – about 10% of the population carry them in the back of the nose or throat – although carriage is less common in young children than in adults. The bacteria are passed on by prolonged or intimate contact. They are very fragile and cannot survive outside the human body, so they are not easily transmitted. They cannot be caught from the air, clothes, bedding or from handling toys, cutlery or furniture.

Pneumococcal meningitis

Pneumococcal bacteria are the second biggest cause of bacterial meningitis in the UK and Ireland. Many people, including up to 60% of children, carry pneumococcal bacteria in the back of their nose and throat, and constantly pass them around by coughing and sneezing and close contact. Most of the time this is completely harmless, but in a susceptible person, the bacteria can cause a wide range of diseases - from fairly minor bronchitis and ear and sinus infections to life-threatening pneumonia, septicaemia, and, less frequently, meningitis. Sometimes, pneumococcal meningitis can develop from more minor forms of the infection such as earache.

A vaccine which protects against the seven most common forms of pneumococcal bacteria is part of the childhood immunisation schedule. It is important to remember that there are other strains of pneumococcal bacteria which can cause meningitis and for which there are currently no vaccines.

Group B Streptococcal (GBS)

This form of meningitis is caused by Group B streptococcal (GBS) bacteria: GBS is the biggest cause of neonatal meningitis (meningitis in newborn babies) in the UK and Ireland, and can also cause septicaemia (blood poisoning) and pneumonia.

The bacteria normally live in the bowels and the vagina and sometimes in the back of the nose and throat. The bacteria can be transmitted from mother to baby before or during birth. An estimated 20 – 30 % of pregnant women carry the bacteria but 99% of babies born to mothers who carry the bacteria are perfectly healthy.

A recent study, supported by MRF, found that the incidence of GBS infection in newborns in the UK and Ireland is around 7 cases per 10,000 live births (although this figure varies from country to country; 9 cases per 10,000 live births in Northern Ireland to 6 cases per live births in Republic of Ireland to 4 cases per 10,000 live births in Scotland).

There are two forms:

- **Early onset** is normally septicaemia, causing shock and breathing difficulty and occurs at

birth or within the first six days of life. The baby catches the bacteria from the birth canal during labour. Approximately 60 - 70 % of GBS infection is early onset

- **Late onset** is normally meningitis and causes fever, breathing difficulty, feeding problems and fits. It occurs in the first 7 – 90 days of life and can be transmitted when babies are in contact with hands contaminated by the bacteria

GBS disease can occur in mothers before or after giving birth but this is less common than in babies. Infection in adults is rare although studies in recent years have shown a slight increase. People with immune problems are at a slightly increased risk from GBS infection.

Mothers of babies affected sometimes feel distressed that they may have been the source of infection. It is important to remember that GBS bacteria are just one of many types of bacteria which naturally live in our bodies, and most babies are not affected by them.

Although most babies who get this disease survive with no severe problems, it is a serious illness. Nearly 10% of babies affected do not survive, and those who recover may have after effects such as deafness, brain damage and problems with movement and co-ordination. The fatality rate is higher in premature babies.

Antibiotics can be given to women during labour or to babies after birth to kill the bacteria. These women can be identified by bacteriological screening, involving taking swabs from the vagina and rectum, or by risk-factor based screening. This is not available unless the mother asks health professionals. Risk factors for GBS infection may include having a previous baby with GBS, premature delivery, prolonged rupture of membranes, or when the mother herself is feverish during delivery, or ill with GBS.

Pregnant women can pay for a screening test but there is no routine screening in the UK or Ireland. Women with risk factors should be identified by their doctors and antibiotics offered where appropriate.

Listeria

This form of meningitis occurs mainly in babies, elderly people and those with weakened immune systems. It can be passed from mother to foetus during pregnancy or labour. When illness occurs very soon after birth, the most common problem is pneumonia and respiratory distress.

Meningitis mainly occurs in babies who develop illness two or three days after birth. Late-onset infection may also occur through contact with other infected infants or adults who handle the baby.

Very few cases now occur each year in the UK and Ireland, largely due to successful education campaigns about the dangers of eating unpasteurised milk products or contaminated pate, poultry or shellfish in pregnancy.

The disease can be very serious, with a death rate of about 30%.

Symptoms of meningitis and septicaemia

The disease often begins with non-specific flu-like symptoms. Occurring some 5-8 hours before the well-known symptoms of stiff neck, dislike of bright lights and rash are the 'red flag' symptoms:

- Limb, joint or muscle pain
- Cold hands and feet while the rest of the body has a high fever
- Pale mottled skin

Septicaemia (This form of the illness often starts with non-specific flu-like symptoms):

Fever and/or vomiting; limb, joint, muscle pain (sometimes stomach pain/ diarrhoea); cold hands and feet/shivering; pale or mottled skin; rapid or unusual breathing, rash; very sleepy, vacant,

difficult to wake; confused/delirious.

Meningitis:

Fever and/or vomiting; severe headache; rash; stiff neck*; dislike of bright lights*; very sleepy, vacant, difficult to wake; confused/delirious; seizures (fits) may also be seen.
(*unusual in young children)

Other symptoms in babies include: tense or bulging fontanelle (soft spot); refusing to feed; be irritable when picked up, with a high pitched or moaning cry; a stiff body with jerky movements, or else floppy and lifeless.

Symptoms can appear in any order, not everyone gets all the symptoms and septicaemia can occur with or without meningitis. A rash is typical of meningococcal disease. People with other kinds of meningitis don't usually get a rash.

The Tumbler Test - If a glass tumbler is pressed firmly against a septicaemic rash, the marks will not fade. You will be able to see the rash through the glass. If this happens seek medical help immediately. It is harder to see on dark skin, so check paler areas.

Remember, a very ill person needs medical help even if there are only a few spots, a rash that fades or no rash at all.

Freephone 24 hour helpline – 080 8800 3344

Meningitis Research Foundation has a **Freephone** 24 hour helpline operated by trained staff and nurses 24 hours a day, 365 days a year. A wide range of literature, which is available free of charge, is available to callers to the helpline. Information on meningitis and septicaemia in 22 different languages is also available on the Foundation's website – **www.meningitis.org** - with an interpretation service in 150 languages available through the helpline.

Support Services

The Foundation provides help, support and befriending to individuals and families affected by meningitis and septicaemia.

Research

Meningitis Research Foundation currently funds 24 research projects. Since it was founded in 1989, the charity has spent £15.6 million on research.

Media Contact: Meningitis Research Foundation Communications Team
Office: 01454 281811
Mobile: 07711 057875

© Meningitis Research Foundation September 4, 2009