

Acute Meningitis

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What is Acute Meningitis?

Meningitis is an inflammation, or irritation of the meninges, the layers of tissue which cover the brain and spinal cord. Acute Meningitis comes on very rapidly in less than a day, and usually within a few hours, whereas non-acute meningitis can take longer to present. Acute Meningitis is rare but very serious and can result in permanent brain damage and even death.

What are the symptoms?

The classic symptoms in adults include headaches, neck stiffness, fever and chills, sensitivity to light, vomiting, upper respiratory infection, seizures and confusion. Symptoms in infants include fever, lethargy, poor feeding and/or vomiting, respiratory distress, pauses in breathing, and/or turning blue.

What are the causes?

Acute Meningitis is almost always caused by a bacterial infection, which comes from the blood. In patients without an identifiable source of infection, local tissue and bloodstream invasion by bacteria from the nose and throat may be the source. Less commonly, bacteria can enter during trauma, neurosurgery, or instrumentation. Meningitis in the newborn is transmitted from mother to baby from her intestinal or genital tract or from nursery personnel or caregivers at home.

The types of bacteria that are responsible for causing acute meningitis include *Streptococcus pneumoniae* in all except neonates, *Neisseria meningitidis* in young adults especially in late winter and early spring, Group B streptococci in newborns, *Listeria monocytogenes* in newborns, elderly, and immunocompromised, and *Haemophilus influenzae* in unvaccinated children and adults.

Fungi, viruses, tuberculosis, and syphilis usually cause non-acute meningitis developing over 1-7 days with symptoms lasting longer than 1 week.

How is Acute Meningitis diagnosed?

A physician diagnoses Acute Meningitis by conducting a history and physical exam, performing a few procedures, and by running laboratory tests.

Physicians will conduct a careful exam on the patient looking for signs of meningeal irritation, increased pressure in the brain, nerve damage, and/or signs of infection. A lumbar puncture, often called a spinal tap, needs to be done to collect a sample of cerebrospinal fluid. During a spinal tap, a patient lies on his side while that doctor inserts a very thin needle into the spinal column in the lower back. The doctor numbs the skin first so the needle will not hurt as much, and probably will not feel much more than a pinch. Laboratory tests need to be run on this cerebrospinal fluid and also the patient's blood and urine, looking for signs of infection and for the organism that may be causing it. Patients may need x-rays including a CT scan of the head and/or chest x-ray looking for evidence of infection, damage to the brain, or presence of other signs of meningitis.

What is the treatment for Acute Meningitis?

The treatment of Acute Meningitis involves the rapid administration of antibiotics. At the time of treatment, it is likely that the exact bacterial cause of the infection is not known. For this reason, several antibiotics and an antiviral medication may be given to cover for the more common microorganisms. The patient is likely to be admitted to the hospital where the complications of acute bacterial meningitis can be treated, including low blood pressure, shock, heart rhythm problems, stroke, and/or seizures. Fever and pain management would also be addressed.

How to prevent Acute Meningitis?

Vaccinations help to immunize patients against the most common causes of Acute Meningitis. A vaccine against *Haemophilus influenzae* (Hib) has formed part of the routine immunization program of American children since 1985. Hib is given in three doses at two, four and six months at the same time as diphtheria, tetanus, and polio. Hib also protects against other severe infections caused by the *Haemophilus influenzae* bacteria including epiglottitis, cellulitis, and septic arthritis. Pneumococcal conjugate vaccine (PCV) is a vaccine approved for the prevention of pneumococcal diseases caused by *Streptococcus pneumoniae* in infants. All healthy infants and toddler should get four doses of PCV vaccine, usually given at two, four, six, and 12-15 months of age. Pneumococcal polysaccharide 23-valent vaccine (PPV23) is the vaccine approved for the prevention of pneumococcal diseases caused by *Streptococcus pneumoniae* in people aged 65 or older, and those with increased health risks. Vaccination for Meningococcal meningitis caused by *Neisseria meningitides* is recommend for travelers to Africa and other high risk areas, and for college freshmen who live in dormitories. Some suggest that all young adults, 18-22 years of age be vaccinated against Meningococcal meningitis.

Preventing the spread of disease by avoiding contact with those infected, frequent hand washing, avoiding overcrowded conditions, and by cleaning surfaces of objects found in institutional settings such as toys in a day care.

Where can I learn more?

To learn more about Meningitis, visit the Meningitis Foundation of America at www.musa.org or the Center for Disease Control at www.cdc.gov.