

Meningitis caused by bacteria.

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Editorial

Bacterial meningitis is an inflammation caused by a bacterial infection of the meninges, the protective covering of the brain and spinal cord. It's a dangerous, life-threatening illness that has to be diagnosed and treated very away.

Etiology

Bacterial meningitis is an inflammation of the meninges caused by a bacterial infection. It's either a community-acquired infection or a nosocomial infection. The invasion of bacteria into the meninges through bacteremia or direct extension from local infection causes community-acquired bacterial meningitis. The most common bacterial cause varies according to age. Group B consists of the following individuals. Streptococcus is frequent in babies under the age of two months.

Other less common causes include *Listeria monocytogenes* and gram-negative bacteria such as *E. coli*, *Klebsiella*, *Enterobacter*, and *Pseudomonas aeruginosa*. *Hemophilus influenzae* is still found in non-vaccinated people on a regular basis. *S. pneumoniae*, *Staphylococcus aureus*, *Staphylococcus albus*, and gram-negative *Bacilli* are the bacteria that cause nosocomial infections. According to Thigpen, *S. pneumoniae* was the most common infective species in the 1670 cases reported in the United States between 2003 and 2007, followed by GBS (18.1%), *N. meningitidis* (13.9%), *H. influenzae* (6.7%), and *L. monocytogenes* (3.4 percent). Viruses, fungi, and protozoa can all cause infectious meningitis. Meningitis is a condition that affects the brain and spinal cord.

Epidemiology

Previously, bacterial meningitis was more common in children. The occurrence of acute bacterial meningitis has reduced as vaccinations have been discovered and used, and the epidemiology of pathogenic microorganisms has altered. The median age of infected patients has risen as a result of vaccinations. In the United States, there were 72,000 meningitis-related hospitalizations in 2006. The bulk of these cases were

caused by a virus (54.6 percent). Bacterial infections accounted for 21.8 percent of cases, fungus and parasitic infections accounted for 7.3 percent, and an unexplained cause accounted for 17.2 percent. Patients with bacterial meningitis had an 8% in-hospital death rate, according to the study.

There are several possible risk factors for bacterial meningitis. Patients having a problem with communication between the nasopharynx and the subarachnoid space are likely to be at higher risk. This aberrant communication can be the result of a congenital defect or trauma. Patients who have had neurosurgery, have had a skull fracture, or who have cochlear implants are also at a higher risk. Immunocompromised patients, as well as those who live in close quarters with others in settings like college dorms or military barracks, are at danger.

Pathophysiology

To develop meningitis, bacteria must gain access to the meninges. There are various ways to gain access. Germs in the blood, or bacteremia, can cause bacteria to penetrate the blood-brain barrier. Only a few bacteria, most notably *N. meningitidis* and *S. pneumoniae*, are capable of this. Otitis media or sinusitis can also cause direct damage to the Central Nervous System (CNS). Bacteria can reach the CNS through congenital or acquired dural abnormalities. The manipulation of the meninges during neurosurgery procedures causes nosocomial bacterial meningitis. Invasion of microorganisms into the subarachnoid space causes meningeal inflammation.

Although several factors may be involved, lipopolysaccharide in the walls of gram-negative bacteria and teichoic acid in the walls of gram-positive bacteria activate brain microglia, causing a cascade of inflammatory changes that cause cortical microvascular permeability and diffuse cerebral edema, resulting in increased intracranial pressure. The patient will endure headaches and fevers as a result of this. The infection and inflammatory reaction cause the blood-brain barrier to break down. Reduced perfusion and elevated intracranial pressure cause altered mental status, convulsions, and localised neurologic impairments.

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