

Overview of Meningococcal Disease

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Meningococcal disease is a potentially life-threatening bacterial infection. The disease most commonly is expressed as either meningococcal meningitis, an inflammation of the membranes surrounding the brain and spinal cord, or meningococemia, a presence of bacteria in the blood.

Meningococcal disease is caused by *Neisseria meningitidis*, which has become the leading cause of bacterial meningitis in older children and young adults in the United States. Meningococcal disease strikes about 3,000 Americans each year, leading to death in approximately 10 to 15 percent of cases, which translates into 300 deaths annually.

It is estimated that 100 to 125 cases of meningococcal disease occur annually on college campuses and 5 to 15 students die as a result. The disease can result in permanent brain damage, hearing loss, learning disability, limb amputation, kidney failure, or death.

The incidence of meningitis outbreaks of serogroup C has risen in the past 10 years, including cases at U.S. colleges and universities. Recent data also shows students living in dormitories, particularly freshmen, are at increased risk.

Recommendation on Meningococcal Vaccine

Based on the possibility of increased risk for this disease among segments of the college population, the American College Health Association (ACHA) in 1997 recommended that students, particularly freshmen who live in or plan to live in residence halls, consider vaccination to reduce their risk for the potentially fatal meningococcal disease.

Serogroups

There are five strains, or serogroups, of *N. meningitidis* that cause meningococcal disease. These are A, B, C, Y, and W-135. Among the serogroups responsible for invasive meningococcal disease in the United States in 1997, serogroup C caused about 28 percent of cases, serogroup B about 30 percent, serogroup Y about 37 percent, and serogroups A and W-135 were extremely rare. Serogroup A is predominantly a cause of meningococcal disease in Africa and Asia.

Those At Risk

Meningococcal disease can affect people at any age. The risk of contracting the disease is higher for persons who are in close contact with a known case, persons with upper respiratory infections with compromised immune systems, and persons who are traveling to endemic areas of the world. Since 1991, cases of meningococcal disease among 15 to 24 year olds have more than doubled.

Recent evidence found students living on campus in residence halls appear to be at higher risk for meningococcal disease than college students overall. In research recently released by the Centers for Disease Control and Prevention (CDC), freshmen living in residence halls had a 600 percent higher risk of contracting meningococcal disease than college students overall.

Incidence

In the United States, outbreaks of serogroup C meningococcal disease have been occurring more frequently since the early 1990s, especially among young adults in school and community settings. There were 26 outbreaks between 1994 and 1996, four of these at colleges or universities, while only 15 outbreaks occurred between 1989 and 1993, including two at colleges or universities.

Transmission and Symptoms

Meningococcal bacteria are transmitted through the air via droplets of respiratory secretions and direct contact with persons infected with the disease. Oral contact with shared items such as cigarettes or drinking glasses or through intimate contact such as kissing could put a person at risk for acquiring the infection. People identified as close contacts of a patient with meningococcal disease should receive antibiotics to prevent the disease.

Meningococcal disease usually peaks in late winter and early spring. The disease can easily be misdiagnosed as something less serious because symptoms are similar to the flu. The most common symptoms include high fever, headaches, neck stiffness, confusion, nausea, vomiting, lethargy, and rashes. Anyone with similar symptoms should contact a physician immediately. If not treated, often within hours of the onset of symptoms, the disease can progress rapidly and can lead to shock and death.

Treatment and Prevention

The quadrivalent meningococcal vaccine is effective against four of the most common strains of *N. meningitidis* in the United States (A, C, Y, W-135) and can be used in adults and in children at least 2 years old. The vaccine is 85 to 100 percent effective in preventing serogroups A and C in older children and adults.

The vaccine is often used to control serogroup C outbreaks and for pre-exposure among certain high-risk groups, such as immunosuppressed persons and persons who will be traveling abroad.

Bacterial meningitis can be treated with a number of antibiotics. However, it is important that treatment be started early in the course of the disease. Appropriate antibiotic treatment of most common types of bacterial meningitis reduces the risk of death to less than 15 percent.

More information about meningococcal disease is available on the CDC Web site at www.cdc.gov/ncidod/dbmd/diseaseinfo/meningococcal_college.html.