Meningococcal Disease

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Meningococcal disease is a sudden, severe illness caused by the bacterium Neisseria meningitidis. The disease most commonly manifests as meningitis and/or meningococcemia, but can also cause pneumonia, arthritis or pericarditis. Symptoms include sudden high fever, chills, severe headache, stiff neck and back, nausea, vomiting, purpural rash, decreased level of consciousness, difficulty breathing and seizures.

Epidemiology

From 2005 to 2011, an estimated 800 to 1,200 cases of meningococcal disease occurred each year in the United States—an incidence of 0.3 cases per 100,000 people. Incidence has declined annually since a peak in the late 1990s. Asymptomatic carriage of N. meningitidis in the nose and throat is common, possibly as high as 20%. Though these people may not exhibit symptoms or illness, they can spread the infection to others.

Since 2005, declines have occurred among all age groups and in all vaccine-contained serogroups. Attack rates are highest among infants 3 to 12 months of age. Case-fatality is 10% to 15%, even with appropriate antibiotic therapy. Meningococcemia case-fatality is up to 40%. As many as 20% of survivors have permanent sequelae, such as hearing loss, neurologic damage or loss of a limb.

Approximately 60% of disease among children 0 to 59 months of age is caused by serogroup B. Serogroups C, W or Y—included in vaccines routinely given to adolescents in the United States—cause 73% of all cases of meningococcal disease among people 11 years of age or older. Serogroup A, which rarely causes disease in the United States, is the most common cause of epidemics in Africa.

Quadrivalent meningococcal conjugate vaccine, protecting against serogroups A, C, Y and W135, is given routinely at 11 years of age. For longer protection duration, a dose is repeated after the sixteenth birthday. Two vaccine products against serogroup B are available and can be given to adolescents on request. This vaccine has been used as a control measure for outbreaks of serogroup B meningococcal disease on college campuses in the United States.

Transmission/Incubation

Meningococcal disease is spread by direct contact with nasal or throat secretions of a carrier or sick person. The organism cannot spread simply by being in the same room with an infected person. Household contacts are at highest risk for transmission, but transmission is possible by sharing eating utensils, glassware, cigarettes or toothbrushes. The incubation period varies from 2 to 10 days, most commonly 3 to 4 days.

Diagnosis

Meningococcal disease is most commonly diagnosed by isolation of N. meningitidis from blood or cerebral spinal fluid (CSF). After administration of antibiotics, sensitivity of bacterial culture can be low. In this situation, a CSF gram stain, assays to detect bacterial antigen in CSF and polymerase chain reaction (PCR) tests can be helpful.

Prophylaxis of Contacts

Antibiotics are given to close contacts of cases of meningococcal disease. Close contacts include household members, intimate contacts, healthcare personnel performing mouth-to-mouth resuscitation, childcare center playmates and very close friends with whom the case may have shared cups or utensils. Casual contacts like classmaters or coworkers usually do not require treatment. Preventive medications are:

- **Rifampin**—not recommended for pregnant women, drug of choice for most children.
  - Children under 1 month of age—5mg/kg by mouth every 12 hours for 2 days.
  - Children over 1 month of age—10 mg/kg by mouth every 12 hours for 2 days.
  - Adults—600 mg by mouth every 12 hours for 2 days.

- **Ciprofloxacin**—not recommended for pregnant women.
  - Adults only—500 mg in a single dose by mouth.

- **Ceftriaxone**.
  - Children under 15 years of age—125mg in a single intramuscular injection.
  - Adults—250 mg in a single intramuscular injection.

Questions?

For more information, call (253) 798-6410 and press 0.