

Listeriosis

Summary

Listeriosis is caused by the bacterium *Listeria monocytogenes*. Infection results from ingestion of contaminated foods or from maternal transmission to the fetus or neonate. In high-risk individuals, listeriosis causes meningitis and/or septicemia. Signs and symptoms can include fever, headache, nausea, vomiting, and signs of meningitis. Pregnancy-associated infection can result in spontaneous abortion, fetal death or neonatal illness or death. Neonatal infection can manifest as pneumonia, septicemia, and meningitis. Laboratory diagnosis can be made by culture of blood, cerebrospinal fluid (CSF), amniotic fluid or other tissues; stool culture is not recommended. Antimicrobial therapy is indicated for patients with listeriosis. Persons at high risk of complications include newborns, pregnant women, persons who take steroid medication, organ transplant patients, the elderly and persons with impaired cell-mediated immunity. Pregnant women are about 20 times more likely than other healthy adults to get listeriosis, and the infection can be transmitted to the fetus. Persons at high risk of complications should avoid soft cheeses (such as brie, feta, Camembert, Mexican-style cheeses), unpasteurized milk or milk products, deli meats, refrigerated smoked fish, and cold salads from salad bars. They also should reheat (until steaming) leftover or ready-to-eat foods. In 2011, a large multistate outbreak was associated with eating cantaloupe from a specific farm in Colorado.

Agent

Listeriosis is caused by *Listeria monocytogenes*, a facultatively anaerobic, gram-positive bacillus.

Transmission

Reservoir:

The primary reservoir for *L. monocytogenes* is soil, forage, mud, and silage. Additional reservoirs include infected domestic and wild animals, fowl, and humans. Soft cheeses may support the growth of *L. monocytogenes* and have caused outbreaks. *Listeria* can multiply in refrigerated foods that are contaminated.

Mode of transmission:

- Foodborne transmission causes epidemics and sporadic infections. Implicated foods include contaminated unpasteurized milk, soft cheeses, prepared meats (such as hot dogs and deli meat), undercooked poultry, and unwashed raw fruits and vegetables. In pregnant women, transplacental transmission or asymptomatic fecal or vaginal carriage can result in neonatal infection.

Period of communicability:

- Infected individuals can shed the organism in their stool for several months though human-to-human transmission other than during and around pregnancy are rare. Mothers of infected newborn infants can shed the organism in vaginal discharge and urine for 7-10 days after delivery, rarely longer.

Clinical Disease

Incubation period:

Variable, but is longer in pregnancy-associated cases (2-4 weeks or occasionally up to 70 days.) Non-pregnancy related cases typically have an incubation period of 1 to 14 days.

Illness:

In non-immunocompromised hosts, the illness may be characterized by an acute, mild febrile gastroenteritis. Infected pregnant women may experience only a mild, influenza-like illness. However, infections during pregnancy can lead to miscarriage or stillbirth, premature delivery, or infection of the newborn resulting in pneumonia, meningitis, or septicemia. The mother usually fully recovers. However, the case-fatality rate is 30% in newborns and approaches 50% when onset occurs in the newborn in the first four days of life. Spontaneous abortion can occur at any point in pregnancy. In older adults and immunosuppressed people, disease usually manifests as meningoencephalitis and/or septicemia. Signs and symptoms can include fever, headache, nausea, vomiting, and signs of meningeal irritation. Delirium, coma, and shock can occur.

Laboratory Diagnosis

The organism can be cultured from a variety of body fluids, including blood, cerebrospinal fluid (CSF), meconium, gastric washings, placenta, and amniotic fluid.

Stool specimens are not helpful in obtaining a diagnosis as the prevalence of stool carriage of *L. monocytogenes* is estimated to be between 1-5%. PCR can be used to identify similar strains in an outbreak setting.

Treatment

Antimicrobial therapy is indicated for patients with listeriosis. Initial therapy with IV ampicillin and an aminoglycoside (usually gentamicin) is recommended for severe infections including meningitis, encephalitis, endocarditis and infections in neonates and immunocompromised patients. In immunocompetent patients with mild infections, ampicillin alone can be used. Treatment decisions should be made in conjunction with the patient's health care provider. Infectious disease physician consultations should be considered, especially for patients with severe infections.

Surveillance

Case Definition:

Confirmed

A clinically compatible case associated with isolation of *L. monocytogenes* by culture from a normally sterile site or if miscarriage or stillbirth has occurred, isolation of *L. monocytogenes* from placental or fetal tissue.

Reporting:

Report all suspected or confirmed cases of listeriosis to the Epidemiology and Response Division (ERD) at 505-827-0006. Information needed includes: patient's name, age, sex, race, ethnicity, home address, home phone number, occupation, and health care provider.

Case Investigation:

Complete the CDC Listeria Case Form and mail to the Epidemiology and Response Division, P.O. Box 26110, Santa Fe, New Mexico 87502-6110, or fax to 505-827-0013. Investigation information should also be entered in NM-EDSS per established procedures.

Control Measures

1. Case management
 - 1.1. Isolation: None required.
 - 1.2. Prophylaxis (for fetuses of pregnant women): Antimicrobial therapy for infection diagnosed during pregnancy may prevent fetal or prenatal infection and its consequences.
2. Contact management
 - 2.1. Isolation: None required.
3. Prophylaxis: Not applicable
4. Prevention
 - 4.1. Persons at high risk of complications from listeriosis should avoid soft cheeses (such as brie, feta, Camembert, Mexican-style cheeses including queso blanco, queso fresco, and queso panela), unpasteurized milk or milk products, deli meats, refrigerated smoked fish (including salmon, trout, whitefish, cod, tuna or mackerel, especially those labeled nova-style, lox, kippered, smoked or jerky), and cold salads from salad bars.
 - 4.2. Emphasize good hand hygiene practices (i.e., proper hand washing after using the toilet, changing diapers, and before and after handling food).
General guidelines for preventing foodborne illness include:
 - Thoroughly cook raw food from animal sources
 - Wash raw fruits and vegetables before eating
 - Keep uncooked meats separate from vegetables, fruits, cooked foods and ready-to-eat foods
 - Avoid unpasteurized dairy products
 - Wash hands, knives, and cutting boards after handling uncooked foods
 - Use precooked and ready-to-eat foods as soon as possible
 - Keep refrigerator set at 40 degrees Fahrenheit or colder
 - 4.3. Immunization: Not applicable.

Management of Listeriosis in Child Care Centers

Contact the Epidemiology and Response Division at 505-827-0006 for recommendations.

References

American Academy of Pediatrics. In: Kimberlin, DW, et al eds. Red Book: 2021-2024 Report of the Committee on Infectious Diseases. 32nd ed. Itasca, IL: American Academy of Pediatrics;2021.

Heymann, DL, ed. Control of Communicable Diseases Manual. 21st^h edition. Washington, DC: American Public Health Association; 2022.

Levy, Daniel, (2005) *Listeriosis* [Online] Baltimore, MD, MedlinePlus Medical Encyclopedia, National Institute of Health. Available at:

<http://www.nlm.nih.gov/medlineplus/ency/article/001380.htm> [Accessed 27 December 2006]

See Listeriosis Fact Sheets ([English](#)) ([Spanish](#)).