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# Questions and Answers Pertaining to Clinical Aspects of Listeriosis

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This fact sheet provides information for health care workers about listeriosis.

**Q: What are the typical symptoms of Listeriosis?**

A: In general, the most common clinical manifestation among healthy people is diarrhea. A self-limiting gastroenteritis-type syndrome with fever, myalgias, nausea, vomiting, and diarrhea may also occur.

**Q: Are there more serious manifestations of this disease?**

A: More serious manifestations include bacteremia and meningitis. Bacteremia may occur after intestinal penetration into the systemic circulation, and in some circumstances, other clinical presentations may include septic arthritis, endocarditis, or abscess formation. While it is possible for these manifestations to occur in otherwise healthy individuals, they generally occur in individuals at high risk for them.

**Q: Which individuals are regarded as being at “high risk” for these adverse clinical outcomes if infected with *Listeria*?**

A: In general, pregnant women, neonates, elderly individuals, and immunocompromised individuals are regarded as “high risk” because their immune systems may be compromised relative to “healthy hosts”.

**Q: What constitutes an “immunocompromised individual”?**

A: This list is by no means comprehensive, and clinical judgment should be used in this regard.

Examples of such conditions include HIV infection, cancer, diabetes, end-stage renal disease, cirrhosis of the liver, autoimmune disorders, or any condition for which a person receives immunosuppressive medications such as, but not limited to, prednisone, methotrexate, azathioprine, cyclophosphamide, infliximab, or cancer chemotherapeutic agents. It should be kept in mind that multiple co-morbidities may contribute to a relatively weakened immune system, and the clinician must determine in this circumstance whether the patient is “well” or “ill”, and on this basis merits further diagnostic testing and/or treatment.

**Q: Do asymptomatic individuals, or those who had symptoms which have since resolved who have consumed “tainted meat products” need to be investigated?**

A: No. There is no benefit to testing asymptomatic individuals, even if they are a member of a “high-risk” group as defined above.

**Q: How should I go about investigating a person for Listeriosis?**

A: If the person presents with appropriate clinical symptoms and has an appropriate epidemiological risk factor profile, the first step is to draw 2 sets of blood cultures (aerobic and anaerobic, 20 ml each) under sterile conditions from two different sites. If the person has a permanent intravenous catheter in place, one blood culture may be drawn from this site. There is no benefit to drawing more than 2 blood cultures, unless there is a clinical suspicion for endocarditis. Other sterile body fluid sites may

be sampled for submission in aerobic and anaerobic media, depending on the clinical presentation such as cerebrospinal fluid (CSF), joint fluid, pleural and pericardial fluid, as well as meconium.

**Q: What are the characteristics of the bacteria?**

A: *L monocytogenes* is a motile, non-spore-forming, gram-positive bacillus that has aerobic and facultatively anaerobic characteristics. It grows best at neutral to slightly alkaline pH and is capable of growth at a wide range of temperatures, from 1-45°C. It is beta-hemolytic and has a blue-green sheen on blood-free agar. It exhibits characteristic “tumbling motility” when viewed with light microscopy, and is difficult to isolate in mixed cultures. It may be mistaken for streptococci or contaminants such as *Corynebacteria*.

**Q: Should I be routinely sending off stool cultures, given that meconium is a site for culture?**

A: Stool samples should not be routinely sent to the lab for culture as this is not sensitive or specific enough for the diagnosis of Listeriosis. Stool should only be sent if other diagnoses (*C. Difficile*, parasitic infection) are considerations based on the history. In the case of some “high risk” persons described above, stool cultures may assist in the diagnosis, but these cases should be discussed in concert with a medical microbiologist and infectious diseases specialist before submission of the sample.

**Q: Is serologic testing an option?**

A: Serologic testing for diagnostic purposes has not been proven to be reliable.

**Q: What should I do with a patient who consumed sliced meat and has mild symptoms such as fever, myalgia, nausea, vomiting, or diarrhea?**

A: Any patient from a “high-risk” category listed above should be investigated with appropriate testing. The decision to have this testing conducted in an emergency department or hospital setting will depend on the clinical evaluation, which should determine, based on the combination of key signs (fever, tachycardia, tachypnea, orthostatic hypotension, etc..) the patient’s degree of illness

and whether close follow-up can be ensured in the outpatient setting. Otherwise healthy individuals with these symptoms do not need immediate investigation (unless the clinical evaluation dictates otherwise), and can be treated with conservative measures over the next 48 hours, with instructions to follow-up if their condition does not improve or worsens.

**Q: What do I need to know about infection in pregnancy?**

A: *Listeria* may proliferate in the placenta and cause infection due to impaired cell-mediated immunity which is characteristic of pregnancy. In contrast to other compromised hosts, CNS infection is rare in pregnancy. The third trimester is the time of greatest susceptibility to infection, when cell-mediated immunity is most compromised. Complications for the pregnancy may include preterm labour, with other complications including abortion, stillbirth, and intrauterine infection.

**Q: So how should I evaluate a pregnant patient presenting in the third trimester with fever and/or flu-like symptoms and/or diarrhea? Should I be sending them to a hospital for immediate evaluation?**

A: Initial diagnostic testing should include blood cultures in the office setting if the index of suspicion for Listeriosis is high. The primary symptom which should determine the need for blood cultures is sustained fever (>38C). Often, other accompanying symptoms including myalgias, headache, and backache suggest bacteremia for which further evaluation in a hospital setting would be warranted.

**Q: What do I need to know about infection in the neonate?**

A: Two forms of neonatal infection (granulomatosis infantisepticum) are described:

- 1) Early-onset sepsis with *Listeria* acquired in utero via transplacental transmission results in premature birth. IN these circumstances, *Listeria* can be isolated from cord blood, meconium, nose, ears, throat, among other sites, and manifests as abscesses and/or granulomas.

- 2) Late-onset meningitis may be acquired through vaginal transmission though it has been acquired via cesarean section.

**Q: What should my threshold be for investigating a neonate, of an otherwise healthy mother who might have previously consumed “tainted meat products”, who presents with only subtle symptoms such as “failure to thrive”?**

A: In general, poor feeding habit or failure to thrive has not been described as a typical consequence of maternal-fetal or maternal-neonatal transmission of *Listeria*, and other diagnoses should be considered in this setting.