South Australian Perinatal Practice Guideline

Listeria in pregnancy

Note:

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

Explanation of the aboriginal artwork:
The aboriginal artwork used symbolises the connection to country and the circle shape shows the strong relationships amongst families and the aboriginal culture. The horse shoe shape design shown in front of the generic statement symbolises a woman and those enclosing a smaller horse shoe shape depicts a pregnant women. The smaller horse shoe shape in this instance represents the unborn child. The artwork shown before the specific statements within the document symbolises a footprint and demonstrates the need to move forward together in unison.

Australian Aboriginal Culture is the oldest living culture in the world yet Aboriginal people continue to experience the poorest health outcomes when compared to non-Aboriginal Australians. In South Australia, Aboriginal women are 2-5 times more likely to die in childbirth and their babies are 2-3 times more likely to be of low birth weight. The accumulative effects of stress, low socio economic status, exposure to violence, historical trauma, culturally unsafe and discriminatory health services and health systems are all major contributors to the disparities in Aboriginal maternal and birthing outcomes. Despite these unacceptable statistics the birth of an Aboriginal baby is a celebration of life and an important cultural event bringing family together in celebration, obligation and responsibility. The diversity between Aboriginal cultures, language and practices differ greatly and so it is imperative that perinatal services prepare to respectively manage Aboriginal protocol and provide a culturally positive health care experience for Aboriginal people to ensure the best maternal, neonatal and child health outcomes.

Purpose and Scope of Perinatal Practice Guideline

The purpose of this guideline is to provide clinicians with information on listeriosis infection in pregnancy. It details preventative measures, indications for testing, maternal diagnosis and treatment and neonatal diagnosis and treatment.

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Table of Contents

Summary of Practice Recommendations

Listeriosis is a notifiable disease and should be notified urgently by telephone to the Communicable Disease Control Branch on 1300 232 272.

Inform all pregnant women of preventative measures for listeriosis infection.

Obtain dietary history from pregnant women with febrile, flu-like illness, myalgia, headache or diarrhoea.

Blood cultures and gram stain and cultures of the genital tract are used for diagnosis.

Severe maternal infection requires treatment with intravenous antibiotics.

Neonatal septic workup is required following suspected or proven maternal listeriosis.

Most neonates with listerial infection present with respiratory distress, fever, rash, jaundice, or lethargy.

Placental, cord or post pharyngeal granulomas, multiple small skin granulomas, papular or pustular skin rash and purulent conjunctivitis in the newborn should raise suspicion of listerial infection.

Abbreviations

°	Degree(s)
g	Gram(s)
kg	Kilogram(s)
mg	Milligram(s)
%	Percent

Listeria

- Listeriosis is an uncommon foodborne illness caused by a widespread bacterium called *Listeria monocytogenes*[1]
- *Listeria monocytogenes* can be easily isolated from soil, dust, water, processed foods, raw meat, and the faeces of animals and humans[2]
- Listeria can survive in temperatures as low as 0.5˚ Celsius (e.g. can grow in the refrigerator), but is easily destroyed by cooking[2]
- Listeriosis is a notifiable disease and should be notified urgently by telephone to the Communicable Disease Control Branch on 1300 232 272

Clinical features

- Usually asymptomatic
- May present as a mild febrile illness with muscle aches and sometimes gastrointestinal symptoms such as diarrhoea
- Miscarriage, stillbirth or preterm labour can occur[3]

Route of transmission

- Ingestion of *contaminated* foodstuffs, particularly unpasteurised dairy products, soft cheeses, delicatessen meats, pre-prepared cook-chill meals, pâté and raw vegetables[3]
- Listeria may take up to 70 days to develop (usually around three weeks) following ingestion of food infected with listeria

Infection precautions

- Standard precautions for further information see URL: https://www.nhmrc.gov.au/book/australian-guidelines-prevention-and-control-infection-healthcare-2010/b1-standard-precautions

Literature review

- Listeria infection during pregnancy results in a small number of infected fetuses[4]
- In early pregnancy, fetal infection may result in miscarriage[4]
- Maternal listeriosis in the second or third trimester results in a mortality of 40-50 % for the fetus[4]
- In later pregnancy fetal septicaemia may result in damage to multiple organs and stillbirth or neonatal death[3]
- The mortality rate varies from 3 – 50 % in live-born neonates infected with listeria[5]
- Perinatal listeria within 7 days of birth is often associated with prematurity and fulminant disease. Late onset disease (7 days to six weeks) often presents with meningitis[4]

Preventative measures

Avoid high risk foods e.g.

- Unpasteurized milk or food made from raw milk
- Pâté dips and soft cheeses (feta, brie, camembert, blue veined cheeses unless they are an ingredient in a fully cooked dish)
- Chilled precooked seafood

- Precooked meats and meat products which are eaten without further cooking or heating
- Uncooked or smoked seafood (unless an ingredient in a fully cooked meal)
- Pre-prepared salads and coleslaws

Use safe food handling practices

- Thoroughly cook raw food from animal sources
- Separate uncooked meat from vegetables, cooked foods and ready-to-eat foods
- Eat freshly cooked foods. Avoid eating dips in which raw vegetables may have previously been dipped
- Thoroughly wash raw fruit and vegetables
- Use separate cutting boards for raw meats and foods that are ready to eat e.g. cooked foods and salads[4]
- Wash hands, cutting boards and knives after contact with uncooked foods
- Reheat left-over or ready-to-eat food until steaming hot

Maternal diagnosis / treatment

- Obtain dietary history from pregnant women with febrile, flu-like illness, myalgia, headache or diarrhoea
- Serology is not a useful tool for diagnosing listeria
- Consider blood cultures. Also consider gram stain and cultures of the genital tract

Drug treatment

- No randomised controlled trials have been performed to establish optimal treatment regimens for listeriosis. Treatment regimens have been based on the recommendations of the Australasian Society for Infectious Diseases[4]

Mild infection

- Oral amoxicillin / ampicillin (2-3 g / day)

Severe infection

- Intravenous amoxicillin / ampicillin (4-6 g / day)
- Intravenous gentamicin for 14 days
- If allergic to penicillin, consider trimethoprim 160 mg / sulphamethoxazole 800 mg, oral or intravenous depending on severity of condition for 7 days (not in the first trimester of pregnancy)[4]

Neonatal diagnosis / treatment

- Neonatal listerial infection can cause pneumonia, sepsis, or meningitis[2]
- Although presentation can be variable, most neonates present with respiratory distress, fever, rash, jaundice, or lethargy[2]

Unwell neonate

Suspicious clinical findings include:

- Placental, cord or post pharyngeal granulomas
- Multiple small skin granulomas, papular or pustular skin rash
- Meconium stained liquor < 34 weeks gestation
- Purulent conjunctivitis

Septic workup

Following suspected or proven maternal listeriosis, consider:

> Blood cultures, cerebrospinal fluid
> Superficial cultures with gram stain
> Culture placenta
> Chest x-ray, urine culture
> Complete blood count

Drug treatment

> Amoxicillin / ampicillin (50 mg / kg every 12 hours)
> Gentamicin (2.5 mg / kg every 12 hours)
> Consider trimethoprim / sulphamethoxazole if no response to standard therapy

Well neonate

> Cease antibiotics after 48 hours

Culture positive or unwell at diagnosis

> Cerebrospinal fluid positive – continue amoxicillin / ampicillin and gentamicin for 21 days
> Cerebrospinal fluid negative – continue amoxicillin / ampicillin and gentamicin for 14 days

References

1. Gilbert GL. Infections in pregnant women. MJA 2002; 176: 229-236.
2. Janakiraman V. Listeriosis in Pregnancy: Diagnosis, Treatment, and Prevention. Rev Obstet Gynecol. 2008; 1:179-185
3. Langford KS. Infectious disease and pregnancy. Current Obstet Gynaecol 2002; 12: 125-30.
4. Palasanthiran P, Starr M, Jones C, Giles M, editors. Management of perinatal infections. Sydney: Australasian Society for Infectious Diseases (ASID) 2014. Available from: URL: http://www.asid.net.au/resources/clinical-guidelines
5. Bortolussi R, Schlech WF. Listeriosis. In Remington JS, Klein JO, editors. Infectious diseases of the fetus and newborn infant. 5th ed. Philadelphia: WB Saunders; 2001

Useful web sites

- Organization of teratology information specialists (OTIS) – Information on Listeriosis and pregnancy (under "Infections and vaccines"). Available from URL: http://www.mothertobaby.org/otis-fact-sheets-s13037
- Information leaflet from Australian New Zealand food standards on Listeria. Available from URL: http://www.foodstandards.gov.au/consumer/safety/listeria/pages/factsheet/listeriaandfoodjuly25590.aspx
- SA Health You've got what – Listeriosis in the A to Z index. Available from URL: www.sahealth.sa.gov.au/YouveGotWhat
- Child and Youth Health (CYH). Listeriosis. Available from URL: http://www.cyh.com/HealthTopics/HealthTopicDetails.aspx?p=114&np=303&id=1777

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