South Australian Perinatal Practice Guidelines

Hepatitis B in pregnancy

The 'Management of Perinatal Infections' guideline for Hepatitis B in pregnancy by the Australasian Society for Infectious Diseases 2006 has been used to inform this practice guideline.

Hepatitis B virus (HBV)

- HBV infects the liver and has an incubation period of 6 weeks to 6 months
- Many carriers of hepatitis B virus are asymptomatic
- HBV is excreted in body fluids, including blood, saliva, vaginal fluid and breast milk (NICE 2008)

Literature review

- Acute hepatitis B (HB) is rare in Australia. Most hepatitis B infections are acquired perinatally and most of these infections can be prevented by appropriate prophylaxis given at the time of birth
- Women with acute hepatitis caused by hepatitis B virus (HBV) and those with chronic hepatitis B viral infection (HBsAg positive) may transmit HBV to their infants
- Acute Hepatitis B diagnosed in the first or second trimester carries a perinatal transmission risk of approximately 10 %
- Acute Hepatitis B diagnosed in the third trimester carries a perinatal transmission risk of approximately 75 %
- There are no data to justify a recommendation on the mode of birth in acute hepatitis
- Caesarean section is known to lower the risk of perinatal transmission in chronically infected HBeAg positive mothers, however, the benefit of caesarean section is only marginal and caesarean section may not be protective without active / passive immunisation of the baby. It is therefore vital to ensure babies born to HBsAg and HBeAg positive mothers receive HB vaccine plus HB immunoglobulin at birth. The HB vaccine course must be completed with doses at 2, 4 and 6 months of age

Antenatal screening

- In South Australia, routine antenatal screening for Hepatitis B surface antigen (HBsAg) is offered to all pregnant women at their first antenatal appointment
- All women who are pregnant should receive pre-test education as well as written information about Hepatitis B, C, and HIV to enable their informed verbal consent to these tests
- Follow up the status of known hepatitis B carriers in subsequent pregnancies

At risk groups

Women from areas of high prevalence (more than 2 %):

- Australian Aboriginals

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at:
cywhs.perinatalprotocol@health.sa.gov.au

Government of South Australia
SA Health

Hepatitis B in pregnancy

- New Zealand Maoris
- Pacific Islands: Melanesia, Micronesia, Polynesia
- South Asia: India, Bangladesh, Pakistan, Sri Lanka
- South East Asia: Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, Vietnam
- East Asia: China, Hong Kong, Korea, Taiwan
- Africa (except white South African)
- South America: Chile
- Mediterranean – Crete, Cyprus, Greece, Italy, Malta
- Middle East: Egypt, Iran, Jordan, Lebanon, Turkey
- Central Europe: Romania, Yugoslavia

(Williams 2002; NHMRC 2003)

Non-immune women with a history of:

- Household / intimate contact with a known hepatitis B carrier
- Multiple sexual partners
- Intravenous drug use
- Tattoos / body piercing
- Jaundice or other clinical or biochemical features of acute hepatitis

Exposure to HB during pregnancy

- If maternal anti HBs titre < 10 IU / mL, give mother Hepatitis B immunoglobulin (HBIG) (400 IU, IM) as soon as possible but within 72 hours of exposure. Also, give the mother HB vaccine within 7 days of exposure and at 1 and 6 months post initial dose

Management of women who are HBsAg positive

- The attending medical officer should inform the woman of her carrier status, explaining the associated risk to baby and caregivers
- Hepatitis B is a notifiable disease. Notification should be made to the Communicable Disease Control Branch of the South Australian Department of Human Services as soon as possible and at least within three days of suspicion of diagnosis
- The appropriate notification form for reporting a notifiable disease or related death in South Australia may be downloaded and is available from:
- URL: http://www.dh.sa.gov.au/pehs/PDF-files/notifiable-disease-form.pdf

Appropriate medical counselling should include:

- Inform the woman early in the consultation of her HBsAg result
- The medical officer should use clear language (e.g. “You have hepatitis B”).
- Explain that hepatitis B is a notifiable disease

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at:
cywhs.perinatalprotocol@health.sa.gov.au

Government of South Australia
SA Health

Hepatitis B in pregnancy

- A positive diagnosis is often a shock. Aim to minimise the psychological impact at this time. Reassure the woman about confidentiality and offer information about available sources of support within the hospital system
- It is important to assess how much information the woman can process. There may be a need to arrange a number of consultations to discuss implications for the woman and her unborn baby. Infectious Diseases consultation is recommended
- Verbal and written information should be given about:
  - Course of the illness
  - Preventing transmission
  - Need for further serology and monitoring throughout pregnancy and beyond
  - Issues around disclosure and stigmatisation

Obtain further serology for:

- HBeAg (the e antigen identifies a high infective status)
- HBV viral load (HBV DNA) provides an accurate reflection of infectivity (high risk carriers have high viral loads)
- Anti-HBe (anti-HBe or HBeAb positive status indicates the woman is at lower risk of spreading HBV infection than HBeAg positive women)
- Liver function test (repeat at 28 weeks)
- Consider HBV DNA polymerase chain reaction (PCR) to detect pre-core mutants

Women who have very high viral loads (≥ 10^7 HBV DNA copies / mL)

- Active / passive immunisation (vaccine / HBIG) of babies at birth is effective in preventing transmission of hepatitis B in more than 95 % of babies. The 5% of babies who fail to be protected by this regimen and develop hepatitis B are usually those who do not receive the full regimen of vaccination, who fail to develop antibodies (anti-HBs), or who are born to mothers with very high levels of HBV DNA
- Oral antiviral agents given from 32 weeks gestation have been shown to reduce the viral load and reduce risk of mother-to-child transmission at delivery (Peters 2009)
- > Consider treatment with oral Telbivudine 600 mg daily from 32 weeks of gestation until delivery (Peters 2009; Tran 2009; Cai, Lui 2008). It may be continued for a month after delivery. Rebound rise in HBV viral load and / or ALT may occur. Informed consent should be obtained

Infection control measures

- Standard precautions with blood and body secretions are indicated
- Women identified antenatally as HBsAg positive should receive counselling from an infectious diseases consultant to provide information and advice
- Arrange single room with own toilet facilities for women following birth (risk of blood cross contamination)

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at:
cywhs.perinatalprotocol@health.sa.gov.au

Government of South Australia
SA Health

Hepatitis B in pregnancy

- Blood and body secretion precautions when giving injections, taking blood or performing vaginal examinations
- There is no evidence to suggest that amniocentesis or chorionic villus sampling increases the risk of vertical transmission. However, in the presence of high level viraemia (e.g. during a primary infection) the risk may be higher

Intrapartum management

Caesarean section for prevention of HBV transmission

- With regard to mother-to-infant transmission of HBV during birth, disagreements still exist on the issue of whether a different mode of birth (mainly caesarean section versus vaginal birth) will affect the risk of mother-to-infant HBV transmission
- Of the cases of mothers to infant transmission of HBV, a large proportion occurs during the intrapartum period. Underlying mechanisms may include:
  - The level of viraemia in the pregnant mother (RCOG 2005)
  - Transfusion of the mother's blood to the fetus during labour contractions
  - Infection after the rupture of membranes
  - Direct contact of the fetus presumably through breaches to natural barriers with infected secretions or blood from the maternal genital tract
- Common sense measures should be taken to avoid procedures that may inoculate the baby, for example:
  - Fetal scalp electrodes
  - Fetal scalp blood sampling
- Avoid where possible:
  - Vigorous nasopharyngeal aspiration or oral suctioning of the baby
  - Instrumental modes of birth
  - Ventouse delivery

At birth

- Protective eyewear, gown / apron and gloves should be worn by the attending clinicians

Care of the newborn baby

- Standard precautions should be utilised when handling the baby
- The skin at the injection site should be cleaned with soap and water or with an alcohol swab before administering hepatitis B vaccine, immunoglobulin and Konakion® (vitamin K)
- The baby should remain in the birthing room until transfer to the ward unless transfer to the nursery is indicated

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at:
cywhs.perinatalprotocol@health.sa.gov.au

Government of South Australia
SA Health

- Babies direct rooming in with their mother may be cared for in the ward nursery as required
- HBV DNA and HBsAg have been detected in breast milk (Palasanthiran et al. 2002)
- Breastfeeding does not appear to increase the risk of HBV transmission to the infant
- Breastfeeding is encouraged

Newborn Immunoglobulin and vaccination

Maternal HBsAg positive

- The Hepatitis B immunoglobulin (HBIG) and Hepatitis B vaccine (HB vaccine) should preferably be given within 12 hours after birth to the baby of women who are:
  - HBsAg positive
  - HBeAg positive or
  - HBV DNA polymerase chain reaction (PCR) positive
- Obtain HBIG from the Hospital Transfusion service (Request with a Transfusion Request Form).
- If there is no 24 hour Transfusion service, contact the Australian Red Cross Service Inventory and Distribution Department at (08) 83593164 and Fax a Transfusion Request form for HBIG 100 units to Fax (08) 83325741

Dosage

- Give HBIG 100 units in an intramuscular injection (thigh) within 12 hours of birth (must be within 48 hours as efficacy decreases markedly if delayed beyond this time)

And preferably at the same time…

- Give thiomersal-free monovalent HB vaccine (0.5 mL) 5 micrograms HB-Vax-II or 10 micrograms Engerix-B paediatric – in an intramuscular injection (opposite thigh)
- If concurrent administration with HBIG is not possible, vaccine should not be delayed beyond 7 days of birth
- Early administration of HB vaccine (within 12 hours) results in seroconversion rates of more than 90 % in neonates, despite concurrent administration of HBIG (NHMRC 2008)
- *Refer to hospital standard for administration guidelines
- Ensure details of the immunoglobulin / vaccine are entered in the ‘Birth Details’ page 10 and ‘Immunisation record’ page 72 sections of the Government of South Australia “My health record”

Universal recommendation for vaccination

- The National Health and Medical Research Council (NHMRC 2008) recommends that all children should be offered a four dose course of Hepatitis B vaccine, beginning with the first dose a short time after birth (preferably within 48 hours but always within 7 days), then combination vaccines at 2, 4 and 6 or 12 months (timing dependent on combination vaccine used)
- Details of the vaccine should be entered in the ‘Immunisation record’ section (page 72) of the Government of South Australia “My Health Record”

Follow up

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at:
cywhs.perinatalprotocol@health.sa.gov.au

Government of South Australia
SA Health

- Blood for Hepatitis B status should be taken from the woman's partner and vaccination offered if the partner is non-immune
- All babies born to HBsAg positive women should be followed up with medical review 1-2 months after completion of the primary immunisation course.
- The baby's blood should be tested for HBsAg, anti-HBc and anti-HBs
- HBsAg positive women should be followed up at an infectious diseases or hepatology clinic every 12 months to assess their liver function, viral markers, etc

Government of South Australia
SA Health

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at:
cywhs.perinatalprotocol@health.sa.gov.au

References

1. Palasanthiran P, Starr M, Jones C, editors. Management of perinatal infections. Sydney: Australasian Society for Infectious Diseases (ASID); 2002, emendations 2006. Available from: URL: http://www.asid.net.au/downloads/Management-of-Perinatal-Infections-ASID-2002-rev-2007.pdf
2. National Institute for Health and Clinical Excellence. Antenatal care, routine care for the healthy pregnant woman. NICE Clinical Guideline 62. Developed by the National Collaborating Centre for Women's and Children's Health. London: RCOG Press; 2008, p. 194.
3. Williams AH. Reduction in the hepatitis B related burden of disease – measuring the success of universal immunisation programs. Communicable Diseases Intelligence [serial online] 2002 September [cited 2004 Feb 11]; 26: [5 screens].
4. National Health and Medical Research Council (NHMRC). The Australian Immunisation Handbook, 9th ed. Canberra: Australian Government Publishing Service; 2008. Available from: URL: http://www.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook-home
5. Royal College of Obstetricians and Gynaecologists (RCOG). Operative Vaginal Delivery Guideline number 26 – Oct 2005, Clinical Green Top Guidelines, London: RCOG Press 2005; p. 1-13. Available from: URL: http://www.rcog.org.uk/womens-health/clinical-guidance/operative-vaginal-delivery-green-top-26
6. Department of Health (DoH). Government of South Australia. Diseases Notifiable Under Section 30 of the Public and Environmental Health Act 1987. Department of Health [online] Nov 2008 [cited 2008 November 25]; [1 screen]. Available from URL: http://www.dh.sa.gov.au/pehs/PDF-files/0811-notifiable-disease-list.pdf
7. Jianshe W, Qirong Z, Xiuzhen Z. Effect of delivery mode on maternal-infant transmission of hepatitis B virus by immunoprophylaxis. Chinese Medical Journal 2002; 115: 1510-12
8. McMenamin MB, Jackson AD, Lambert J, Hall W, Butler K, Coulter-Smith S, McAuliffe FM. Obstetric management of hepatitis C-positive mothers: analysis of vertical transmission in 559 mother-infant pairs. AJOG 2008; 199:315.e1-315.e5.
9. Child and Youth Health. My health record. Government of South Australia; 2009.
10. Yang J, Zeng XM, Men YL, Zhao LS. Elective caesarean section versus vaginal delivery for preventing mother to child transmission of hepatitis B virus – a systematic review. *Virol J* 2008; **5:** 100–7.
11. Peters MG. Special populations with hepatitis B virus infection. Hepatology 2009; 49: S145-S155.
12. Tran TT. Management of hepatitis B in pregnancy: Weighing the options. Cleveland Clinic Journal of Medicine 2009; 76 (Supplement 3 May): S25-S29.
13. Cai H-D, Lui M. The strategy of antivirus treatment in reproductive women infected with Hepatitis B virus. Hepatitis Monthly 2008; 8: 71-74.

Government of South Australia
SA Health

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at:
cywhs.perinatalprotocol@health.sa.gov.au

Hepatitis B in pregnancy

Useful web sites

SA Department of Health: You've got what – hepatitis B
http://www.health.sa.gov.au/pehs/youve-got-what.htm

Centers for Disease Control and Prevention: Frequently asked questions
http://www.cdc.gov/hepatitis/B/bFAQ.htm

Abbreviations

HBV	Hepatitis B virus
RCOG	Royal College of Obstetricians and Gynaecologists
HB	Hepatitis B
HBsAg	Hepatitis B surface antigen
HBeAg	Hepatitis B e antigen
%	Percent
HIV	Human immunodeficiency virus
NHMRC	National Health and Medical Research Council
mL	Millilitre/s
IU	International units
IM	Intramuscular
URL	Uniform Resource Locator
DNA	Deoxyribonucleic acid
PCR	Polymerase chain reaction
e.g.	For example
®	Registered trademark
HBIG	Hepatitis B immune globulin
HBV DNA	Hepatitis B virus Deoxyribonucleic acid
anti-HBe	Antibody to hepatitis B "e" antigen

Version control and change history

PDS reference: OCE use only

Version	Date from	Date to	Amendment
1.0	08 Apr 04	21 Apr 08	Original version
2.0	21 Apr 08	23 Aug 10	Review
3.0	23 Aug 10	18 Jan 11	Review
4.0	18 Jan 11	current	

ISBN number: UNKNOWN
Endorsed by: SA Maternal & Neonatal Clinical Network
Contact: South Australian Perinatal Practice Guidelines workgroup at:
cywhs.perinatalprotocol@health.sa.gov.au

Government of South Australia
SA Health