HEPATITIS C IN PREGNANCY

AIMS

1. To offer antenatal screening for the hepatitis C virus (HCV) to all women.¹
2. Provide education to women positive for HCV regarding disease management during pregnancy, the intrapartum and the postpartum period.
3. Provide information to HCV positive women about strategies to prevent transmission of the HCV.
4. Ensure postnatal follow-up for the mother and the neonate.

BACKGROUND INFORMATION

It is estimated that 1%-2% of women of childbearing age are infected with HCV, however this level may rise as high as 80% in high-risk behaviour groups.¹ Risk factors for contracting HCV include sharing of injecting equipment, tattooing or piercing with unsterile equipment or procedures, working in environments where there is contact with bodily fluids, receiving blood transfusions prior to 1991, receiving dialysis, participation in overseas procedures (e.g. dental, surgery, medical), sharing of equipment with a person with HCV (e.g. razor, toothbrush), practicing unsafe sex (although the contribution of sexual transmission in the acquisition of HCV infection is controversial), or having contact with blood without adequate protection.²,³ In Australia unsafe injecting practices account for over 90% of all new infections².

Newly infected people with HCV are generally asymptomatic, but they may present with mild clinical illness. After exposure HCV RNA is detectable within 1-3 weeks, with the typical time from exposure to HCV antibody seroconversion (anti-HCV) occurring in 8-9 weeks. Chronic HCV infection develops in 70-80% of people infected with HCV, and 60-70% of these chronically infected people will exhibit signs of active liver disease. Because most infected people are unaware of their status due to lack of clinical symptoms they can provide risk to others for HCV transmission.⁴ People with chronic HCV generally remain asymptomatic for 20-30 years. If antiviral therapy is received, 30-40% of people will achieve remission (higher for some serotypes, 80-90% of genotype 2 and 3 infections may be cleared with treatment)⁵, 20% will develop cirrhosis, and 1-6% will develop hepatocellular carcinoma. The remaining 35% with chronic HCV may die from other morbidities, develop slowly advancing liver disease, or they may continued with persistent HCV infection and stable liver disease.³

Approximately 25% of people who contract HCV are able to clear the virus naturally within 12 months without developing any immunity.²

Maternal HCV carriers pose a risk of perinatal transmission of approximately 5% if hep c RNA PCR is positive, but when the mother is co-infected with human immunodeficiency virus (HIV) the risk rate increases two-three fold.¹ Factors which increase risk for vertical transmission of HCV include co-infection with HIV, rupture of membranes for more than 6 hours, and when a woman has a higher viral load which has been associated with increased severity of the disease.⁵,⁶ Infants born to HCV infected women have been shown in some studies to have increased risk for being small for gestational age, premature, having a low birth weights, and also being at higher risk for requiring resuscitation.⁷
KEY POINTS

1. All pregnant women should be offered screening for HCV.

2. Performing an elective caesarean section has not been shown to prevent or reduce the incidence of vertical transmission of HCV.\(^8\),\(^9\)

3. Risk of vertical transmission of HCV increases with prolonged rupture of membranes during labour for 6 hours or longer, use of internal fetal monitoring, and if the mother has a higher HCV viral load during labour or birth.\(^10\)

4. Women who have tested negative for HCV at the booking visit and who remain at risk for blood-borne viruses, should have repeat screening for HCV in the third trimester.\(^11\)

5. Breastfeeding is not contra-indicated for women with HCV infection. However, if the nipples are damaged, cracked or bleeding it is recommended the milk is expressed and discarded until the nipples are healed.\(^7\)

6. It is recommended that a child at risk of perinatal transmission for HCV should be tested for HCV antibodies at 18 months of age. Testing prior to this time is limited due to passive transfer of maternal antibodies.\(^7\),\(^12\),\(^13\)

7. Should diagnosis of vertical transmission of HCV be required prior to 18 months of age (e.g. parental request) then testing of infant serum HCV RNA can be obtained when the infant is between than 2 and 6 months of age.\(^3\) A sample is collected on two occasions at least 3 - 4 months apart to confirm diagnosis.\(^7\),\(^14\)

8. All women with confirmed HCV should be offered referral to a hepatology clinic for ongoing monitoring and assessment for suitability of antiviral treatment options.

**ANTENATAL MANAGEMENT**

**SCREENING FOR HCV**

1. All antenatal women should have their HCV status reviewed at the booking visit. Women who have not been screened should be counselled, and the test performed if consent is given.
   - The initial screening test assesses for the presence of antibodies to HCV. The laboratory then will perform a confirmatory test. It may take 3-6 months from the time of infection until antibodies are detected.\(^1\) People may naturally clear the virus, however can still have antibodies present which may persist for life.\(^2\)
   - Should a woman test positive to antibodies for HCV then a blood test for HCV RNA Polymerase Chain Reaction (PCR) should be ordered to detect the presence or absence of the virus in the blood, the viral load, and the genotype.\(^1\)
   - Liver function tests (LFTs) should be performed at the same time when testing for HCV RNA status.\(^1\)
   - All hepatitis C positive patients should be screened for other blood borne viruses which may be co- transmitted (HBV,HIV).

2. Women who are high risk for contracting blood-borne viruses, or who has put themselves at risk of infection since their first test should be re-tested for HCV in the third trimester.\(^11\)

*Test results availability:*
HCV antibody test result is available at KEMH within 24-72 hours.
HCV RNA (by PCR) result is available at KEMH within 7 days.
INTERPRETING HCV RESULTS

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
<th>Interpretation</th>
<th>Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-HCV (antibodies) - enzyme immunoassay (EIA or ELISA)</td>
<td>Positive</td>
<td>Detects exposure to HCV in the presence or the past.</td>
<td>The person may have cleared the virus naturally, or have an ongoing infection. A negative result usually indicates infection is not present, however the ‘window-period’ should be taken into account especially in high-risk circumstance, and repeat testing in 3 months may be required.</td>
</tr>
<tr>
<td>HCV RNA PCR viral detection test.</td>
<td>Positive</td>
<td>Confirms a person is currently positive for HCV.</td>
<td>If HCV is present in 6 months, it is a chronic infection.</td>
</tr>
<tr>
<td>HCV RNA PCR viral detection test.</td>
<td>Negative</td>
<td>Infection has cleared.</td>
<td>Follow-up in 6-12 months is required to checked sustained clearance.</td>
</tr>
<tr>
<td>HCV RNA PCR viral load.</td>
<td></td>
<td>Measures the amount of virus in the blood.</td>
<td>Useful in determining it a treatment is working.</td>
</tr>
<tr>
<td>HCV RNA viral genotype test.</td>
<td></td>
<td>Determines genotype for HCV</td>
<td>Nine different genotypes of HCV exist, with antiviral treatment responds more effectively with some types than others. Genotype testing may be delayed until hepatology clinic review.</td>
</tr>
</tbody>
</table>

MANAGEMENT OF THE NEWLY DIAGNOSED HCV POSITIVE WOMAN

1. Provide verbal and written information about HCV including:
   • the course of the illness
   • mode of transmission of the virus
   • prevention of HCV transmission
   • pregnancy and postnatal management
   • life-style changes e.g. alcohol use, nutrition, fatigue and management of symptoms
   • management of the neonate including recommended follow-up testing
   • Community support services in Western Australia. See [http://www.hepatitiswa.com.au](http://www.hepatitiswa.com.au)

2. Complete the mandatory Health Department of Western Australia Notification Form for Infectious Diseases.

3. Obtain consent and provide the woman’s GP with any serology and blood test results to enable current and future management. Inform the GP when a referral has been sent to a Hepatology Clinic for review and ongoing management.

4. Perform baseline LFTs to detect liver changes or damage. Additional blood tests to assess liver function tests include albumin, bilirubin and INR (coagulation) tests.

5. LFTs should be performed each trimester in pregnancy.

6. Consider referral to a Hepatology Clinic.
MANAGEMENT OF A PREVIOUSLY DIAGNOSED WOMAN WITH HCV

1. Ensure the woman has current knowledge about HCV, and that she has access to information pamphlets and websites. See http://www.hepatitiswa.com.au
2. Provide information about antenatal, intrapartum and postnatal management for women with HCV. Discuss neonatal management and follow-up testing.
3. Assess if current results of LFTs are available, and order if not current. LFTs should be performed each trimester in pregnancy.
4. Additional blood tests to assess liver function tests include albumin, bilirubin and INR (coagulation) tests.
5. Confirm if the woman has been referred to a hepatology clinic by her GP. Discuss the option with the woman and arrange a referral as required.

INTRAPARTUM MANAGEMENT

1. Standard precautions are utilised as should be implemented for all women. See Infection Control Manual Section 2.1 Standard Infection control precautions.
2. Instruct the woman about standard precautions for blood and body secretions.
3. Avoid procedures that may increase risk of vertical transmission of HCV including:
   - fetal blood sampling
   - fetal scalp electrode use
   - early artificial rupture of membranes should be avoided where possible
   - if assisted delivery is required the use of soft cup vacuum extraction or forceps is preferred over a metal cup which poses increased risk for scalp injury.

POSTNATAL MANAGEMENT

1. Encourage women to have immunisation for Hepatitis A and B if non immune. Refer to the GP for follow-up.
2. Encourage breastfeeding:
   - studies have shown that HCV RNA has been detected at low levels in breast milk, but that the virus is likely to becomes inactive in the neonatal digestive tract
   - risk for transmission is higher if the woman has damaged, cracked or bleeding nipples. Advise the mother to express and discard breast milk until the nipples are healed, and to artificially feed until then. If one breast/nipple is undamaged she may be able to feed the neonate from that side and provide top-ups as required until healing occurs.
3. Educate the mother about:
   - breastfeeding – prevention techniques to avoid nipple damage, checking of nipples following each feed.
   - how to express breast milk – in case of damaged or bleeding nipples
   - prevention of transmission to the HCV in the home environment
   - follow-up testing for the neonate

FOLLOW-UP

1. Discuss referral to a hepatology clinic for ongoing health monitoring and assessment of suitability for antiviral therapy, and inform her an appointment will be sent to her after processing of the referral.
2. Encourage the woman to have ongoing contact and follow-up with her GP to monitor her health and liver function.
3. Women should be advised if they commence antiviral therapy for HCV they should avoid pregnancy during therapy and for 6 months after if Ribavirin treatment is used which is a teratogen. Two forms of contraception are recommended to safeguard against pregnancy.17

NEONATAL MANAGEMENT
See Neonatal Postnatal Ward Clinical Guidelines 4 Neonatal Management for existing maternal conditions – Hepatitis C virus. These guidelines provide information regarding management of the neonate and follow-up testing.

Postnatal review of the neonate will be conducted by the paediatrician who will generate a letter to the GP indicating appropriate neonatal follow-up testing for HCV. Referral may also be made to the PMH paediatric Infectious Disease Clinic for follow up.

REFERENCES