ANTEPARTUM CARE

INFECTIONS IN PREGNANCY

HEPATITIS C IN PREGNANCY

Keywords: hepatitis C, HCV, sexually transmitted infection, STI, vertical transmission, perinatal transmission, seroconversion, viral load

AIMS

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

BACKGROUND INFORMATION

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.[2] People with chronic HCV generally remain asymptomatic for 20-30 years. [2] 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 continue with persistent HCV infection and stable liver disease.[3]

Approximately 25% of people who contract HCV are able to clear the virus naturally within 6 months without developing any immunity.[4]

Antiviral treatments for hepatitis C are progressively improving and overall cure rates of 70-80% are achievable now , although response varies with genotype (http://www.hepatitisaustralia.com/treatment-for-hep-c/). Some genotypes have higher success rates with treatment of up to 90%.[4]

Maternal HCV carriers pose a risk of perinatal transmission of approximately 5% if hepatitis C antibody and RNA PCR is positive, but when the mother is co-infected with human immunodeficiency virus (HIV) the risk rate increases[1, 5] two-three fold.[6] Factors which increase risk for vertical transmission of HCV include co-infection with HIV,[5] rupture of membranes for more than 6 hours, and when a woman has a higher viral load[5] which has been associated with increased severity of the disease.[7, 8] Neonates born to HCV infected women may be at increased risk of being small for gestational age[9], premature[9], low birth weight[5], and also being at higher risk for neonatal intensive care admission[5] and requiring resuscitation[5, 9].

RISK FACTORS

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] In Australia transmission predominantly occurs in people with a history of injecting drug use.[5]

Risk factors for contracting HCV include:

- sharing of injecting equipment[4, 5]
- tattooing or piercing[5] with unsterile equipment or procedures[4]
- working in environments where there is contact with bodily fluids[4] (e.g. needle stick injuries[5])
- country of origin (e.g. south-east Asia, the Middle East, southern and eastern Europe, parts of South America and Africa)[5]
- received blood transfusions (prior to 1991 in Australia)[4, 5]
- received dialysis[4]
- participation in overseas invasive procedures[5] (e.g. dental, surgery, medical, immunisations)[4]
- sharing of equipment with a person with HCV (e.g. razor, toothbrush)[4]
- practicing unsafe sex where blood may be present[4] (although the contribution of sexual transmission in the acquisition of HCV infection is controversial)
- having contact with blood without adequate protection[3, 4] (blood stained clothing, wound care)[4]

- incarceration.[5]

KEY POINTS

1. All pregnant women should be offered screening for HCV.[1, 10] This is important for women with identifiable risk factors, or those undergoing invasive procedures.[5] Although there is currently no method of preventing mother to baby transmission of HCV, or treating the virus during pregnancy (currently available treatments are contraindicated in pregnancy) , if the woman is positive for HCV, then the woman and neonate will require follow-up.[5]
2. Performing an elective caesarean section has not been shown to prevent or reduce the incidence of vertical transmission of HCV.[1, 11, 12]
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, invasive procedures, and if the mother has a higher HCV viral load during labour or birth.[1, 13]
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.[10]
5. The neonate should be bathed to remove maternal body fluids prior to IM injections. E.g. vit K[1]
6. 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.[1, 9]
7. 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.[1, 6, 9, 14, 15]
8. 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.[9, 16]
9. All women with confirmed HCV should be offered referral to a hepatology clinic for ongoing monitoring and assessment for suitability of antiviral treatment options if RNA positive.[1]

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 informed consent is given.[10]
    - 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.[4]
    - 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).[17]
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.[10]

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[18]

Test	Result	Interpretation	Additional information
Anti-HCV (antibodies) - enzyme immunoassay (EIA or ELISA).[1]	Positive	Detects exposure to HCV in the present or the past.	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.[19]
HCV RNA PCR viral detection test.	Positive	Confirms a person is currently positive for HCV.	If HCV is present in 6 months, it is a chronic infection.[19]
HCV RNA PCR viral detection test.	Negative	Infection has cleared.	Follow-up in 6-12 months is required to checked sustained clearance.[19]
HCV RNA PCR viral load.		Measures the amount of virus in the blood.	Useful in determining it a treatment is working.
HCV RNA viral genotype test.		Determines genotype for HCV	Six different genotypes of HCV exist (with approx 40 subtypes),[20] with antiviral treatment responding more effectively with some types than others. Genotype testing need not be delayed until specialist/ hepatology clinic review.[20]

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[20]
   - management of the neonate including recommended follow-up testing
   - Community support services in Western Australia. See http://www.hepatitiswa.com.au
2. Complete the mandatory Health Department of Western Australia Notification Form for Infectious Diseases.[17]
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 WOMAN WITH ***PREVIOUSLY DIAGNOSED*** HCV

1. Ensure the woman has current knowledge about HCV, and that she has access to information pamphlets and web sites. 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 and should be implemented for all women. See KEMH Clinical Guidelines: Infection Control Manual: Standard 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[21]
   - fetal scalp electrode use[21]
   - early artificial rupture of membranes should be avoided where possible[21]
   - 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.[22]

POSTNATAL MANAGEMENT

1. Encourage women to have immunisation for Hepatitis A and B if non-immune.[17] Refer to the GP for follow-up.[2]
2. Encourage breastfeeding (KEMH *Hepatitis C & Breastfeeding* patient brochure available):
   - 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[7]
   - 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.[7] 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 if Hep C RNA positive , and inform the woman that 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.[20] Effective contraception (e.g. using two forms) is recommended to safeguard against pregnancy.[20]

NEONATAL MANAGEMENT

See KEMH Neonatal Postnatal Ward Clinical Guidelines: Maternal Hepatitis C.

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 Fax to Department of Paediatric Infectious Diseases PMH 62293128 (NB contact details may change when PCH opens). Options for follow up include serology at 18 months, or HepC RNA at 3 months of age.

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National Standards – 1.8, 3.11, 3.13 & 4

Legislation – *Children and Community Services Act 2004*; *Freedom of Information Act 1992*; *Health Act 1911*; *Privacy Act 1988*; *Public Sector Management Act 1994*

Related Policies –

- Department of Health WA: IC 0164/13: Patient Confidentiality (2013); IC 0177/14: Practice Code for the Personal Health Information Provided by the Department of Health (2014); Sharing Information for Continuity of Health Care Policy (2003); Information Security Policy (2012); OD 0344/11: Mandatory Reporting of Sexual Abuse of Children Under 18 Years (2011); OD 0395/12: Antenatal Testing for Sexually Transmitted Infections and Blood-borne Viruses (2012).

Other related documents –

- AHMAC. (2012). Clinical Practice Guidelines: Antenatal Care- Module 1 (p. 114-8)
- Australian Sexual Health Alliance: Australian STI Management Guidelines: For Use in Primary Care (2014)
- Department of Health WA: Procedure for Notification of Communicable Diseases; Quick Guide to STI Testing (2013); Quick Reference to STI Management (2013); Silver book (2013).
- KEMH Clinical Guidelines: Gynaecology: Sexually Transmitted Infections
- ECU / DoH WA: Online learning package for health professionals: WA STI Education Project

RESPONSIBILITY	
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