

Counseling for Prevention of HCV Acquisition and Transmission

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Module 1: [Screening and Diagnosis of Hepatitis C Infection](#)

Lesson 4: [Counseling for Prevention of HCV Acquisition and Transmission](#)

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Sexual Transmission of HCV

Persons at Risk

Transmission of hepatitis C virus (HCV) through sexual contact appears to be uncommon, with prior studies showing transmission among long-term monogamous heterosexual partners occurring in less than 1% of couples per year. One recently published study estimated a maximum incidence rate of 0.7% per year among monogamous heterosexual couples, which corresponded to approximately one transmission per 190,000 sexual contacts. In contrast, reports have identified clusters of acute hepatitis C infection among men who have sex with men (MSM), primarily MSM who are also co-infected with HIV. Several other prospective cohorts and retrospective studies of HIV-infected persons or persons attending sexually transmitted diseases clinics have observed similar findings among HIV-infected MSM. Although ongoing injection drug use (IDU) remained the strongest risk factor for new HCV acquisition, several case control and cohort studies identified sexual contact as a potential source of transmission among HIV-infected MSM. HCV prevalence and incidence among non-IDU, HIV-negative MSM appears to still be low.

Factors Associated with Increased Risk of Sexual Transmission

For heterosexuals, having multiple sexual partners has been associated with an increased risk of HCV acquisition. Investigators have identified multiple risk factors associated with sexual transmission of HCV among MSM: (1) co-infection with HIV; (2) unprotected anal intercourse, especially as the receptive partner; (3) use of recreational drugs during sex, including gamma-hydroxybutyric acid (GHB) and methamphetamine; (4) co-incident ulcerative sexually transmitted diseases (lymphogranuloma venereum proctitis, syphilis); and (5) some sexual practices, including those that may result in bleeding or damage to genital mucosa, fisting, group sex, and use of shared sex toys.

Prevention

Although the risk for sexually transmitting hepatitis C is extremely low (unless exchange of bloody fluids is involved), the consistent use of condoms is recommended during sexual activity to reduce the risk of other sexually transmitted diseases, including HIV and hepatitis B virus. Individuals with known hepatitis C should be counseled to discuss the risk of hepatitis C transmission, which is low but not zero, with their sex partners. The CDC has recommended that HCV-infected persons who have one long-term steady sex partner do not need to alter their sexual practices. Nevertheless, long-term partners should be offered the option of receiving HCV counseling and undergoing HCV testing. For HCV-discordant couples attempting to maximize reduction of the risk of HCV transmission, using latex condoms and avoiding sexual practices that potentially result in bleeding should presumably

further reduce the risk of sexual HCV transmission. With growing evidence for sexual transmission of HCV among MSM engaging in higher risk sexual practices, it is particularly important to have an open conversation regarding sexual and drug-use practices to identify (1) HCV-negative persons at risk for HCV acquisition, and (2) HCV-infected persons who may engage in sexual practices that significantly increase the risk of HCV transmission to others.

Injection Drug Use and HCV Transmission

HCV Infection among Injection Drug Users

Hepatitis C virus is transmitted very efficiently by the parenteral route, and in the United States injection drug use is the most commonly reported risk factor for new cases of HCV. Hepatitis C is acquired relatively rapidly after initiating injection drug use and even short term or single events of injection drug use place a person at risk for acquiring HCV. The prevalence of HCV antibody among injection drug users increases with age, number of years injecting, intensity of injecting, and frequency of use. In a prospective study of young injection drug users from 2000 to 2007, cumulative incidence of new HCV infection was 27 per 100 person-years. Among the participants who cleared their initial infection spontaneously, 26% became re-infected with HCV during follow up. Reinfection and superinfection with HCV has been demonstrated in other cohorts of previously HCV-infected individuals.

Risk Factors for HCV Transmission in Injection Drug Use

The risk of HCV transmission among injection drug users is clearly associated with sharing of syringes and needles. In addition, multiple studies have demonstrated the role of shared equipment used to prepare and inject drugs, including filtration cottons, drug cookers, and rinse water. Persons should receive counseling to avoid sharing needles, syringes, and any drug preparation equipment including the prepared drug itself. Laboratory studies suggest that HCV can persist for prolonged periods of time in contaminated syringes, particularly in syringes with a larger residual volume (tuberculin syringes) versus low void volume syringes (insulin syringes). It is estimated that HCV can survive outside the body at room temperature for at least 16 hours, but no longer than 4 days on an environmental surface.

Prevention

The following counseling information is intended both for HCV-negative persons at risk of acquiring hepatitis C infection and HCV-infected persons at risk of transmitting HCV to others. Persons should also be counseled that reinfection with HCV is possible and prevention strategies should be used long term if ongoing risk exists. Some strategies to share with patients that reduce the acquisition or transmission via injection drug use include:

- Avoid the new use of injection drugs and stop current use of injection drugs
- Reduce the frequency of injecting
- Use new, sterile needles and syringes each time you inject
- Do not reuse needles or syringes, if you can avoid it
- Do not share needles or syringes
- Safely dispose of needles and syringes
- Do not reuse or share other injection materials (cookers, cottons, water, drug)
- Receive substance-use treatment and support for safe injection practices

Household HCV Transmission

Potential for Household HCV Transmission

Although hepatitis C is transmitted most efficiently through the parenteral route, some epidemiologic studies have shown household contacts of HCV seropositive patients to have an elevated risk of HCV infection. Confounding factors include the potential for shared parenteral exposures, such as medical or dental procedures and injections; sexual exposure between partners and spouses; and vertical transmission between mother and infant. Thus it is difficult to quantify risk associated with non-sexual, household only exposures to HCV. A systematic review of this issue in 2000 did find an increased risk for HCV infection in siblings and household contacts of HCV-infected chronic liver disease patients. No increased risk for HCV infection was found in parents of HCV-infected children or in siblings, nor among household contacts and sexual partners of HCV-infected patients on renal replacement therapy. The increased risk for HCV infection in families and spouses included in the controlled studies correlated with the severity of liver disease in the index patient, the number of family members infected with HCV, the duration of exposure to the index patient, and sexual contact with the index patient. Additional domestic risk factors for HCV transmission identified in uncontrolled studies were sharing razors and nail clipper between family members and patients, reuse of syringes, and co-infection with HIV.

Prevention

Although the risk of isolated intra-household, non-sexual transmission is very low, HCV-infected persons should be counseled on strategies to reduce potential transmission to any household contact. Persons with hepatitis C infection should receive the following precautions and information regarding potential household transmission of hepatitis C:

- Avoid sharing razors, shaving equipment, toothbrushes, dental equipment, nail clippers, or other personal care items that contain any trace of blood
- Cover cuts or sores on the skin to keep from spreading infectious blood
- Hepatitis C virus can survive outside the body for at least 16 hours so any blood spill (including dried blood) should be cleaned up using a dilution of one part household bleach to 10 parts water by a person wearing gloves during the entire clean up
- HCV is not spread through food, water, eating utensils, or casual contact (such as sneezing, coughing, touching, hugging).

Mother-to-Child HCV Transmission

Risk of Mother-to-Child Transmission

Mother-to-child transmission of hepatitis C does occur, though it is far less efficient than mother-to-child transmission of hepatitis B or HIV. The exact timing of transmission of HCV from mother to child is unknown. Transmission appears to occur almost exclusively in women who are HCV viremic (i.e. HCV RNA detectable in peripheral blood). In a systematic review of 77 studies published between 1990 and 2000, Yeung and colleagues determined the weighted rate of mother-to-infant transmission among HCV RNA-positive women was 4.3%, which is consistent with a number of larger studies showing transmission rates in the 3 to 10% range. In a more recent systematic review and meta-analysis of 109 articles, Benova and coworkers reported a risk of vertical HCV transmission to children of HCV-antibody positive and RNA positive women of 5.8%.

Risk Factors for Mother-to-Child Transmission

Major risk factors associated with an increased risk of mother-to-child HCV transmission include HIV co-infection of the mother and detectable HCV viremia during pregnancy. Other identified risk factors include female gender of the infant; prolonged rupture of membranes (longer than 6 hours); obstetric procedures and intrapartum events that lead to infant exposure to HCV-infected maternal blood, such as internal fetal monitoring or vaginal/perineal lacerations; maternal injection drug use; and higher levels of maternal HCV-viremia have also been associated with increased transmission. In contrast, mother-to-child HCV transmission has not been associated with mode of delivery (vaginal versus Cesarean birth) or breast-feeding. Data from large cohorts of HCV-infected mothers and their exposed infants demonstrate that safe breast-feeding, (i.e., breast-feeding in the absence of damaged, cracked, or bleeding nipples), does not increase the rate of perinatal transmission of HCV. Most experts would recommend temporarily stopping breast-feeding if the mother has a cracked and bleeding nipple (or surrounding areola). During this time, the mother should use a breast pump to express and discard her milk. Once the nipple region has healed, the mother can resume breast-feeding.

Prevention of Mother-to-Child HCV Infection

Unfortunately there is no intervention or prophylaxis that has been demonstrated to prevent perinatal transmission of HCV. The drugs used most commonly to treat hepatitis C in both children and adults are not recommended for use in pregnancy or in young children. Pregnant women with known HCV infection should be counseled on the potential for transmission to their infant and on the need for ongoing follow-up and testing for their child. Elective Cesarean section based only on the HCV infection status of the mother is not recommended, as currently available data does not support its role in reducing perinatal HCV transmission. Breast-feeding is felt to be safe for HCV-infected mothers and their infants (see above). Thus, women with chronic hepatitis C do not need to avoid pregnancy or breast-feeding.

Hepatitis C Testing in Pregnant Women and Infants

Universal screening of all pregnant women for HCV infection is not currently recommended. Accordingly, testing of pregnant women for hepatitis C should be based on CDC recommendations for risk-based and birth cohort testing. Any woman identified as HCV-antibody positive should have a sensitive HCV RNA test to determine if she is viremic. Infants born to mothers with known hepatitis C infection should undergo follow-up post-birth to evaluate for possible vertical HCV acquisition. Maternal HCV antibody is passively transferred to the fetus and can last up to 12 to 18 months post-partum. The American Association for the Study of Liver Diseases (AASLD) advises deferring HCV antibody testing in an infant until age 18 months. An earlier diagnosis using HCV RNA testing of the infant is advocated by some groups. The AASLD 2009 guidelines suggest that HCV RNA may be

performed at or after the infant's first well-child visit at 1 to 2 months of age in the setting where earlier diagnosis is desired, but the sensitivity of HCV RNA testing at 1 to 2 months of age is low and a negative test should be repeated at a later date. These guidelines suggest deferring HCV RNA testing until 6 months when sensitivity of the test is improved.

Summary Points

- The risk of heterosexual transmission of HCV is low. Persons with HCV infection who are in long-term monogamous relationships should be advised they do not need to alter their sexual practices based on the hepatitis C infection.
- Growing evidence suggests that sexual transmission of HCV can occur among men who have sex with men and the risk may be substantial with sexual practices that may result in bleeding or damage to genital mucosa.
- Hepatitis C-infected men who have sex with men should receive counseling regarding the potential sexual transmission of hepatitis C to others and should be advised to use condoms and avoid rough sex.
- Hepatitis C is transmitted efficiently via injection drug use and reinfection and superinfection can occur. Transmission can occur when sharing needles, syringes, and other equipment used to prepare and inject drugs.
- Persons with hepatitis C and injection drug use should receive counseling regarding stopping the use of injection drugs, as well as counseling on the means to reduce the risk of transmission if they continue to inject drugs.
- Household transmission of hepatitis C (not related to sexual or injection drug transmission) probably occurs rarely, but may potentially result from sharing of a blood-contaminated item, such as a razor, toothbrush, or nail clipper.
- Persons living in the same household with a hepatitis C-infected individual should be advised not to share razors, toothbrushes, or nail clippers.
- Mother-to-child HCV transmission occurs in approximately 4% of HCV-infected pregnant women; the risk of HCV transmission with safe breastfeeding is extremely low
- Women with hepatitis C infection do not need to avoid pregnancy, nor do they need to avoid breastfeeding; infants born to HCV-infected mothers should have follow-up for evaluation of possible HCV infection.

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