Sexual transmission of hepatitis C: Are HIV-positive gay and bisexual men at risk?

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Research shows that the hepatitis C virus (HCV) may be transmitted sexually, especially among HIV-positive gay men, bisexual men and other men who have sex with men (MSM). This article will look at the evidence that HCV can be transmitted sexually and why HIV-positive MSM appear to be at higher risk.

What is hepatitis C?

Hepatitis C is a liver disease caused by the hepatitis C virus. This virus is carried in the blood, infects liver cells and causes liver damage (inflammation, scarring, fibrosis and sometimes cirrhosis), which can result in sickness and death. There is no vaccine for hepatitis C, but treatment exists that can clear the virus from the body in about half the people who try it. Because the body does not develop immunity against the virus, it is possible for a person who has been successfully treated for hepatitis C to be re-infected, with either the same strain or a different strain of HCV.

Men and women who are living with both HIV and HCV face greater health and social challenges than those who are living with HCV or HIV alone. Each infection makes the other one worse.

How does someone get hepatitis C?

People get hepatitis C when their blood comes into contact with the blood of someone who has HCV (blood-to-blood contact). People can come into contact with blood containing HCV in many ways, including:

- sharing equipment to inject drugs (such as filters, cookers, needles or syringes)
- sharing equipment, jewelry or ink for piercing/tattooing
- sharing pipes, straws or bills for smoking or snorting drugs
- sharing toothbrushes, razors or nail clippers
- accidental exposure of healthcare workers in a healthcare setting
- unprotected sex
- transmission to a fetus during pregnancy or childbirth
- unsterilized and reused medical equipment (this is rare in Canada today, but may explain previous exposures or exposures in countries where procedures for controlling infection are less strict)

How many people have hepatitis C in Canada?
An estimated 242,500 people in Canada were living with HCV in 2007 (this is the prevalence of HCV in Canada). This means that an estimated 0.78%, or almost 8 out of every 1,000 Canadians, were living with HCV in 2007. That same year, an estimated 7,945 people were newly infected with HCV in Canada (this is the incidence of HCV).

An estimated 83% of people became infected with HCV as a result of sharing injection drug-use equipment with someone who has HCV. The remaining 17% of estimated new infections have been lumped together into one category and attributed to "other" causes, so it is impossible to know how many of these infections may be due to sexual transmission.

**What is the evidence that HCV can be transmitted sexually?**

While there is no conclusive evidence that HCV can be transmitted sexually, there is some evidence to suggest that it is occurring, especially among HIV-positive MSM. However we don’t know how often it is occurring and why a higher proportion of HIV-positive MSM may be getting HCV than other populations.

**How prevalent is hepatitis C in HIV-positive MSM?**

Numerous studies tell us that a higher proportion of HIV-positive MSM are living with HCV infection than HIV-negative MSM. This suggests that there may be something about HIV-positive MSM that makes them more likely to become infected with HCV. However, it should be noted that not all studies have shown that HIV-positive MSM are at higher risk, so some controversy continues in the medical field.

How might HIV-positive MSM be getting HCV?

HIV-positive MSM could be getting HCV through any of the transmission routes discussed in the section “**How does someone get hepatitis C?**” including unprotected sex. In this section we will focus on the evidence for the sexual transmission of HCV in MSM who are living with HIV.

One way we can try to figure out if HCV can be transmitted sexually is by looking at the risk factors for HCV infection in HIV-positive MSM. While some studies have found higher rates of injection drug use among MSM co-infected with HIV and HCV, which may explain some co-infections in this group, other studies have documented sexual risk as the sole risk for transmission. For example, a study from England found that 83% of HCV infections in HIV-positive MSM could not be explained by either intravenous drug use or blood transfusion but could be explained by sexual factors.

**Is HCV transmitted through semen or blood during sex?**

If HCV can indeed be transmitted sexually, how is it transmitted: through semen or blood-to-blood? To date, there is little evidence that HCV is transmitted through semen.

The lack of convincing evidence that HCV is transmitted through semen has led some researchers to conclude that HCV is most likely transmitted through blood-to-blood contact during sex.

Research shows that many of the HIV-positive men who are being diagnosed with hepatitis C have several sexual risk factors in common. These include:

- having unprotected (receptive or insertive) anal sex, especially in groups or with multiple partners
- rougher sex practices, such as anal fisting and the use of sex toys that can damage the rectal mucosa (the delicate lining of the rectum)
- sores, chancres, blisters, lesions or other breaks in the skin due to sexually transmitted infections (STIs, such as syphilis)
- use of recreational drugs during sex
Why are group sex, anal fisting and the use of sex toys risk factors?

Researchers hypothesize that during group sex, men may be more likely to have sex that damages the rectal mucosa, giving HCV a way to enter the bloodstream and cause infection. This damage is similar to what may be experienced with anal fisting or the use of sex toys.

Group sex may be a particularly important risk factor for HCV transmission. If one receptive partner in a group is HCV-positive, then blood containing HCV could be passed to other receptive partners by another participant's fist or penis, or by sharing sex toys. Using a new condom or glove for each new partner will reduce the risk of HCV transmission by reducing the exposure to blood.

Why are STIs risk factors?

Research shows us that having an STI may make a person more susceptible to HCV. There are two possible explanations. First, it may be that the same behaviours that transmit HCV can also transmit STIs. So the association between STIs and HCV may merely be a marker of risky sexual behaviour. Secondly, an STI may allow for the transmission of HCV through the mucosal lesions they can cause. No one is sure why STIs may increase a person's risk for HCV.

Why is the use of recreational drugs a risk factor?

The use of recreational drugs has been linked to high-risk sexual behaviours. This is because drug use can cause disinhibition (a temporary loss of inhibition) and greater sexual arousal, which can, in turn, make people more likely to participate in behaviours that increase their risk for HCV infection. Therefore, the drug use is more a marker for risky sexual behaviours than the cause of the HCV infection.

These risk factors for HCV among HIV-positive MSM (unprotected group sex, anal fisting, STIs the use of sex toys and recreational drugs) do not appear to be risk factors for HIV-negative MSM. We don't know why this is the case. It may be that as a result of HIV weakening the immune system, people become more susceptible to HCV infection, though it is more likely as a result of some HIV-positive gay men engaging in more risky sex than HIV-negative men.

There are a couple of reasons why HIV-positive MSM may be participating in risky sexual behaviours. Firstly, “safer sex fatigue” may have resulted in certain groups of gay men growing tired of hearing about and practicing safer sex. There is also some evidence that since the introduction of highly active antiretroviral therapy (HAART) in the late 1990s, some groups of HIV-positive MSM have engaged in more high-risk sex, perhaps because they believe that treatment reduces the risk of transmitting HIV.

There is also evidence that some groups of HIV-positive MSM practice “serosorting,” which involves two HIV-positive men having unprotected sex, each aware of the other’s HIV status. However, it is not clear if these men are aware of the hepatitis C status of their sex partners. Some researchers argue that social circuits of HIV-positive men that do not use condoms are super-concentrating STIs, which in turn gives rise to hepatitis C outbreaks within these social networks. Finally, there is the added complication of HIV causing the HCV viral load to be higher in someone who is co-infected. This further increases the risk of transmitting HCV when two HIV-positive men have sex without condoms.

Considerations for front-line community workers and healthcare professionals

Effective messaging for communities at risk

Many people may not be aware that hepatitis C can be transmitted sexually. Men living with HIV who choose to have unprotected sex with other HIV-positive partners may be unaware that they are increasing their risk for acquiring other sexually transmitted infections, including hepatitis C. It appears that certain sexual practices (such as group sex, fisting and using sex toys) are particularly high-risk for the transmission of HCV. Some organizations have launched targeted prevention and education campaigns to encourage safer-sex practices and to raise awareness of the risks of HCV in gay and bisexual men living with HIV who engage in high-risk sexual practices. The challenge is to identify who these men are and develop effective messaging that targets these communities.
Ability to talk about risk factors for transmission

It is important that service providers understand the kind of sexual practices that can increase the risk of transmitting hepatitis C, so that they can counsel their clients about how to protect themselves. For example, because fisting is one of the practices that significantly increases a person’s risk of HCV infection, workers should be able to talk knowledgeably and openly with their clients, and be comfortable talking about risk-reduction strategies, such as wearing gloves for fisting, changing gloves between partners and limiting the number of sex partners. (Similar standards should apply to putting condoms on sex toys and changing them between partners.)

Promoting testing and treatment

Service and healthcare providers need to increase HCV testing in men who may be at risk of HCV from sexual transmission. When offering testing for HCV, service providers should also discuss transmission risks and harm reduction strategies. Front-line community workers can play a role in educating and encouraging men living with HIV to test regularly for hepatitis C and other STIs.

Treatment of acute hepatitis C is generally more successful than treatment of chronic hepatitis C, so more rapid access to treatment for acute hepatitis C is critical. If treatment is successful, clients may still need counselling, so they can learn about the importance of practicing safer sex and/or reducing the number of sexual partners to help prevent re-infection with hepatitis C.

Push for more research

Considering that the risks associated with the sexual transmission of HCV are not fully understood, ongoing research in this area is needed. We need to better understand exactly how and to what extent HCV is transmitted sexually and the behaviours that facilitate sexual transmission. By sharing information on programs that successfully encourage people to test regularly for HCV and strategies that help limit high-risk behaviours, we may start to reduce the numbers of HIV-positive MSM who become infected with HCV.

Resources

Hepatitis C—Hepatitis C information and resources

German researchers dig deep to understand how hepatitis C virus is transmitted sexually—CATIE-News

Hep C on the radar—The Positive Side

Poz guys talk to Frank about sex and hepatitis C—Health Initiative for Men (HIM)

Protect yourself and others—Hepatitis C Support Project/HCV Advocate and Project Inform

References

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