

Dear All

Sexual contact is one of the major routes of HIV transmission. The number of people infected by HIV through sexual intercourse is increasing day by day. We should be aware of the risks associated with sexual practices. Given the importance of sexual transmission in the HIV epidemic, many HIV prevention strategies have focused on identifying and promoting safer-sex practices. Today we are sharing with you an article which highlights the risks associated with Specific Sexual Practices.

HIV Risk Associated with Different Types of Sexual Activity

Epidemiologic investigations of HIV transmission provide substantial evidence that some sexual practices are associated with a high risk of HIV transmission, whereas others are not.

Penile-Vaginal Sex

Heterosexual intercourse is presumed to be the most common mode of HIV infection worldwide. Studies of male-to-female and female-to-male transmission provide strong epidemiologic evidence that heterosexual transmission of HIV does occur via penile-vaginal intercourse. Vaginal sex during menstruation may increase the risk of transmission from an infected female to an uninfected male, but probably does not increase the risk of transmission from an infected male to an uninfected female.

The efficiency of heterosexual transmission of HIV and per-act risk of infection are the subjects of debate in the literature. Early studies on heterosexual transmission in Western countries established that male-to-female transmission in the vagina was significantly more likely than female-to-male transmission from the vagina, with estimates in three studies ranging from 1.9, 2.3, and 8.0 times greater efficiency of male-to-female transmission. Per-act infectivity in two studies was found to be low: 0.0005 and 0.0009 for male-to-female transmission, and 0.0003 and 0.0001 for female-to-male transmission. However, studies conducted in developing countries have estimated that per-act transmission probabilities are greater by a factor of 10 for both male-to-female and female-to-male transmission.

Although the greater efficiency of male-to-female versus female-to-male transmission has also been observed in developing countries, a systematic review of the literature found a greatly enhanced efficiency of female-to-male transmission in the high-prevalence epidemics of Asia and sub-Saharan Africa. The ratio of male-to-female summary mean transmission rates in the developing world compared to the rate in Western countries was 2.9, whereas for female-to-male transmission this ratio was 3.41. Women in some developing countries may be more infectious due to higher prevalence of sexually transmitted infections (STIs) and untreated HIV disease; although the authors state that evidence for the relative importance of these factors is unclear. The greater susceptibility of men in developing countries is also difficult explain, and may include a low prevalence of male circumcision, poor genital hygiene, a high prevalence of genital ulcer disease, and a high prevalence of unprotected sex with women having a high probability of being HIV

infected.

Penile-Anal Sex

Strong evidence exists that being the receptive partner in unprotected penile-anal intercourse is associated with a high risk of HIV infection. Transmission of HIV to the receptive partner probably occurs as a result of the deposition of HIV-infected semen on traumatized rectal mucosa. More recently, studies have suggested that exposure to infected pre-ejaculate through anal intercourse may also carry a high risk of transmission. Unprotected receptive anal intercourse (URAI) has been consistently described as an independent risk factor for HIV infection among MSM (men who have sex with men). One recent study estimated the per-act risk of HIV infection from URAI with a partner who is HIV-positive at 0.82% (82 in 10,000) and with a partner of unknown serostatus at 0.27% (27 in 10,000).

Several investigators found that receptive penile-anal sex is also a risk factor for male-to-female transmission. Others failed to find this association among heterosexual couples. Of the latter studies, however, three had small sample sizes, which may have made a relationship between anal sex and HIV infection impossible to detect. It is probable that unprotected anal sex between heterosexual partners carries a similar per-act risk as it would between MSM, with greater risk incurred by the receptive female partner.

Whether being the inserting partner in unprotected penile-anal sex is an independent risk factor for HIV infection is not well understood. Most early studies did not demonstrate a statistically significant association between this practice and HIV infection among MSM. This was not taken as evidence that the behavior was free of risk. One recent study has estimated the per-act risk of unprotected insertive anal sex with an HIV-positive or unknown status partner at 0.06% (6 in 10,000). This risk, although 4-14 times less than that estimated for URAI, remains considerable. The lack of more complete information on the risk of unprotected insertive anal sex reflects the research community's attention to the riskier activity URAI, rather than any consensus that unprotected anal sex has been determined to be of low risk to the insertive partner.

Rectal Douching and Rectal Fisting

Studies of transmission among MSM have revealed that rectal douching increases the risk of HIV infection. A similar association between fisting (penetration of the anus with the hand) and HIV infection was observed in some studies, but not others. One presumptive mechanism for transmission via these practices is that they disrupt the mucosal barrier of the rectum and thus facilitate entry of HIV into the bloodstream during subsequent exposure to infected body fluids. In a large cohort study of MSM, the investigators devised a composite variable called "rectal trauma," composed of enema usage, receptive fisting, report of blood around the rectum, and evidence of scarring, fissure, or fistula on examination. They found that higher rectal trauma scores correlated with increased risk of HIV infection.

Oral-Penile Sex

Oral-penile contact (fellatio) is not an efficient route of HIV infection. Estimating precise per-act risk is difficult because so few people practice oral sex to the exclusion of other, higher-risk sexual activities. Nonetheless, the risk of infection from oral sex is believed to be extremely low. Early male-to-male transmission studies consistently failed to demonstrate an increased risk of HIV infection associated with the practice of oral-penile sex. A more recent study of MSM confirmed earlier findings, and further estimated that on a population level, the risk of HIV infection among MSM that is attributable to oral sex is extremely low. Most studies of male-to-female and female-to-male transmission also failed to show any increased risk of HIV infection associated with oral-penile sex. A cohort study among heterosexual couples at an STI clinic in Spain found no signs of infection attributable to oral sex, supporting the conclusion that HIV transmission via oral-penile sex between heterosexuals was extremely low.

Oral-penile contact is not completely risk free, however a study of per-contact risk of infection to the receptive partner found that the probability of infection was 0.06% with a known HIV-positive partner and 0.04% with partners of unknown status. Although these are low probabilities, the authors suggest that oral-penile sex may play a larger role in the epidemic among MSM as more men adopt these behaviors as risk reduction measures. Several case reports have implicated oral-penile contact as a source of male-to-male transmission. In one study of heterosexual transmission, repeated oral sex was associated with transmission of HIV from men with AIDS to their spouses, although competing risks also showed significant associations in this study. Because so few people practice oral-penile sex to the exclusion of other sexual practices, it is very difficult to recruit and retain subjects for epidemiologic studies of the HIV risk associated with this practice. Only one study was able to do this; another examined monogamous couples whose only unprotected sexual activity was oral sex. No signs of infection were observed in either study. Despite the case reports, the epidemiologic evidence suggests that unprotected oral-penile sex is a low-risk activity.

Oral-genital sex, both oral-penile and oral-vaginal, can transmit STIs other than HIV with varying degrees of efficiency. Receptive oral-penile sex carries the risk of gonorrheal infection for both men and women, and insertive oral-penile sex, although carrying only extremely low, hypothetical risk of HIV infection to the insertive partner, carries a demonstrable risk of urethral gonorrheal infection. Other risks of receptive oral-genital sex include small probabilities of human papillomavirus and hepatitis C transmission. Insertive oral-penile sex is an efficient route for the transmission of herpes simplex virus (HSV). The damage that many STIs cause to mucosa can conceivably increase the likelihood of transmission of HIV through oral sex, although this risk has not been quantified.

Oral-Vaginal Sex

The risk of HIV transmission through oral-vaginal sex (cunnilingus) has received less attention than oral-

penile sex. There have been case reports of female-to-male and female-to-female transmission of HIV infection via oral-vaginal sex. One study found an association between oral-vaginal sex and female-to-male transmission of HIV, although competing risks also showed significant associations in this study. As with oral-penile sex, conducting an epidemiologic study that can examine oral-vaginal sex in the absence of competing HIV risk behaviors is difficult, and no such studies have been reported. However, all studies that have controlled for competing risk behaviors have concluded that oral-vaginal sex is extremely low risk.

Oral-Anal Sex

Although oral-anal contact is not an independent risk factor for HIV infection based on data from male-to-male transmission studies, it may be a marker for other high-risk sexual practices. Analysis showed an increased risk of HIV infection associated with oral-anal sex. Oral-anal sex has been shown to be a route of transmission for hepatitis A and B, and parasitic infections such as giardiasis and amebiasis

Noman Farooq

Senior program Associate

PNAC Resource Centre

PAKISTAN NATIONAL AIDS CONSORTIUM

Phone: +92 51 4100935 / 4432094

Fax: +92 51 4100935

Address: H.No 441, Street 57, I-8/3 Islamabad Pakistan

Email: resourcecentre@pnac.net.pk

URL: <http://www.pnac.net.pk>

<http://www.aidspnac.org>