Note

Detection of Human Immunodeficiency Virus Antibody Among Homosexual Men From Bombay

JAYASHREE NANDI, MSc, PHD, HEMANT KAMAT, MSc, VARSHA BHAVALKAR, MSc, AND KALYAN BANERJEE, MBBs, PHD

From the National Institute of Virology, Pune, India

Background and Objectives: **In India, heterosexual transmission of HIV-infection is considered to be the major mode of transmission. However, no report is available on transmission of HIV-infection among homosexually active men. The prevalence of human immunodeficiency virus-1 (HIV-1) and human immunodeficiency virus-2 (HIV-2) infections among homosexual men from Bombay is discussed.**

Goal of the Study: **To determine the extent of presence of anti-HIV-1, anti-HIV-2 antibodies, or both anti-HIV-1 and anti-HIV-2 antibodies among homosexual men in India.**

Study Design: **Sixty-three blood samples were collected from two STD clinics of Bombay over a 6-month period from men with a history of homosexual behavior who were asymptomatic for HIV-infection. The mean age of the subjects was 31.6 years. For serological detection anti-HIV-1 antibody ELISA was used as the primary screening test followed by Western blot to confirm the results. For distinction between anti-HIV-1 and anti-HIV-2 antibody, line immunoassay was used. The sexually transmitted diseases (STDs) were diagnosed clinically, although Venereal Disease Research Laboratory (VDRL) tests were carried out as a routine test for screening STDs. For detection of gonorrhea, Gram stains of urethral smear were done routinely.**

Results: **From the 63 blood samples tested, 10 samples were reactive by ELISA for HIV-1 infection, and three samples were borderline reactive. These three samples were found to be reactive for anti-HIV-2 by the line immunoassay. The above 10 samples were also positive by Western blot for anti-HIV-1 antibody. Two blood samples were positive for both anti-HIV-1 and anti-HIV-2 antibodies. Using clinical diagnosis as the criteria, the different types of STD among the 63 subjects were as follows: condylomata (22), herpes (20), gonorrhea (15), candidiasis (3), and syphilis (3). However with VDRL, seven subjects were found to be reactive. Gram stains indicated gonorrhea in all the 15 subjects.**

Conclusions: **This study reports for the first time the homosexual transmission of both HIV-1 and HIV-2 infections in India, although heterosexual transmission still is the major mode of transmission of the infection. The associated incidence of STDs among these men and that a few of these subjects were bisexual make them at high risk for transmission of HIV infection.**

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Reprint requests: Jayashree Nandi, National Institute of Virology, 20-A, Dr. Ambedkar Road, PUNE 411 011 India.

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HETEROSEXUAL TRANSMISSION IS reported to be the most common mode of transmission of HIV infection in India.[1] However, there is not much literature available on homosexuality in the Indian subcontinent in terms of actual sexual practices and associated risks for HIV transmission. In a recent report[2] male homosexuality was found to be not uncommon in India. Despite the reported reluctance of homosexual men to admit relationship with the same sex, there are records of a high proportion of homosexual patients at Indian STD clinics. These data suggest that homosexual men are at a relatively high risk for sexually transmitted infections.[3] A substantial number of male homosexuals live in the metropolitan cities of India[4,5,6] particularly in Bombay.[7] Many of these men also are bisexual.[1] This study concerns the incidence of anti-HIV-1 and anti-HIV-2 infection in blood samples collected from 63 homosexual men from two STD clinics of Bombay over a 6-month period.

Patients and Methods

Patients

Blood samples collected from 63 homosexual men who were asymptomatic for AIDS were included in the study. All the subjects also had a history of STD. The most common STDs diagnosed clinically were condylomata, herpes, syphilis, gonorrhea and candidiasis. When asked, the men admitted to having anal and oral intercourse. Seven of them were bisexual and also had vaginal intercourse. All the men reported a history of practicing unprotected sex. The age of the men ranged from 19 to 46 years with a mean age of 31.6 years. The average change of partners per week was two to three, suggesting a high degree of promiscuity.

TABLE 1. The STD Diagnosis and HIV Seropositivity in Homosexual Men From Bombay

SGTD	n	HIV-1 ELISA (Vironostika)	HIV-1 WB (Du Pont)	HIV-1 WB (LIATEK)	HIV-2 WB (LIATEK)	HIV-1 + HIV-2 (LIATEK)
Condylomata	22	8	8	7	—	2
Herpes	20	1 + (2*)	1	1	2	—
Gonorrhoea	15	(1)*	—	—	1	—
Candidiasis	3	—	—	—	—	—
Syphilis	3	1	1	1	—	—

* ELISA borderline positive; HIV-1 Du Pont WB positivity denotes the presence of p17, p24, p31, gp41, p51, p55, p66, gp120 and gp160; HIV-1 LIATEK WB positivity denotes the presence of p17, p24, p31 and gp41; HIV-2 LIATEK WB positivity denotes the presence of gp36 band only; HIV-1 + HIV-2 LIATEK WB positivity denotes the presence of all the bands of HIV-1 and HIV-2 viz. p17, p24, p31, gp41 and gp36.

Methods

The samples were routinely tested by VDRL. The STDs were diagnosed on the basis of clinical investigation. Gram stains of urethral smear confirmed gonorrhea. Using clinical diagnosis as the criteria, the different types of STDs in 63 subjects were condylomata (22), herpes (20), gonorrhea (15), candidiasis (3) and syphilis (3). The samples were also subjected to ELISA for detection of HIV-1 using Vironostika (Organoteknika, Holland). This was followed by subjecting the samples to Western blot test for HIV-1 (Du Pont, Wilmington, DE). The samples were tested for HIV-1 and HIV-2 using Liatek kit (Organon Teknika, Turnhout, Belgium).

Results

Seven samples were found to be reactive by VDRL. Of these, three samples were from patients who were clinically diagnosed as syphilis, three as herpes and one as gonorrhea. Clinically, the largest number of individuals (22) were suffering from condylomata acuminata infection followed by herpes (20), gonorrhea (15), candidiasis (3) and syphilis (3). The number of patients infected by HIV-1 (10) and HIV-1 and HIV-2 (2) infections was also high among the patients with condylomata infection. Among patients suffering from herpes infection, two tested positive for HIV-2 antibody and one tested positive for HIV-1 antibody. Among the patient with syphilis, one tested positive for HIV-1 antibody.

Ten samples were reactive for HIV-1 antibody by ELISA. The three samples that were borderline reactive for HIV-1 by ELISA also were positive for HIV-2 antibodies by the line immunoassay using the Liatek kit. These samples were negative for HIV-1 antibodies by Western blot using both Du Pont and Liatek kits. In an earlier study[8] a similar finding was reported from a heterogenous group of individuals with high-risk behavior that did not include homosexual men. The ELISA borderline cases for HIV-1 antibodies were indeterminate by Western blot for HIV-1 antibodies.[8] In this study, the three ELISA borderline cases were negative by Western blot for HIV-1 using both Du Pont and Liatek kits but appeared to be positive for HIV-2.

Discussion

Although the most common mode of transmission of HIV infection in India is reported to be the heterosexual transmission, this study suggests that homosexual transmission of HIV infection is not uncommon in a metropolitan city like Bombay. This is the first report from India to show that HIV infection is also transmitted by homosexual mode of transmission. Unprotected anal intercourse in the homosexual men was a common unsafe sexual act. Because some of the men were also bisexual, it suggests the spread of HIV from heterosexual to homosexual contacts and vice versa. The study indicates the presence of HIV-1 infection among the homosexual men and that of HIV-2, particularly in patients with condylomata infection. Among the STD patients studied the largest proportion of patients had condylomata infection, followed by herpes, gonorrhea, syphilis and candidiasis, using clinical diagnosis as the criteria.

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