

Short Communication

Human Immunodeficiency Virus Seroprevalence among Patients Attending a Sexually Transmitted Disease Clinic in West Bengal, India

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(Received March 23, 2012. Accepted May 30, 2012)

SUMMARY: Sexually transmitted infections (STIs) such as human immunodeficiency virus (HIV) infection have become a major public health problem globally as well as in India. Prevalence of STIs varies across different high risk groups including the population with sexually transmitted diseases (STDs). Individuals with STDs are at a higher risk of acquisition of HIV through the sexual route than the other routes. The tendency of HIV infection was studied in attendees aged 15–49 years in an STD clinic in West Bengal from 2004 to 2008. Blood samples were collected consecutively from 250 attendees per year (a total of 1,250 samples over 5 years) from an STD clinic during 12 weeks (October–December) every year. HIV sero-status was screened using ELISA, and positive samples were subjected to rapid assay and confirmed by Western blot. Overall HIV seropositivity in STD patients was 1.28% (women, 1.04%; men, 1.48%). Data from 5 consecutive years showed a prominent decline from 2.40% (2004) to 0.0% (2007) and a minor increase (1.6%) in 2008, which was not statistically significant ($\chi^2 = 4.6$, $df = 4$, $P > 0.05$). The highest seroprevalence (1.66%) was observed in the 25–29 age group, and the lowest (0.87%) was observed in the 40–44 age group. The overall decreasing tendency of HIV infections signifies the efficiency of current interventions. Focused intervention for the 25–29 age group may help in decreasing HIV infections further.

Human immunodeficiency virus (HIV) is one of the most important sexually transmitted pathogens and a major public health concern for sexually transmitted infections (STIs) globally (1–5). An estimated 34 million (31.6–35.2 million) people worldwide were living with HIV infection and/or AIDS at the end of 2010 (6). Globally, approximately 2.7 million (2.4–2.9 million) people were newly infected in 2010 (6) as compared to approximately 2.6 million (2.3–2.8 million) new infections in 2009 and 3.1 million (2.9–3.4 million) in 1997; this indicates a declining trend of new HIV infections (7). Moreover, a decreasing trend in individuals with HIV and/or AIDS as well as a decline in new HIV infections was observed in 33 countries (7). However, an earlier report reveals a significant increase in the rate of sexually transmitted diseases (STDs) as well as HIV infections in STD populations (8,9); further, more individuals among the urban population were affected by HIV than those among the rural population (1,8). Additionally, HIV seroprevalence varied with the marital status of the attendees (1,8). The HIV infection rate in 2009 varied significantly in different countries globally as follows: 5.0%, sub-Saharan Africa; 0.2%, North Africa and the Middle East; 0.3%, South and South-East Asia; 0.5%, North and South America; 0.8%, Eastern Europe and Central Asia; and 0.2%, Western and Central Europe (7). In India, HIV infections

emerged in the mid 1980s, and there was a rapid increase in its incidence and prevalence (10). Unprotected sex is the major route of HIV transmission, and it contributes to approximately 88.7% (87.4% heterosexual and 1.3% homosexual) of the estimated HIV infections in India (11).

In 2009, the National AIDS Control Organization (NACO) estimated that 2.39 million (1.93–3.04 million) people were living with HIV infections and/or AIDS in India, with the estimated new infections and adult prevalence being 0.12 million and 0.31%, respectively (11,12). In India, among patients attending an STD clinic, seropositivity of HIV was estimated to be 1.4%–14% with a higher incidence observed among commercial sex workers (CSWs) than the non-CSWs in 1995 (13). It has been reported that there is a high prevalence of HIV transmission among high-risk populations of CSWs, patients at STD clinics, intravenous drug users, and commercial blood donors in India (14); moreover, a high incidence of HIV infections was observed in STD clinic attendees (15,16). Earlier reports have estimated that HIV seropositivity among STD clinic attendees in Calcutta, West Bengal (17–19) during 1988–2000 was approximately 1.3%–2.3%; however, there are no reports on the current scenario.

The present study aims to understand the occurrence of HIV in both male and female patients of different age groups attending an STD clinic of West Bengal.

Blood samples from 250 attendees were collected within a time span of 12 weeks (October–December) every year from 2004 to 2008 (total, 1,250 samples) in a consecutive manner, and an unlinked anonymous testing strategy was followed. An aliquot of unused serum was taken and given only a code number such that there

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Table 1. Seropositivity of HIV infection in 5 years (2004–2008)

Year	Sex				Total no. (%) positive
	Male		Female		
	No. of samples tested	No. (%) positive	No. of samples tested	No. (%) positive	
2004	144	2 (1.39)	106	4 (3.77)	6 (2.40)
2005	190	4 (2.11)	60	2 (3.33)	6 (2.40)
2006	131	0 (0.00)	119	0 (0.00)	0 (0.00)
2007	123	0 (0.00)	127	0 (0.00)	0 (0.00)
2008	86	4 (4.65)	164	0 (0.00)	4 (1.60)
Total	674	10 (1.48)	576	6 (1.04)	16 (1.28)

was no identifier, ensuring that the test for HIV was unlinked. All of the consecutive new patients (persons that have attended the STD clinic once in the study period) having some specific clinical symptoms such as genital ulcers, urethral discharge, cervical discharge, and anogenital warts met the inclusion criteria and were enrolled in this study. The enrolled group was aged 15–49 years and included 674 (53.9%) men and 576 (46.1%) women.

The screening assay for HIV was performed using ELISA (Microlisa HIV; J. Mitra & Co., New Delhi, India) followed by the rapid (HIV Tri-Dot; J. Mitra & Co.) test performed with ELISA positive sera; Western blot (NEW LAV BLOT 1; Bio-Rad Laboratories, Hercules, Calif., USA) was performed as a confirmatory assay. Ethical approval was obtained as per HIV Sentinel Surveillance of NACO, New Delhi.

Out of 1,250 samples collected, 20 (1.60%) were found to be positive by ELISA, which was a sensitive screening assay. These positive samples were further tested by a specific rapid test. HIV sero-status was finally confirmed by Western blot assay. Finally, 16 (1.28%) individuals were found to be seropositive (men: 10, 1.48%; women: 6, 1.04%) by both rapid and Western blot assay with a statistically insignificant difference between male and female individuals ($\chi^2 = 1.0$, $df = 1$, $P > 0.05$) and the results are documented in Table 1. All positive sera were found to be HIV-1 reactive; none were found to be HIV-2 reactive. Seroprevalence of HIV among STD patients showed a sharp decline from 2.4% (2004) to 0.0% (2007) and a minor increase (1.6%) in 2008, which was not statistically significant ($\chi^2 = 4.6$, $df = 4$, $P > 0.05$). The highest decline was found to be in 2006 (2.4%–0.0%). Moreover, among the female attendees, the tendency of HIV seroprevalence decreased from 3.77% (2004) to 0.0% (2008), which was statistically significant ($\chi^2 = 10.7$, $df = 4$, $P < 0.05$). Among the men, seroprevalence initially increased insignificantly ($\chi^2 = 0.1$, $df = 1$, $P > 0.05$) from 1.39% (2004) to 2.11% (2005) and then decreased from 2.11% (2005) to 0.0% (2007), which was statistically insignificant ($\chi^2 = 4.2$, $df = 2$, $P > 0.05$); this was followed by a significant increase ($\chi^2 = 4.6$, $df = 1$, $P < 0.05$) in 2008 (4.65%).

Table 2 shows the seroprevalence of HIV in STD clinic attendees of different age groups. The prevalence was highest (1.66%) in the 25–29 age group followed by the 20–24 (1.29%), 45–49 (1.11%), 30–34 (1.06%), 35–39 (1.06%), and 15–19 (0.95%) age groups. The lowest

Table 2. Seropositivity of HIV infection among different age groups

Age group	Total no. of samples tested	Male		Female		Total no. (%) positive
		No. of samples tested	No. (%) positive	No. of samples tested	No. (%) positive	
		15–19	133	56 (1.79)	77	
20–24	233	143 (2.14)	90	1 (1.11)	3 (1.29)	
25–29	301	195 (2.13)	106	3 (2.83)	5 (1.66)	
30–34	189	107 (1.87)	82	0 (0.00)	2 (1.06)	
35–39	189	81 (1.23)	108	1 (0.93)	2 (1.06)	
40–44	115	45 (2.22)	70	0 (0.00)	1 (0.87)	
45–49	90	47 (2.13)	43	0 (0.00)	1 (1.11)	

prevalence was observed in the 40–44 age group (0.87%). Moreover, this difference among the age groups was found to be statistically insignificant ($\chi^2 = 0.36$, $df = 6$, $P > 0.05$). Analysis by the χ^2 test was performed to study the trends.

The present study revealed a decreasing seroprevalence of HIV in 4 consecutive years (2004–2007) with a minor increase in 2008 and an overall seropositivity of 1.28% (range by 5 consecutive years, 2.4%–1.6%) in STD clinic attendees, which is lower than the observed seroprevalence of 2.3% in West Bengal (19) and 2.25%–3.2% in Calcutta (18) among the STD population. None of attendees were found to be HIV positive in 2006 and 2007. The decline of seroprevalence between 2004 and 2007 could be caused by targeted prevention and management of STIs and improvement of treatment opportunities available in the STD clinics. The male to female ratio for HIV seroprevalence is 1.5:1 as compared to the 1:1 ratio observed for syphilis among the same study participants (20) with a concomitant HIV and syphilis seropositivity in 2005. Additionally, association of HIV with STDs was found to be significant in some earlier reports (21–23).

However, a significant increase in HIV prevalence among men in 2008 reveals an acute need for a continued expansion of HIV and syphilis screening programs along with the implementation of effective targeted intervention strategies that could play an important role in reducing the HIV infection in this high risk group.

Acknowledgments We acknowledge NACO, New Delhi and West Bengal State AIDS Prevention and Control Society for partially supporting the study.

Conflict of interest None to declare.

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