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HIV/AIDS in Bangladesh: a national surveillance

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Summary

Nationwide surveillance of HIV/AIDS from 1989 through 1996 in Bangladesh included several risk groups such as professional blood donors, patients with sexually transmitted diseases (STDs), pregnant women at antenatal clinics, commercial sex workers (CSWs), patients with tuberculosis, long-distance truck drivers, sailors, and non-residents. The population was enrolled by convenience sampling after taking informed consent. Among 70,676 persons tested, 80 (1.13 per 1000) were HIV positive. The prevalence rate was steady until 1994, and then increased rapidly. The rate among male heterosexuals was significantly higher than that in females (3.40 per 1000 versus 0.29 per 1000; odds ratio (OR) 11.60; 95% confidence intervals (CI) 6.45 to 21.16; $P < 0.0001$). Twelve per cent of patients with STDs had HIV. The HIV cases concentrated in 2 districts, Sylhet (25/72) and Chittagong (20/72), that border India and Myanmar (formerly Burma), respectively. Frequent movement of people of Bangladesh to India, Pakistan, Myanmar and Thailand, where HIV rates are higher, is one of the possible sources of spread of the cases. Bangladesh has the potential to avert epidemic spread of HIV at its early stage.

Keywords

HIV/AIDS; prevalence; serosurveillance; STDs; Bangladesh

INTRODUCTION

The present pandemic of human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) has affected at least 169 countries in the world having a total of 30.6 million cases and 11.7 million deaths, as of December 1997¹. The infection is rapidly rising in some Southeast Asian countries including Thailand, Myanmar and India^{2,3}. According to the World Health Organization, Bangladesh is one of the pattern III countries for HIV/AIDS epidemic, meaning that the infection has not reached one adult per 1000 in that country⁴. Nevertheless, several factors make Bangladesh clearly at risk of the spread of HIV: (a) physical proximity of the country with India and Myanmar where the prevalence of HIV/AIDS is high; (b) frequent visits of the people of Bangladesh to neighbouring countries; (c) the combination of a high rate of illiteracy and poverty, and (d) a high rate of STDs in urban Bangladesh. Possibly, religious and social restrictions in sexual practices and some other factors may impede the rapid spread of the disease in Bangladesh. In fact, data are still scarce to quantify the disease

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burden precisely in that country. This report presents the findings of a national surveillance for HIV/AIDS in Bangladesh.

MATERIALS AND METHODS

The National Committee on AIDS was formed under the Ministry of Health and Population Control, Bangladesh in April 1986. This committee initiated a programme of HIV diagnosis using particle agglutination test and a confirmatory test using enzyme linked immunosorbent assay (Abbott, Chicago, USA) in laboratories of 5 national medical institutions in Dhaka. The Institute for Epidemiology, Disease Control and Research began a programme of surveillance of HIV/AIDS among a cross-section of people in Dhaka in 1989. The surveillance programme was expanded nationwide including Chittagong, Jessore, Sylhet, Khulna, Rajshahi, Mymensingh, Comilla, and other major districts in 1994. The population included several risk groups such as professional blood donors, patients with STDs, pregnant women at antenatal clinics, CSWs, patients with tuberculosis, long-distance truck drivers, sailors, and non-residents of Bangladesh. The population was enrolled by convenience sampling after taking informed consent. All blood samples were made anonymous by removing the identification of the subject before testing for HIV.

RESULTS

Among 70,676 persons tested from 1989 through 1996, 80 were HIV positive, with a cumulative seroprevalence of 1.13 per 1000 tests. There was a slow rise in the rate of seropositivity until 1994, and then the rate increased rapidly (Figure 1). It is noteworthy that the surveillance programme was expanded nationwide following 1994. The mean age of the positive cases was 32 years (range, 16 to 56 years). The rate of seroprevalence was significantly higher among males (67/19,695; 3.40 per 1000) than females (15/50,981; 0.29 per 1000) (OR 11.60; 95% CI 6.45 to 21.16; $\chi^2=118.39$; $P<0.0001$). The rate among males increased significantly in 1995 (14.7 per 1000; OR 8.93; 95% CI 4.31 to 18.21; $P<0.0001$) and in 1996 (28.0 per 1000; OR 17.24; 95% CI 9.77 to 30.35; $P<0.0001$) compared to the rates from 1989 through 1994 (Figure 1).

Among the positive cases, 4 were unidentified and 4 were foreign nationals (Europeans). Among the remaining 72 subjects, the majority of cases were identified from Sylhet (25), Chittagong (20), Dhaka (12), Noakhali (4), Mongla (2), Jessore (2), and Rajshahi (2) (Figure 2). Fourteen persons were repatriated Bangladeshi nationals. CSWs, long-distance truck drivers, patients with STDs and sailors comprised the majority of the cases with a known occupation or history of illness. Among the HIV-positive subjects, 10 were symptomatic probable AIDS in 1996.

DISCUSSION

This report confirmed that the prevalence of HIV/AIDS in Bangladesh was low until 1994, and then it increased dramatically during 1995 and 1996, especially among the male subjects. To our knowledge, this is the first report from a nationwide surveillance of HIV in Bangladesh since 1991, when the first case of AIDS was reported in a Bangladeshi citizen⁵. Two other point-prevalence studies limited to selected population — one, among 296 CSWs in Dhaka and the other, among 198 patients from STD clinics in Chittagong showed a prevalence of 0% and 5% of HIV, respectively^{6,7}. The observed increase in the rate of HIV after 1994 could be an artefact, since the period corresponded with the expansion of the surveillance programme throughout the nation.

The route of transmission of infection in Bangladesh is largely unknown. Frequent movement of the population of Bangladesh in neighbouring countries where HIV rates are high may be an important source of entry of cases. Among these neighbouring countries, the rate of HIV is highest in Thailand, especially in the upper north^{8,9}. India is in the phase of rapidly rising prevalence of HIV with an estimated 4 million cases. Most cases in India are reported from Moombai (Bombay), the largest seaport, Pune (near Moombai), Tamil Nadu, the south coastal province, and Manipur, the province bordered by Myanmar^{10–13}. However, the number of cases varied from none to an increasing figure in other states^{14–17}. In Myanmar, HIV infection among sex workers increased from 4% in 1992 to more than 20% in 1996¹. The bulk of the disease has been in injecting drug users in Myanmar¹⁸.

We identified a few hot spots of HIV cases in Bangladesh. Most of them were from 2 districts, namely Sylhet and Chittagong. The scenic beauty of these 2 districts has attracted tourists for many years. The people of Sylhet are traditionally engaged in trade, and many make visits to London, UK. Sylhet has the nation's second international airport, and the district shares its northeast border with India. Chittagong, the largest seaport in the country, is situated near Myanmar's northwestern border (Figure 2). Also, Sylhet and Chittagong have the largest inhabitants of tribal population who differ largely in terms of sociocultural behaviour and practices from the rest of the country. The other districts with higher prevalence of HIV were Mongla, the second largest seaport, and Jessore and Rajshahi, the latter 2 districts being bordered by India at the west and northwest, respectively (Figure 2). Interestingly, cases of HIV/AIDS largely concentrated along seaports in India (Moombai)¹⁰, Pakistan (Karachi)^{19, 20} and Bangladesh (Chittagong).

Prevalence of HIV was highest among male heterosexuals and long-distance truck drivers in our study. Heterosexual men are most likely to be infected through unprotected sex with CSWs, either within the country or in the neighbouring countries. Many young men of the affluent society in Bangladesh visit India, Myanmar or Thailand for so-called sex tours. Commercial traders or buyers commonly travel to India and Thailand. Also, there are approximately 100,000 CSWs in Bangladesh. Most brothels are located in places of business interest and close to the tourist spots. Another class of sex workers is the so-called 'society girls' who are used as bribes for foreign business deals. These informal part-time sex workers are completely clandestine except to their limited client pool. It is worth noting that approximately 12% of CSWs from Bangladesh crossed the border into India and engaged in prostitution in Calcutta²¹. A very low rate of condom usage (1% to 21%) among the clients of CSWs, and the low literacy of CSWs were observed as being risk factors for the transmission of HIV and other STDs in several studies^{6,7,12,21,22}. Among the long-distance truck drivers in our survey, 60% had sex with CSWs at least twice a month, and they almost always had sex without using a condom.

The risk of HIV among the people who had STDs was 12% in our study. The scientific evidence is now quite conclusive that other STDs increase the risk of contracting HIV. Ulcerative genital diseases, such as syphilis, chancroid, and genital herpes were found to be associated with HIV in 31% of cases in Moombai (Bombay), and in 24% of cases in Pune, India^{10,11}. A high rate of STD and its inadequate treatment were associated with the risk of HIV in Pakistan¹⁹. A previous study in Bangladesh showed a high prevalence of syphilis (57%, 169/296), and chlamydia or gonorrhoea (28%, 82/296) in CSWs⁶. However, none of them were found to be HIV positive. In another study, 9 of 89 patients with a history of STD had HIV infection⁷.

Transfusion of unscreened or improperly screened blood could be another important route of transmission of many diseases, including HIV, in Bangladesh. In a study in Pakistan, only 5–10% of the blood transfusions in government hospitals were found to be properly screened¹⁹. Improper screening is common in private blood banks where paid blood donors give blood repeatedly. Rates of HIV among injecting drug users in Myanmar were found to be the highest

in the world — 74% in Rangoon, 84% in Mandalay and 91% in Myitkyina¹⁸. The rate of HIV among intravenous heroin users was also high (23%) in Manipur and some other districts of India which bordered Myanmar at the northeast^{13,23}. In contrast, injecting drug use is relatively uncommon in Bangladesh, and, if present, must be limited among a few affluent people.

The results of our study suggested that the prevalence of HIV/AIDS is just beginning to increase in Bangladesh. Notwithstanding, one in every 1000 adults in the sexually active age (15–49 years) may now be HIV infected in Bangladesh. In 1997, approximately 61,360,000 people fell within this age group¹ which translates into an estimated 61,360 cases of infection. However these numbers were based on the tested cases, and systematic surveillance of the population is needed to obtain an accurate estimate of HIV infections.

Bangladesh has the greatest potential to avert epidemic spread of this disease at its beginning. Several success stories in developing countries in preventing the spread of HIV may be useful to the context of Bangladesh and other countries. Thailand is an example where the rapid spread of HIV and STDs has been hindered by active preventive programmes^{24,25}. The HIV/AIDS epidemic which broke out in Thailand in 1988 was mainly caused by the widespread patronage of prostitutes. The Thai authorities responded with programmes which included a policy of 100% condom use in brothels, and mass media campaigns offering young women better educational and vocational opportunities to keep them out of the sex industry. An increase in condom use in brothels in Moombai decreased the transmission of HIV and STDs²⁶. Senegal is another example where the rate of HIV has been contained below 2% by adopting preventive measures such as sex education into the primary and secondary school curriculum, treatment of STDs, and universal promotion of the use of condoms¹. Political and religious leaders in Senegal also took initiatives in preventive activities. Truck drivers and CSWs constituted the bulk of the cases of HIV in Nepal¹. A vigorous campaign to inform truck drivers and sex workers of the risk of unprotected sex, and the provision of condoms successfully reduced the risk of infection in Nepal. Improved treatment of STDs decreased HIV infection in Tanzania²⁷. School-based educational programmes in India have been successful despite early opposition²⁸.

Bangladesh, being an Islamic country, should take advantage of engaging religious leaders called 'Imams' and other sectors of society in active prevention programmes focusing on campaigns for safe sexual behaviour, delaying sexual relations, and using fewer partners. Since most rural people get their health care primarily through untrained village practitioners and traditional healers, these health workers and the religious leaders should be trained in the prevention of HIV and STDs. The political will to finance and enforce often costly HIV/AIDS programmes and policies must be robust and stalwart. Such initiatives as the periodic screening of risk groups including patients with STDs, CSWs, and long-distance truck drivers; the treatment of STDs; the universal screening of blood and blood products; and the availability of condoms are indispensable if the disease is to be controlled at its early stage in Bangladesh.

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Figure 1.
Prevalence of HIV in Bangladesh from 1989 through 1996

Figure 2.

A spot map of HIV-positive cases by district of residence in Bangladesh