



Received on 02 March, 2013; received in revised form, 01 May, 2013; accepted, 22 June, 2013

PREVALENCE OF HIV INFECTION IN EAST REGION OF INDIA

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Keywords:

AIDS, HIV, Lymphocytes, ELISA

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ABSTRACT: AIDS is syndrome of a set of disease, which is caused by HIV I and II. These viruses mainly destroy the lymphocytes which play a major role in our body immune system. Till now, there is not taken exactly prevention on this virus. Although some antiviral drugs are produced which make a preventive barrier out of the lymphocytes cells of patient's blood but there is no way to kill the virus properly. The present work was carried out to find the prevalence of HIV in East Region of India. A total 717 patients were screened for the presence of HIV in their blood by various ELISA methods. It has been concluded that out of 717 patients 219 patients were infected with HIV and in between 15 to 45 ages, the infection rate is high both in male and female as increasing their age and increasing to their age the infection rate of HIV of male is increases where as female is decreases. So prevalence of HIV is an emerging reality in East Region of India among middle age and male persons.

INTRODUCTION: According to the United Nations Joint Program on HIV/AIDS (UNAIDS), at the end of 2010, an estimated 34 million people with AIDS living within the world¹. The highest number of patients (22.9 million) is reported from sub-Saharan Africa (31.6-35.2 million)².

India harbours the third largest number of HIV infected individuals in the world. India, with more than 1 billion residents, is considered to be one the most thickly populated countries in the world. Amongst them, about 2.4 million are presently suffering from Human Immunodeficiency Virus (HIV).

Though as per the Aids Report 2011 published by the United Nations, new HIV infectivity in India has declined at the rate of 50 % during the past 10 years. Several States in India have now reported the presence of HIV-2 after the first case was reported from Mumbai in 19914.

The 2006 estimates indicate that the epidemic has stabilised or seen a drop in Tamil Nadu and other southern states with a high HIV burden. Yet, new areas have seen a rise in HIV prevalence, particularly in the northern and eastern regions.

Twenty-six districts have been identified with high prevalence, largely in the states of Madhya Pradesh, Uttar Pradesh, West Bengal, Orissa, Rajasthan and Bihar³.

In case of East Region of India there are a host of social, cultural and economic factors that influence the spread of HIV infection and increase the vulnerability of the epidemic.

QUICK RESPONSE CODE 	DOI: 10.13040/IJPSR.0975-8232.4(7).2794-98
	Article can be accessed online on: www.ijpsr.com

Poverty is associated with weak endowments of human and financial resources – low levels of education with associated low levels of literacy and few marketable skills, generally poor health status and low labour productivity as a result. A crucial aspect of the health status of the poor is the high prevalence of undiagnosed and untreated sexually transmitted infections – STIs (or sexually transmitted diseases – STDs), a significant co-factor in HIV transmission. EAST REGION OF INDIA shares international borders with Bangladesh, Bhutan and Nepal.

A range of socio-economic factors in the region along with weak regulatory measures have led to burgeoning human trafficking across these borders, particularly in women and children. East region of India is both a destination and a conduit for trafficking in humans, many of whom face sexual exploitation. There is also a source of human trafficking bound for western India and beyond Indian shores to West Asia.

Trafficking and sexual exploitation constitute a potent combination that facilitates the spread of HIV in the region⁴.

The present study undertaken at Calcutta School of Tropical Medicine, Kolkata was aimed to find the prevalence of HIV among the different age groups of East Region of India.

MATERIAL AND METHODS: All patients who donated blood at the Calcutta School of Tropical Medicine, Govt. of West Bengal, Kolkata-700073 (The Centre of Excellence in HIV-Certified by NACO) were included in the study. The donors were age group 1-60 yr. All donors were subjected to a pre-test counselling which was done by qualified staff trained to screen donors.

The donor blood samples were collected and tested for the presence of HIV using enzyme linked immunosorbent assay (ELISA). Here rapid ELISA, (SDHIV-1/23.0), SIMPLE ELISA (HIV Comb), indirect ELISA (Microlisa HIV micro well) and Sandwich ELISA (4TH GENERATION HIV Ag & Ab test where recombinant proteins gp41, C terminus of gp120, and gp 36 for HIV-1 and HIV-2 representing immunodominant epitopes and P24 antibodies are coated into microtiter wells were used

for testing purpose provided from J. Mitra & Co Pvt. Ltd.

RESULTS: A total of 717 patients were screened for the presence of HIV in their blood. Out of 717 patients 152 donors were male and 67 donors were female. (Table 1, Figure 1).

TABLE 1: SHOWING TOTAL NUMBER OF INFECTED MALE AND FEMALE PATIENTS

Gender	Number HIV infected patients (n=219)
Male	152 (69.40%)
Female	67(30.59)

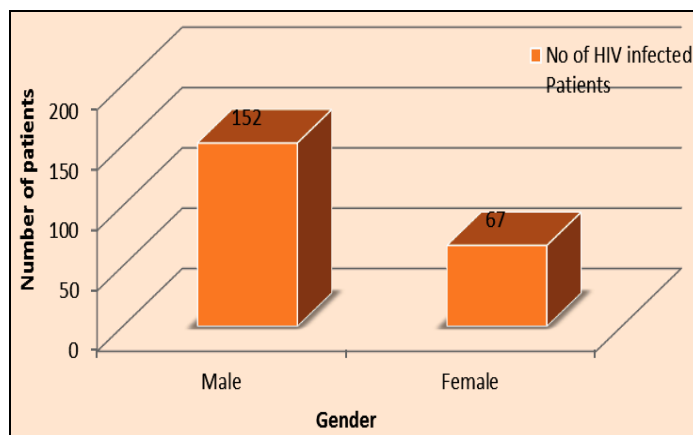


FIG. 1: GRAPHICALLY REPRESENTATION OF HIV INFECTED MALE AND FEMALE AMONG TOTAL NUMBER OF PATIENTS

TABLE 2: SHOWING THE HIV INFECTED PATIENTS AMONG TOTAL NUMBER OF PATIENTS ACCORDING TO VARIOUS AGE GROUPS

Age group	Number of patients	HIV infected patients
0-15	93	12(12.90%)
16-30	354	75(21.18%)
31-45	237	126(53.16%)
46-60	33	6(18.18%)

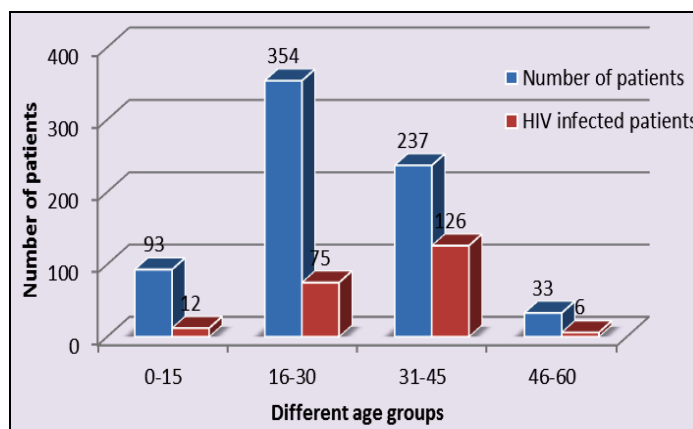


FIGURE 2: DISTRIBUTION PATTERNS OF HIV INFECTED PATIENTS AMONG DIFFERENT AGE GROUPS

TABLE 3: SHOWING THE TOTAL NUMBER OF MALE HIV INFECTED PATIENTS AMONG NUMBER OF HIV INFECTED PATIENTS ACCORDING TO VARIOUS AGE GROUPS

Age group	Number of HIV infected patients	HIV infected male patients
0-15	12	5(41.66%)
16-30	75	39(52%)
31-45	126	102(80.95%)
46-60	6	6(100%)

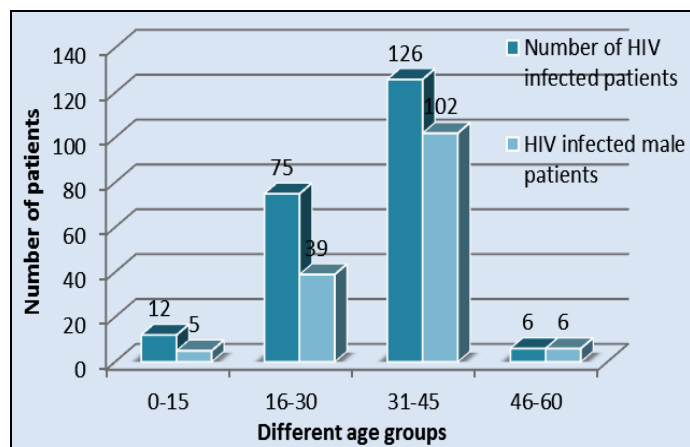


FIGURE 3: GRAPHICAL REPRESENTATION OF TOTAL NUMBER OF MALE HIV INFECTED PATIENTS AMONG NUMBER OF HIV INFECTED PATIENTS ACCORDING TO VARIOUS AGE GROUPS

Among 0-15 age group 12 were reactive out of 93 donors. In case of 16-30 age groups 75 were reactive out of 354 donors. In between 31-45 age groups 126 were reactive out of 237 donors and last in between 46-60 age groups 6 were reactive among 33 donors. (Table 2, Figure 2).

Out of 12 donors among 0-15 age groups 5 male and 7 female were reactive and in 16-30 age groups 39 male and 36 female were reactive. Age groups of 31-45, 102 male and 24 female were reactive and in 46-60 age groups 6 male but no female persons were reactive. (Table 3, Figure 3 and Table 4, Figure 4).

TABLE 4: DISTRIBUTION OF HIV INFECTED FEMALE PATIENTS AMONG DIFFERENT AGE GROUPS

Age group	Number of HIV infected patients	HIV infected female patients
0-15	12	7(58.33%)
16-30	75	36(48%)
31-45	126	24(19.04%)
46-60	6	0(0%)

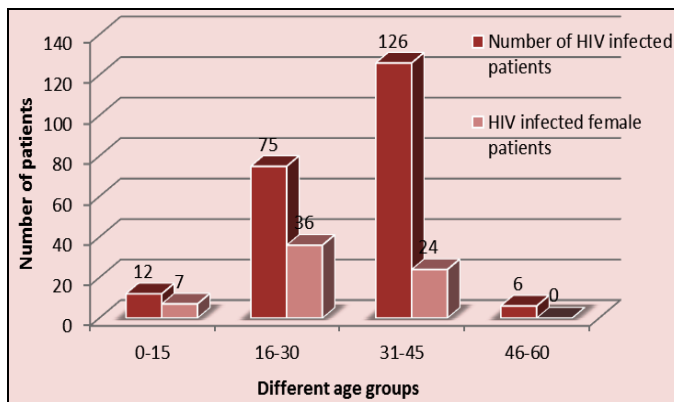


FIGURE 4: GRAPHICAL REPRESENTATION OF HIV INFECTED MALE PATIENTS AMONG DIFFERENT AGE GROUPS

In this study, it is observed that increasing age, percentage of male HIV positive patients were increase whereas percentage of female HIV positive patients were decreases. (Figure 5)

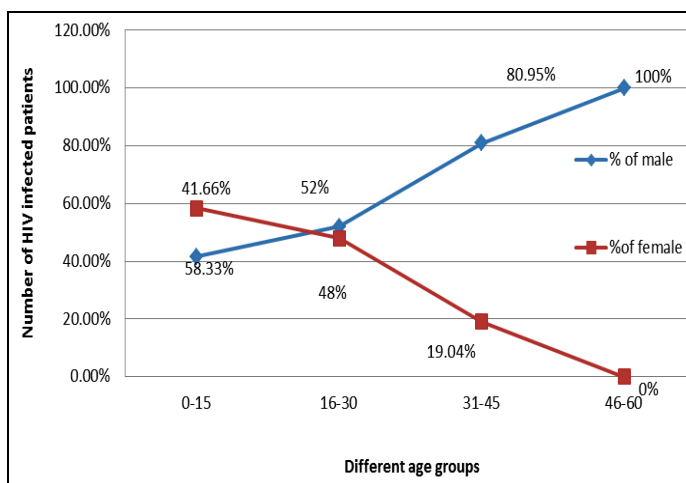


FIGURE 5: GRAPHICAL REPRESENTATION OF PERCENTAGE OF HIV INFECTED MALE AND FEMALE PATIENTS

DISCUSSION: In this study, it is obtained that out of 717 patients 219 patients were infected in HIV-AIDS, where 152 male and 67 female patients were infected in this life threatening infection. In between 31-45 age groups 53.16% patients were affected. This may be due to various possibilities:

It is thought that HIV has spread among the general population in India because the epidemic has followed what is known as the 'type 4' pattern.⁵ This is where new infections occur first among the most vulnerable populations (such as injecting drug users and female sex workers), then spread to 'bridge' populations (clients of sex workers and sexual partners of drug users) and then finally enter the general population⁶.

In contrast to the common perception that HIV is transmitted predominantly through injecting drug use and sex between men, the overwhelming majority of infections occur through heterosexual sex⁷. In many cases married men have acted as 'bridge populations' between vulnerable populations and general populations; women who believe they are in monogamous relationships are becoming infected because their husbands have had multiple sexual partners. Often social norms restrict women from making decisions about their sexual relations, contributing to their vulnerability to HIV⁸. Another significant trend is that most of the people becoming infected are in the sexually active and economically productive 15 to 44 age group. This means that most people living with HIV are in the prime of their working lives. Many are supporting families.

In case highest male HIV infected patients in this study belong to 31-45 age groups (80.99%) which is a threat for INDIA, but if we see the possibility or reasons, there may be many causes such as-

Truck drivers: In east region of India has largest road networks because it nearer to BANLADESH boarder and BAY OF BENGAL, involving millions of drivers and helpers. Truck drivers spend long periods of time away from home, and it is common practice for them to have relations with sex workers while on the road. A 2008 study showed that nearly a third of the long-distance truckers had paid for sex in the past twelve months⁹. Sometimes, relations with sex workers occur at roadside 'dhabas', which act as both brothels and hotels for truck drivers. In other cases, drivers stop to pick up women by the side of the road, and transport them to another area after they have had sex with them. Both truck drivers and sex workers move from area to area, often unaware that they are infected with HIV.

Injecting drug users: Transmission through injecting drug use is a major driving factor in the spread of HIV. The alarming levels of infection occurring through needle-sharing have implications that extends beyond networks of drug users. Some of those who inject drugs are also sex workers or truck drivers, and many are sexually active, which can result in infection being passed on to their partners.

Men who have sex with men: Sex between men is highly stigmatised in India and is not openly talked about, making it easy for people to underestimate

how commonly it occurs. Many men who have sex with men (MSM) do not consider themselves homosexual, and many have female partners. As such, unprotected sex between men can also present a risk to any women that they may subsequently have sex with.

Migrant workers: A large number of people move around India for work; it is estimated that 258 million adults in India are migrants; the majority are men migrating for employment¹⁰. Studies from across the world have linked migration to multiple sexual partners and increased HIV transmission¹¹. It has been said that migrants and other mobile individuals are bridge populations for HIV transmission from urban to rural areas and between high-risk and low-risk groups.

Long working hours, isolation from their family and movement between areas may increase the likelihood that an individual will become involved in casual sexual relationships, which in turn may increase the risk of HIV transmission. In many cases, migration does not change an individual's sexual behaviour, but leads them to take their established sexual behaviour to areas where there is a higher prevalence of HIV. Therefore not all migrants are at equal risk of HIV. But in this study 0-15 age group female patients were more affected (58.33%) and also middle age groups (48%). Generally women are at a greater risk of heterosexual transmission of HIV. Biologically women are twice more likely to become infected with HIV through unprotected heterosexual intercourse than men. In many countries women are less likely to be able to negotiate condom use and are more likely to be subjected to non-consensual sex^{12, 13}.

A large proportion of women with HIV appear to have acquired the virus from regular partners who were infected during paid sex. HIV prevention efforts targeted at sex workers are being implemented.

Indeed, condom use is limited especially when commercial encounters take place in "risky" locations with low police tolerance for this activity. In addition, interventions tend to primarily target brothel-based sex workers, who represent a minority of sex workers. HIV information and awareness among sex workers appears to be low, especially among those working in the streets.

Some prevention programs run by sex workers' cooperatives-in Sonagachi, Kolkata, for example- have encouraged safe paid sex practices and have been associated with lower HIV prevalence¹⁴.

Low Status of Women: Infection rates have been on the increase among women and infants as the epidemic spreads through bridging population groups. As in many other countries, unequal power relations and the low status of women, as expressed by limited access to human, financial, and economic assets, weakens the ability of women to protect themselves and negotiate safer sex, thereby increasing their vulnerability¹⁵.

CONCLUSION: In East Region of India, HIV-related counseling services are still not readily available. Systematic efforts to eliminate stigma should be continued and establishments of voluntary counseling and testing centers (VCTCs) at the district level are expected to play a major role in this direction. The main barriers to effective control of AIDS are reported to be insufficient resources, illiteracy, and stigma, there is a need to assess if the prevention and control efforts are directed to the right populations and if appropriate programmers are in place and are working optimally.

AIDS is less of a medical problem, but more of a social, cultural and developmental problem. Thus, there is probably not going to be an easy solution. Short-term strategies like aggressive case detection and management of STDs, condom promotion, blood

safety and drug de-addiction programmers might yield quick results. However, they should be effectively complemented by a multidisciplinary approach and long-term strategies for HIV prevention and control.

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How to cite this article:

Dutta S, Mondal PK and Adhakari S: Prevalence of HIV infection in East Region of India. *Int J Pharm Sci Res* 2013; 4(7); 2794-2798. doi: 10.13040/IJPSR.0975-8232.4(7).2794-98