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HIV prevalence in suspects attending Sir Sunder Lal Hospital

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ABSTRACT

Objective: To assess the sero-positivity rate of HIV infection among clinically suspected subjects of reproductive age group (15-49 years), biological and behavioral characteristics of the subjects gender specific variation of sero-positivity rate, and the differentials of the sero-positivity rate for the history of blood transfusion or blood products or other organs, history of needle exposure and symptoms of morbidity. **Methods:** Study is based on the retrospective data of the calendar year 2005 obtained from Voluntary Counseling and Testing Centre (VCTC) (now renamed as ICTC), Department of Microbiology, I.M.S., B.H.U., Varanasi. These cases were either referred by the consultants of different OPD'S of Sir Sunderlal Hospital or came voluntarily for knowing their HIV status. About 2-3 mL of blood samples were collected in a plain vial and tested for HIV status by strategy II/III as per WHO/NACO guidelines. **Results:** Overall sero-positivity of HIV was 15.3% (18.1% in males and 12.2% in females) which increased 6-7 folds in the age group 35-49 years as compared to 15-24 years in both the sexes. Sero-positivity rate in male migrants was 43.1%, while in female migrants it was 18.7%. The history of multiple sexual contacts was about 3 times higher in males as compared to females; predominantly it was very high in male migrants (67.7%) as compared to male non-migrants (15.8%). History of multiple sexual contacts was not uncommon in females and it was 25.0% in female migrants and 9.7% in non-migrant females. The sero-positivity rate with the history of multiple sexual contacts was 45.4% in males and 60.3% in females, while without history of multiple sexual contacts these were only 2.8% and 5.3% respectively. Sero-positive cases had on an average 3.6±1.7 various morbidity symptoms as compared to 0.7±1.1 in sero-negatives. It is to be noted that sero-positivity rate was more in those females who seemed apparently healthy compared to those presenting with some of the symptoms; vice versa, in males presenting with some symptoms HIV infection was 7 times higher than those without symptoms. **Conclusions:** The findings indicate a high sero-positivity among both the genders. Multiple heterosexual contacts, especially, in migrants are the main root of transmission of HIV. These are causing spread of HIV to their spouses. The multiple sexual contacts in the society, especially, among non migrant females of this region are indicating the distortion of traditions and cultures which are a serious concern and may lead to HIV infection on the rise. Awareness program to the susceptible group is the need to reduce further spread of HIV.

1. Introduction

HIV/AIDS has exceeded all expectations since its identification. Globally, nearly 33 million people are currently living with HIV and about 25 million people have already died with the worst of the epidemic centered on Sub-Saharan Africa[1,2]. The spread of HIV has been observed greater than predicted, thus, it has put its impact on social capital, population structure and economic growth. Responding to AIDS nothing less than a sustained social mobilization is necessary to combat one of the most serious crises facing human development[3].

In India with population over one billion, around half are in the sexually active age group (15-49 years). The first HIV/AIDS case in Asia was detected in 1985 in Thailand and subsequently in 1986 in Chennai, India in a commercial sex worker[4]. Since then HIV infection has been reported in all states and Union Territories of India. As on 6 July 2007, UNAIDS/ NACO/ WHO estimates in National Household Survey data, around 2.5 million people were living with HIV at the end of 2006. Country India is still facing a wide spread of poverty, illiteracy, social inequalities, poor nutritional and health status, high prevalence of sexually transmitted diseases (STD) and reproductive tract infections

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(RTI), and virtual lack of public hygiene. Furthermore, the epidemiology of HIV is complicated in India because of high labor migration and mobility in search of employment from economically backward to advanced region. Information drawn form different studies showed that during heterosexual sex, women compared to men are at two fold risks to get HIV infection. Poor perception of safe sex and still a persistent denial about AIDS in many states makes India vulnerable to the overwhelming AIDS epidemic.

Study conducted in Ludhiana in a specific population group had shown 0.3% prevalence of HIV in general population, 0.12% in blood donors, and nil in pregnant women. The subjects were deficient in knowledge about the modes of spread of HIV/AIDS. Sexually active unmarried young (15-24 years), those including in extra-poppy-husk were at higher risk of HIV infection[5]. In 1999-2000, the overall sero-positivity among patients attending SS Hospital of BHU (from eastern UP, Western Bihar and MP) was 3.17% (6.42% in high risk group and 0.37% in low risk group[6]. Pune study in 1996 reported overall prevalence of HIV-1 infections as 21.2% and being higher in females (32.3%) than in males (19.3%). Higher HIV-1 sero-prevalence was associated with behavioral and biological characteristics *e.g.* sex work, life time number of sexual partners, receptive anal sex, lack of circumcision, genital diseases, and lack of formal education[7]. In south India 81% housewives among 135 detected HIV positives indicates the husbands probably are the main source of infection[8,9]. Thus, transmission via sex workers, long distance truck drivers and the HRG groups has now extended the epidemic into general population who might have been considered to be at low risk of HIV infection, apart from being in a marital sexual relationship[10-13]. The present study was undertaken with the following objectives:

To assess the sero-positivity rate of HIV infection in clinically suspected subjects of reproductive age group (15-49 yrs);

To assess gender specific variation of sero-positivity rate as per biological and behavioral characteristics of the subjects;

To assess the differentials of symptoms of morbidity among confirmed HIV and non HIV cases.

2. Materials and methods

This study is based on 6007 subjects of reproductive age group (3201 males and 2806 females) of the year 2005 taken out from total 7050 screened subjects for sero-positivity at VCTC (renamed as ICTC (Integrated Counseling and Testing Centre)), Department of Microbiology, IMS, BHU, Varanasi (UP). The subjects screened were either the suspects referred by various OPD' s of Sir Sunderlal Hospital, a teaching hospital of BHU or who came voluntarily to know their HIV status. Mostly screened subjects were from eastern Uttar Pradesh, Western Bihar, Madhya Pradesh and Jharkhand. About 2-3 mL of blood samples were collected in a plain vial. All the samples of symptomatic and asymptomatic subjects were tested for HIV positivity using strategy II/III as per WHO/NACO guidelines.

In aspect of statistical analysis, initially the data were cross-tabulated and male versus female prevalence ratio (PR) along with 95% confidence interval for different biological and behavioral characteristic was calculated. As per need of the data *t*-test and *Chi*-square test were applied to test the significance. Software SPSS version 12.0 was used for the analysis.

3. Results

Table-1 illustrates that prevalence of HIV in male compared to female suspects was about 1.5 times higher (PR=1.48; 95% *CI*, 1.47-1.49). In both the sexes HIV prevalence had increased with the increase in age. In the age group 35-49 years, significantly more males (30.4%) as compared to females (18.5%) were sero-positive (PR=1.64; 95% *CI*, 1.60-1.68), while in age groups 15-24 and 25-34 years, the positivity rate in males and females was statistically same. Positivity rate was higher in suspects of rural than urban in both the gender. The prevalence ratio of male to female was 1.34 (95% *CI*, 1.33-1.36) and 1.74 (95% *CI*, 1.66-1.83) in rural and urban suspects respectively. The positivity rate in male migrants (43.1%) compared to non-migrants (2.2%) was very high, while it was 18.7% and 10.8% in female migrants and non migrants respectively. Prevalence ratio of male to female was 2.31 (95% *CI*, 2.25-2.37) in migrants and 0.20 (95% *CI*, 0.19-0.22) in non-migrants. Though history of multiple sexual contacts is much less in females than males, in both the sexes the sero-positivity rates with history of multiple sexual contacts was tremendously high and higher in females than males (45.4% in males and 60.3% in females with multiple sexual contacts and 2.8% in males and 5.3% in females without history of multiple sexual contacts). The prevalence ratio of male versus female was 0.75 (95% *CI*, 0.74-0.76) in those with history of multiple sexual contacts and 0.53 (95% *CI*, 0.50-0.56) in those without history of multiple sexual contacts. The history of either blood transfusion or needle exposure had shown almost same positivity rate in both the genders.

Table-2 illustrates gender-wise HIV prevalence in those with and without some morbidity symptoms. According to their socio-demographic status, prevalence of HIV among those who presented with some morbidity conditions was significantly higher in males (27.1%) than females (8.9%), while in those suspects presented without any morbidity symptoms the prevalence was significantly higher in females (37.3%) than males (3.81%). In both the genders, HIV prevalence had been increasing with age, either the suspects were presented with some morbidity symptoms or not. In the respective age groups 15-24, 25-34 and 35-49 years of the suspects were presented with some morbidity symptoms; the prevalence in males was 5.8%, 30.0% and 38.0% as against