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RESEARCH ARTICLE

SEROPREVALENCE OF HIV AMONG ICTC ATTENDEES AT PATNA MEDICAL COLLEGE AND HOSPITAL - A TERTIARY CARE HOSPITAL IN PATNA, BIHAR

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ABSTRACT

Background: Acquired immunodeficiency syndrome (AIDS) has emerged as one of the most serious public health problem in our country. Human immunodeficiency virus (HIV) counselling and testing (HCT) conducted at Integrated Counselling and Testing Centres (ICTCs) is a cost-effective intervention in preventing transmission of HIV. Therefore, this study was conducted to find out the socio-demographic profiles, HIV status and risk behaviour pattern of attendees and also to elucidate the reason for their visit to ICTC. **Objectives:** To study the prevalence of HIV among ICTC attendees and also to know the socio-demographic characteristics and risk behaviours of HIV-seropositive patients. **Materials and Methods:** A data based retrospective cross-sectional study was carried out at ICTC of PMCH Patna, Bihar over a period from January 2017 to June 2018. A total of 11,203 patients were included in our study. **Results:** Of 11203 patients that were included in this study, 1581 (14.12 %) were tested positive for HIV. Among HIV seropositives, 1036 (65.53%) were males, while 542 (34.28%) were females and 3 (0.05%) were transgender. Majority 87% belonged to the age group between 15-49 years. In discordant couples, majority (81%) were male partner positive and female partner negative. Positives were more amongst married, less educated, low socioeconomic status and migrants. **Conclusion:** There is need to encourage activities that promote HCT in all health care facilities, so as to increase the rate of diagnosis of new HIV cases. The data generated in ICTC will help us to understand cases, pertaining to the epidemiology in a defined geographic region.

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INTRODUCTION

The global pandemic of human immune deficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) is a major public health problem. According to Joint United Nations Programme on HIV/AIDS (UNAIDS) organization, in 2017 approximately 36.9 million people are living with HIV/AIDS (PLHAs) worldwide (<http://www.unaids.org> [Last cited on 2017 Oct 27]). As per the recently released, India HIV Estimation 2015 report, National adult (15–49 years) HIV prevalence in India is estimated at 0.26% (0.22%–0.32%) in 2015. In 2015, adult HIV prevalence is estimated at 0.30% among males and at 0.22% among Females. Among the States/UTs, in 2015, Manipur has shown the highest estimated adult HIV prevalence of 1.15%, followed by Mizoram (0.80%), Nagaland (0.78%), Andhra Pradesh and Telangana (0.66%), Karnataka (0.45%), Gujarat (0.42%) and Goa (0.40%). Besides these States, Maharashtra, Chandigarh, Tripura and Tamil Nadu have shown estimated adult HIV prevalence greater than the national prevalence (0.26%),

while Odisha, Bihar, Sikkim, Delhi, Rajasthan and West Bengal have shown an estimated adult HIV prevalence in the range of 0.21– 0.25%. Bihar State represents about 3.46% of India's population, and in 2015, incidence of 0.37% was reported from this state alone (<http://www.nacoonline.org> [Last cited 2017 on Oct 26]). In India HIV counselling and testing (HCT) services were started in 1997. There are more than 9400 Integrated Counselling and Testing Centres (ICTCs), mainly located in the government hospitals (Available from: <http://www.nacoonline.org> [Last cited on 2012 Oct 15]). Under the National AIDS Control Programme-III, voluntary counseling and testing centres and facilities providing Prevention of Parent-to-Child Transmission (PPTCT) services are remodelled as a hub or ICTCs to provide services to all clients under one roof. ICTC is a part of HIV prevention program and is a place, where a person gets counselling and testing done on his own will. ICTC for HIV is a cost-effective intervention in preventing the spread of HIV, which also promotes behavioural change to reduce vulnerability, and conducts HIV diagnostic tests in a comfortable, convenient, and confidential manner. It also links people with care and treatment services. This is both the entry point to comprehensive HIV care and treatment as well as prevention;

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hence, awareness and acceptance of ICTC services is vital, if the HIV/AIDS epidemic is to be controlled⁴. With this background, the present study was undertaken to find the profile of people seeking ICTC services and also to estimate the prevalence of HIV and various socio-demographic and epidemiological characteristics among ICTC attendees.

MATERIALS AND METHODS

The study area, population, and methodology: The present study was carried out among ICTC attendees in the Department of Microbiology, ICTC unit, at PMCH, a tertiary care referral hospital in Patna, Bihar. Data was collected retrospectively from available records of all clients who attended ICTC of our hospital between January 2017 and June 2018. The present study included 11203 ICTC attendees, who were either volunteers or referred by various departments of our institute. The ICTC counsellors collected their anonymous and unlinked data in registers and logbooks as per National AIDS Control Organization (NACO) guidelines under strict confidentiality. Data accessed from the records included age, sex, marital status, education and occupational status, behavioural patterns and HIV status of the couples.

Sample collection and processing: All the ICTC attendees had relevant pre-test counselling and written informed consent was sought before HIV testing was carried out. Five ml venous blood sample was collected in a sterile plain container from all clients who consented for HIV testing. Blood was allowed to clot for 30 min at room temperature (25-30°C) and serum was separated after centrifugation at low speed. The serum samples were then stored at 4°C and were tested within 24 hours.

HIV serology: HIV antibodies were tested by three rapid tests protocol as per the guidelines laid down by the World Health Organization (WHO testing strategy III) and the testing policy of NACO, Government of India. All positive test results were disclosed only after post test counselling of the patients. Antibodies to HIV (1 and 2) were tested initially with a COMBAIDS[®] - RS Advantage - ST (ARKRAY Healthcare Pvt. Ltd.). The samples tested positive in the first method were subjected to tests with two different rapid tests, that is, AIDSCAN[®] HIV - 1/2 TRISPOT TEST KIT (BHAT BIOTECH INDIA (P) LTD and ErbaLISA[®] HIV 1+2 (TRANSASIA BIO-MEDICALS LTD. The samples were considered as positive when found reactive by all three different methods. All tests were done according to manufacturer's instructions.

RESULTS

A total of 11,203 patients accessed HIV Counselling and Testing (HCT) services during the study period. Out of which 1581 were HIV-seropositive giving a prevalence of 14.12% [Table 1]. Of the 11203, 6712 (59.92%) were males, 4485 (40.03%) were females and 6 (0.05%) were trans-gender. Among sero-positives 1036 (65.53%) were males, 542 (34.28%) were females and 3 (0.19%) were trans-gender. A majority (87%) of those who were HIV-seropositive were between the ages of 15 and 49 years. A total of 51% females were positive within the age group of 20-35 years followed by 33% within 36-50 years, while 57% of males were positive within the age group of 36-50 years followed by 20-35 years

29%. Among discordant couples, 81% were male partner positive and female partner negative, while rest were male partner negative and female partner positive. The distribution of cases according to their marital status showed that 88% out of all married persons coming to our centre for the test were HIV sero-positive. Majority of HIV sero-positives 69% were under-educated. Migrants showed high positivity. Clients who stayed away from their family were more likely to be HIV positive. The number of HIV sero-positivity among ICTC attendees based on socio-demographic variables, that is, marital status, occupation, socioeconomic status, education, and living status were statistically significant ($P < 0.0001$). The pattern of risk behaviour among HIV sero-positive were : having multiple sex partners followed by parent to child transmission and infection and through the use of infected needles and syringes.

DISCUSSION

In the absence of an effective vaccine or curative treatment HIV can be prevented only through effective counselling and testing. Counselling for HIV consists of pre-test, post-test, and follow-up counselling. Pre-test counselling plays an important role in improving the acceptability for HIV test. "Opt-in" or "opt-out" approaches have been used while offering HIV testing. In "opt-in" approach, clients are given pre-test counselling and then offered a HIV test (Kwatra *et al.*, 2011). Client-initiated counselling and testing (CICT) are the patients who present themselves at the ICTC on their own will. The advantages of CICT are that patients emotionally ready to get tested. It remains as the dominant form of testing in many sub-Saharan countries (Desgrées-du-Loû *et al.*, 2008). But the global coverage of HIV Counselling and Testing (HCT) remains low. In Provider-initiated HIV counselling and testing (PICT), clients are referred from medical providers such as those associated with tuberculosis, sexually transmitted infections as well as pregnant women for active screening of HIV irrespective of their risk behaviours. WHO, UNAIDS and CDC recommend PICT as a cost-effective and ethical way of improving access to HIV testing during general epidemics⁷. The HIV sero-prevalence among ICTC attendees in our study was 14.12% (5181/11,203), higher than the overall adult prevalence among general population for the Bihar state (0.37 %). Biswas *et al.* reported a prevalence of 1.44% in Rajasthan⁸. Prevalence of HIV in other states in India as stated by other authors were 4.8% (Ahmadabad) by Sharma *et al.* (2009) 5.1% (Andhra Pradesh) by Kommula *et al.*⁷, 9.6% (Maharashtra), by Langare *et al.* (2011) 9.6% (Udupi, Karnataka), by Gupta *et al.* (2009). Mallick *et al.* at Surat, Gujarat showed higher prevalence of 20.5% (Mallick *et al.*, 2012). Similar picture is shown in studies conducted in other countries. Akhigbe *et al.* reported 5.6% of their population being affected by HIV, at Kwara, Nigeria, (2010). A very high prevalence of 50.2% and 38% were noted by Solomon *et al.*, at Lafia, Nigeria, and Wanyenze *et al.*, at Uganda, respectively (Solomon *et al.*, 2012; Wanyenze *et al.*, 2008). In our study 0.05% was transgender. The difference in HIV sero-prevalence in these studies may be attributed to the difference in health seeking and risk behaviours in different parts within and outside India, which mostly depends on socio-cultural milieu of the community. Our study revealed that males contributed to 65.53% of the total case load in ICTC with 34.28% being females. Similar findings were observed by Gupta *et al.*, and Langare *et al.* where more number of males attended ICTC (Gupta, 2009; Langare *et al.*, 2011). In comparison, Solomon

et al. found 57.7% were females, while males constituted 42.3%. According to the present study, 87% of HIV-seropositive clients belonged to the age group of 15-49 years, the most sexually active group. Similar results were obtained by Gupta *et al.*, and Langare *et al.*, that is, 88.7% and 86.6%, respectively. These values are slightly lower than the study 92.4% conducted at ICTC, Darjeeling, India (Jordar *et al.*, 2006). HIV/AIDS threatens the most productive segment of the society in the prime of their working life. This emphasizes the need of youth specific interventions or some high school and college-based sex education, whereby these young adults can be prepared beforehand. Couple counselling and testing and partner notification is an important tool in prevention and transmission of HIV/AIDS. Once the couple status is known, spouse can decide to access available HIV prevention, counselling, and testing services. Among discordant couples, majority (81%) were male partner positive and female partner negative Langare *et al.* (2011). Observed that discordant couples, (76.2%) were male partner positive, female partner negative. Early diagnosis of HIV cases is key to prevention of HIV transmission, especially when issues of HIV discordance in relationships are considered (Chaudhuri *et al.*, 2007). Our study revealed majority of seropositive were married, males, less educated, lower socioeconomic status, mostly stayed away from their family or single and migrants. Greater access to higher education could facilitate the spread of HIV awareness and increase the use of barrier contraceptives. Moreover, migration increases the size of sexual networks by linking networks from different locations (Chirwa, 1997). The present study was limited by incomplete documentation and also missing information. The results are based on reporting and data collection by personnel employed in the ICTC thus biased. The data used are from a tertiary care facility and would not be a true representation of the community. The study however can help local planning and contribute data for policy makers to improve the existing national HIV/AIDS intervention strategies.

Conclusion

There is need to encourage activities that promote HCT in all health care facilities, so as to increase the rate of diagnosis of new HIV cases. The data generated in ICTC will help us to understand cases, pertaining to the epidemiology in a defined geographic region.

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