ORIGINAL RESEARCH PAPER

Microbiology

Volume - 7 | Issue - 4 | April-2017 | ISSN - 2249-555X | IF : 4.894 | IC Value : 79.96

PREVALENCE OF HIV AMONG ICTC ATTENDEES AT INDIRA GANDHI INSTITUTE OF MEDICAL SCIENCES, PATNA, BIHAR

KEYWORDS: HIV sero-positive, ICTC, risk behavior.

Dr. Rakesh Kumar
Assistant Professor, Deptt. of Microbiology, IGIMS, Patna.

Dr. Shailesh Kumar
Additional Professor, Deptt. of Microbiology, IGIMS, Patna.

Dr. Swati Salila
Junior Resident, Deptt. of Microbiology, IGIMS, Patna.

Dr. Kumar Vikram
Junior Resident, Deptt. of Microbiology, IGIMS, Patna.

Dr. Namrata Kumari
Additional Professor, Deptt. of Microbiology, IGIMS, Patna.

Dr. Anima Xess
Professor, Deptt. of Microbiology, IGIMS, Patna.

Dr. S. K. Shahi
Professor, Deptt. of Microbiology, IGIMS, Patna.

ABSTRACT

Acquired immunodeficiency syndrome (AIDS) has emerged as one of the most serious public health problem in the country. Human immunodeficiency virus (HIV) counselling and testing (HCT) conducted at Integrated Counseling and Testing Centers (ICTCs) is an entry point, cost-effective intervention in preventing transmission of HIV. Therefore, this study was conducted to find out the HIV sero-status, socio-demographic profile, and risk behavior pattern of attendees and to elucidate the reasons for their visit to the center. It is hospital based cross-sectional study of 29,907 registered ICTC clients at a tertiary care hospital in Bihar over a period from January 2012 to December 2015. A total of 517 (1.7%) out of 29,740 who were tested for HIV were sero-positive. Among HIV sero-positives, 335 (64.7%) were males, 177 (34.2%) were females and 5 (0.96%) were pregnant women. Majority (80.4%) of seropositive were between the age group of 15-49 years. Positives were more amongst married, less educated, low socioeconomic status and out migrants (P<0.0001). Risk factors included heterosexual promiscuous (88%), parent-to-child transmission (5%), unknown (5%), infected blood transfusion (1%), homosexual (1%), and infected needles (1%). There is need to encourage activities that promote HCT in all health facilities. The data generated in ICTC provide an important clue to understand increasing incidence of HIV. The epidemiological profile helps in treatment plan and proper care of HIV cases and preventive strategies for those at risk especially married, young adults, and out migrants to reduce spread of infections.

INTRODUCTION

The global pandemic of human immune deficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) in its third decade has grown into a major public health problem of alarming magnitude. According to Joint United Nations Program on HIV/AIDS (UNAIDS) organization, approximately 34.2 million people are living with HIV/AIDS (PLHAs) worldwide as of 2014[1]. Though India is categorized as a low HIV prevalence nation, it has the third largest number of PLHAs. There are estimated 2.39 million PLHAs of which 39% are females and 3.5% are children, with an adult prevalence of 0.31% among general population (2009)[2]. This accounts for nearly 15% and 75% of the HIV burden of the world and South/Southeast Asia, respectively [3]. The population of Bihar State is about 3.46% of the population of India, and there are an estimated 9% new infections in 2009[4]. HIV counseling and testing (HCT) services were started in India in 1997. There are more than 9400 Integrated Counseling and Testing Centers (ICTCs), mainly located in the government hospitals[5]. Under the National AIDS Control Program-III, voluntary counseling and testing centers and facilities providing Prevention of Parent-to-Child Transmission (PPTCT) services are remodeled 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 counseling and testing on his own will or as advised by a medical provider. ICTC for HIV is a cost-effective intervention in preventing the spread of HIV, promotes behavioral 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; hence, awareness and acceptance of ICTC services is vital, if the HIV/AIDS epidemic is to be controlled. There are more than 0.1 million migrants and 90% of these migrate to high HIV destination areas (Surat district in Gujarat, Mumbai, and Thane district in Maharashtra) [6]. With this background, the present study was undertaken to find the profile of people seeking ICTC services and also estimating the prevalence of HIV among ICTC attendees and various socio-demographic and epidemiological characteristics.

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 Indira Gandhi Institute of Medical Sciences, Patna, Bihar. Data was collected retrospectively of all clients who attended ICTC between January 2012 and December 2015. The present study included **29,907 ICTC attendees**, who were either volunteers or referred by various departments of our institute. The ICTC counselors 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, behavioral patterns and HIV status of the couples.

Sample collection and processing

All the ICTC attendees had relevant pre-test counseling and written informed consent was sought before HIV testing was carried out. Five milliliters (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

Volume - 7 | Issue - 4 | April-2017 | ISSN - 2249-555X | IF : 4.894 | IC Value : 79.96

India. All positive test results were disclosed only after post test counseling of the patients. Antibodies to HIV (1 and 2) were tested initially with a COMBAIDS® - RSAdvantage - 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 BIO-TECH 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 29,907 clients accessed HCT services during the study period. Of these, 29,740 (99.4%) accepted HIV testing and rest 167 (0.6%) clients did not agree for testing. Out of total 29,740 clients tested, 517 were HIV-seropositive giving a prevalence of 1.7% [Table 1].

TABLE 1: Year-wise distribution of ICTC attendees at IGIMS, Patna for the period 2012 – 2015.

YEAR	HIV COUNSELLING				HIV TESTING				REACTIVE			
	MALE	FEMALE	PREGNANT WOMEN	TOTAL	MALE	FEMALE	PREGNANT WOMEN	TOTAL	MALE	FEMALE	PREGNANT WOMEN	TOTAL
2012	7032	3708	43	**10783**	7000	3689	43	**10732**	112	59	03	**174**
2013	6356	3674	30	**10060**	6331	3670	30	**10031**	76	38	00	**114**
2014	3371	1907	29	**5307**	3339	1897	29	**5265**	60	36	01	**97**
2015	2376	1350	31	**3757**	2342	1339	31	**3712**	87	44	01	**132**
TOTAL	**19135**	**10639**	**133**	**29907**	**19012**	**10595**	**133**	**29740**	**335**	**177**	**05**	**517**

Out of total 29,740 clients received HIV testing, 19,012 (63.9%) were males, while females constituted 10,595 (35.6%). From 19,012 males, 335 (1.8%) were positive, while 182 (1.7%) females out of 10595 were positive (P>0.05) including 5 (0.96%) pregnant women. A majority(80.4%) of those who were HIV positive were between the ages of 15 and 49 years. A total of 44.6% females were positive within the age group of 35-49 years followed by 59 (33.3) within 25-34 years, while 153 (45.6%) of males were positive within the age group of 35-49 years followed by 25-34 years (26.5%) [Table 2].

TABLE 2: Age and sex distribution of HIV seropositives

Age group(yrs)	Male	Female
0-14	13	10
15-24	16	18
25-34	89	59
35-49	153	79
50 & above	64	16
Total	**335**	**182**

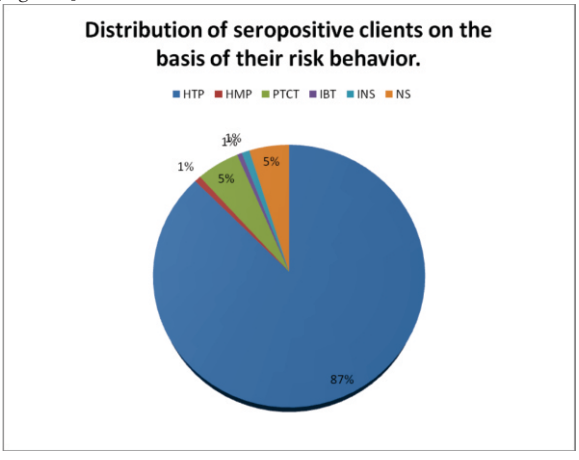
The distribution of cases according to their marital status showed that 412 (2%) out of all married persons were HIV positive. Majority of HIV positive (1.8%) were less educated. Out migrants showed high positivity (2.9%) relative to others. Clients who stayed away from their family were more likely 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) [Table 3].

Table 3: HIV-seropositivity (%) of ICTC attendees based on sociodemographic variables (n=29,907)

Variables	Attendees (n=29907)	HIV Positive (n=517)(%)	Chi Square	P value
Marrital status Married Others(unmarried/ Separated/widow)	 20603 9304	 412(2%) 105(1.1%)	281.702	<0.0001 (HS)
Level of education Undermatric College and above	 26674 3233	 503(1.8%) 14(0.4%)	64.371	<0.0001 (HS)
Occupation Migrants Others	 10124 19783	 294(2.9%) 223(1.1%)	32.660	<0.0001 (HS)
Socioeconomic statusLow High	25156 4751	498(1.9%) 19(0.3%)	23.966	<0.0001 (HS)
As per living status With family Others (alone, Hostels, Hotels)	 21673 8234	 217(1%) 300(3.6%)	87.891	<0.0001 (HS)
Sex Male Female	 19135 10639	 335(1.7%) 182(1.6%)	1.254	0.2628 (NS)

(HS – Highly significant, NS – Not significant, highly significant when P value is less than 0.001)

The major risk behavior among HIV positives was unprotected heterosexual route 448(87%). The next common route was PPTCT 5% and unknown routes 5%. The least common risk behavior patterns were infected blood and blood products(1%), homosexual behavior(1%), and through infected needles and syringes(1%) [Figure 1].



HTP-heterosexual promiscuous **HMP**-homosexual promiscuous, **PTCT**-parent-to-child transmission, **NS**-nonspecific, **IBT**-infected blood transfusion, **INS**-infected needles and syringes

Discussion

HIV prevention through the process of counseling and testing is an important tool of intervention and control especially in the absence of an effective vaccine or curative treatment. Centre for disease control and prevention (CDC) recommends an "opt-out" approach, as the testing rate with it is 85%-98% but with an "opt-in" the testing rate ranges from 25% to 83% [8]. In this study, it was observed that only 0.7 %(208/29,740) of ICTC attendees did not receive either HIV test report or post-test counseling. There is always an element of fear of the test result being positive. Inadequate emphasis regarding the importance of post-test counseling during pre-test could be another reason for nonattendance at post-test counseling. Client initiated counseling and testing (CICT) are the clients who present themselves at the ICTC on their own will. The advantages of CICT are that client is emotionally ready to get tested, more time can be given to the

client, and more importantly couple counseling and testing is usually available. It remains as the dominant form of testing in many sub-Saharan countries[9]. But the global coverage of HCT remains low. In Provider initiated counseling 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 epidemics[10]. The HIV seroprevalence among ICTC attendees in our study was 1.7% (517/29,740). In comparison, prevalence of 1.44% were observed by Biswas et.al., Rajasthan, 4.8% by Sharma et.al., Ahmadabad, 5.1% by Kommula et.al., Andhra Pradesh, and 5.6% by Akhigbe et al., at Kwara, Nigeria.[12],[13],[14],[15]. The studies conducted by Langare et al., Gupta et al., and Mallick et al., showed higher prevalence of 9.5%, 9.6%, and 20.5% respectively [11][16][17]. 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[6][18]. The difference in HIV sero-prevalence in these studies may be attributed to the difference in health seeking and risk behaviors in different parts within and outside India, which mostly depends on socio-cultural milieu of the community. **Our study revealed that males contributed to 63.9% of the total case load in ICTC with 35.6% being females**. Similar findings were observed by Gupta et al., and Langare et.al.[11][16] In comparison, Solomon et.al., [6] found 57.7% were females, while males constituted 42.3%.

According to the present study, 80.4% **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[11][16]. These values are slightly lower than the study (92.4%) conducted at ICTC, Darjeeling, India[19]. **Our study revealed majority of seropositive were married, males, less educated, lower socioeconomic status, mostly stayed** away from their family or single and out migrants. Greater access to higher education could facilitate the spread of HIV awareness and increase the use of barrier contraceptives. In our study, majority of married men were out migrants to Surat in Gujarat, Mumbai, and Thane in Maharashtra and work in the unorganized sector in the power loom, diamond polishing, and construction industries. Migration into the other cities enhances casual and commercial contacts,

because of spousal separation and weaker social control[20]. Moreover, migration increases the size of sexual networks by linking networks from different locations[21]. Migrant men are believed to acquire HIV infection in destination areas and transmit the virus to their sexual partners upon returning to their home towns[22][23]. The high volume of returned migrants and their spouses in their home town reflect the urgent need to provide HIV prevention and treatment services in these areas. Risk behavior pattern in our study was similar to Langare et.al.[14] and study from Eastern India[24]. This study is not a true representation of community however can help local planning and contribute data for policy makers to improve the existing national HIV/AIDS intervention strategies.

Acknowledgments

The authors gratefully acknowledge the National AIDS Control Organization (NACO) for providing HIV test kits and the guidelines laid down to conduct such tests. The authors also wish to thank all the staff of ICTC, Department of Microbiology for their support and contribution.

References

1. http://www.unaids.org/sites/default/files/media_asset/01_PeoplelivingwithHIV.pdf
2. Together we will end AIDS. Joint United Nation Programme on HIV/AIDS (UNAIDS). c2012. Available from: http://www.unaids.org [Last cited on 2012 Oct 27].
3. Annual Report 2011-2012. Government of India: National AIDS Control Organization (NACO). c2012 Available from: http://www.nacoonline.org [Last cited 2012 on Oct 26].
4. HIV/AIDS policy fact sheet: HIV/AIDS in India. c2006. Available from: http://www.kff.org/hivaids/upload/7312-03.pdf [Last cited on 2012 Oct 12].
5. National AIDS Control Programme Phase III State fact sheets. National AIDS Control Organization. c2012. Available from: http://www.nacoonline.org [cited 2012 Oct 28].
6. Integrated Counselling and Testing Center (ICTC). National AIDS Control Organization: NACP-III Services for Prevention. c2007. Available from: http://www.nacoonline.org [Last cited on 2012 Oct 15].
7. Solomon AE, Amos MA, Laraba MH, Alaska IA, Ashuku YA, Oluwadare OO, et al. HIV counselling and testing facility in Lafia, Nigeria. Niger J Basic Clin Sci 2012;9:6-10.
8. Migration and HIV in India: Study of select districts, New Delhi. UNDP, NACO and Population Council. c2011. Available from: http://www.popcouncil.org [Last cited on 2012 Oct 22]
9. Chaudhuri S, Bose S, Talukdar A, Ghosh US. Seroprevalence and utilization of therapeutic intervention in PPTCT services in a teaching hospital in Kolkata. J Obstet Gynaecol India 2007;57:251-6.
10. Matovu JK, Makumbi FE. Expanding access to voluntary HIV counselling and testing in sub-Saharan Africa: Alternative approaches for improving uptake, 2001-2007. Trop Med Int Health 2007;12:1315-22.
11. Branson BM, Handsfield HH, Lampe MA, Janssen RS, Taylor AW, Lyss SB, et al. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. MMWR Recomm Rep 2006;55:1-17.
12. Langare SD, Rajderkar SS, Naik JD, Prabhu PM. Profile of clients attending an Integrated Counselling and Testing Centre of Tertiary Care Hospital at Sangli District of Maharashtra. IJRTSAT 2011;1:124-6.
13. Biswas NK, Saurabh MK, Yadav AK. Profile of Patients Who Attended the HIV Integrated Counselling and Testing Centre in a Teaching Hospital of Rajasthan, India. J Clin Diagn Res 2012;6:195-7.
14. Sharma R. Profile of attendee for voluntary counselling and testing in the ICTC, Ahmedabad. Indian J Sex Transm Dis 2009;30:31-6.
15. Kommula VM, Mishra AK, Kusneniwar GN, Chappa SN, Rao KV. Profile of HIV positive clients in an ICTC of a private medical college, Andhra Pradesh: A situational analysis. NJIRM 2012;3:36-40.
16. Akhigbe RE, Bamidele JO, Abodunrin OL. Seroprevalence of HIV infection in Kwara. Int J Virol 2010;6:158-63.
17. Gupta M. Profile of clients tested HIV positive in a voluntary counselling and testing center of a District Hospital, Udupi. Indian J Community Med 2009;34:223-6.
18. Mallick KH, Modi BP, Vasava BC, Bansal RK. Profile of clients tested HIV positive in a Voluntary Counselling and Testing Center in Government Medical College Surat, Gujarat, India. Int J Pharm Sci 2012;2:232-6.
19. Wanyenze RK, Nawavvu C, Namale AS, Mayanja B, Bunnell R, Abang B, et al. Acceptability of routeine HIV counselling and testing, and HIV seroprevalence in Ugandan hospitals. Bull World Health Organ 2008;86:302-9.
20. Jordar GK, Sarkar A, Chatterjee C, Bhattacharya RN, Sarkar S, Banerjee P. Profile of attendees in the VCTC of North Bengal Medical College in Darjeeling district of West Bengal. Indian J CommunityMed 2006;31:237-40.
21. Chirwa WC. Migrant labour, sexual networking and multi-partnered sex in Malawi. Health Transition Review 1997;7:5-15.
22. Ghani AC, Swinton J, Garnett GP. The role of sexual partnership networks in the epidemiology of gonorrhea. Sex Transm Dis 1997;24:45-56.
23. Gangakhedkar RR, Bentley ME, Divekar AD, Gadkari D, Mehendale SM, Shepherd ME, et al. Spread of HIV infection in married monogamous women in India. JAMA 1997;278:2090-2.
24. Yang X. Temporary migration and the spread of STDs/HIV in China: Is there a link? Int Migration Review 2004;38:212-35.
25. Chakravarty J, Mehta H, Parekh A, Attili SV, Agrawal NR, Singh SP, et al. Study on clinico7/1/2014