

A five year prevalence of HIV among attendees of Integrated Counselling & Testing Centre (ICTC) of a Government Medical College of Central India

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Abstract

Background: Acquired immune deficiency syndrome (AIDS) has been one of the most devastating diseases to have affected mankind. In the past 30 years, AIDS has emerged as a devastatingly fatal disease, assuming pandemic proportions sparing no region of the world, so its early diagnosis and prompt treatment can provide the healthy life for the human immunodeficiency virus (HIV) infected persons.

Objective: The purpose of this study was to estimate the prevalence of HIV infection and their gender variance among the clients attending ICTC, situated in microbiology department of S.S.M.C. Rewa, India, for a period of 5 years from 2010 to 2015.

Materials and Methods: A total of 44,460 clients attended ICTC, situated in Microbiology Department of Shyam Shah Medical College Rewa, India, from 2011 to 2015. Serum samples were collected after taking informed consent and pretest counseling. In India for all ICTCs, NACO (National AIDS Control Organization), a national guideline has been followed for HIV testing, reporting and release of results with posttest counseling.

Result: Of the total 44,460 clients tested for HIV infection, 572 (1.28%) were found to be HIV-1 seropositive. Seropositivity was higher in male clients (i.e., 331 (57.86%)) than female (i.e., 241 (42.13%)). In all these cases pediatric age group (0–14 years) prevalence was 4.19%.

Conclusion: HIV prevalence of 3.78% among the clients attending ICTC, situated in S.S.M.C. Rewa, M.P., Central India. Puts light on the burden on HIV in this part of the country and suggests the need for the scaling up of focused prevention efforts in high-risk groups by various modes of IEC activities.

KEY WORDS: HIV, sero-positivity, Integrated Counselling & Testing Centre (ICTC), heterosexual, transgender, pediatric age-group, client

Introduction

Human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), recognized as an emerging disease in the early 1980s, has rapidly established itself throughout the

world and is likely to persist well into the twenty-first century. AIDS has evolved from a mysterious illness to a global pandemic which has infected tens of millions people. The key indicator of HIV epidemic in 2012: the number of people living with HIV is 35.2 million, the number of newly infected people with HIV is 2.3 million, and the number of people dying with AIDS-related causes is 1.6 million.^[1,2] Percentage of pregnant women tested for HIV is 40% and coverage of anti-retroviral medicine for prevention of mother-to-child transmission is 67%.^[3] WHO and UNAIDS define three different types of HIV epidemics: (1) low-level HIV epidemic—HIV prevalence has not consistently exceeded 5% in any defined subpopulation, (2) concentrated HIV epidemics—HIV prevalence is consistently over 5% in at least one defined population but it is below

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1% in pregnant women in urban area, and (3) generalized HIV epidemic—HIV prevalence consistently over 1% in pregnant women.^[4]

Voluntary counseling and testing (VCT) for HIV is a cost-effective intervention in preventing the spread of HIV transmission and is an integral part of HIV prevention program, which provides an opportunity to learn and accept the HIV status in a comfortable, convenient, and confidential manner.^[5] Integrated counseling testing center (ICTC) network is the first interface between a person willing to get tested and the public health system.^[6] Further, it is an entry point to care. A new hope has been seen recently in the AIDS epidemic with all the global efforts for the effective treatment and prevention programs. Today India has launched NACP IV with its continuous commitment. There are approximately 34 million people currently living with HIV and about 30 million people have died of AIDS-related causes since the beginning of the epidemic.^[7–9] Latest data show that a 50% reduction in the rate of new HIV infections (HIV incidence) has been achieved in 25 low- and middle-income countries between 2010 and 2011. India has a burden of 2.5 million people infected with HIV-1 making it the third largest HIV-1 epidemic in the world after Africa and Nigeria. The road from 2.5 million new HIV infections—the number in 2011—to zero new HIV infection is a long one and there is a significant effort required to accelerate HIV prevention programs.^[10] India contributes to almost 60% of South Asia's HIV epidemic.^[11]

Prevalence of HIV in India, according to 2010–2011 data, is most common in transgender 8.82%, followed by IDU 7.14%, MSM 4.43%, FSW 2.67%, truckers 2.29%, migrants 0.99%, and least one in ANC 0.35% in 2012–2013.^[12] Now none of the states are showing HIV prevalence of 1% or more in India. In Madhya Pradesh, the first case of HIV/AIDS was detected in 1988, and since then the number of AIDS cases was rising. In view of the seriousness of the problem, MP Government constituted AIDS control cell in 1992 under medical education department. Subsequently MP state AIDS control society was constituted on 14/7/1998. In Madhya Pradesh, according to NACO report 2007 AIDS prevalence in STD clinic is 1.72% and in female sex worker it is 0.67%.^[13] The number of AIDS patients has shot up from 4577 in 2010 to 4755 in 2011 at Madhya Pradesh. Indore remained the city with most number of AIDS cases (907), followed by Bhopal with 461, Jabalpur with 431, Gwalior reporting 339 cases, and the case load in Rewa was 301. The prevalence of AIDS increases continually, and the positivity in females also increases; when the positivity rate in female increases it will cause prospective increase in prevalence of HIV infection in pediatric age group simultaneously.

This study was carried out retrospectively with the objective to estimate the prevalence of HIV infection in the clients attending ICTC and also documented the increasing trends of HIV positivity rate among the client attending the ICTC center from 2011 to 2015, and the prevalence in pediatric age group and HIV-tuberculosis (TB) coinfection among the clients attending ICTC situated in Microbiology Department of S.S. Medical College Rewa, India.

Materials and Methods

This was a retrospective study of clients who attended the ICTC situated in Microbiology Department of Government S.S. Medical College Rewa, Central India, from 1st January 2011 to 31st December 2015. All the clients attending the ICTC were counseled and informed consent was taken from them by ICTC counselors. The informations were gathered from the counselors of this center that may throw light on the epidemic of HIV transmission in this area and various interpretations were obtained. All the clients were included in the study who visited the center, so the total sample size was 44,460.

All the clients at ICTC were given unique PID number and he/she was directed for sample collection (3–5 ml of blood) at primary sample collection room at ICTC. Then HIV test was carried out in the HIV Laboratory, as per NACO guidelines with the three rapid test kits provided by DSACS/NACO. The protocol of the rapid tests performed as per NACO guidelines was as follows: first test kit was of highest sensitivity and the specificity increases with second and third kit. Therefore, when the test with first test kit is negative, second and third kit tests were not carried out and the result is negative for that tested sample. If the first test is positive, then second and third rapid kit tests were performed and if these two tests were also positive, then the final result was given as positive for that tested sample.^[14]

Statistical Analysis

Data were expressed as frequency and percentage and ratio.

Result

As shown in Figure 1, the distribution of total client visit to ICTC from 1st January 2011 to 31st December 2015, among the client was diagnosed as HIV positive in different years. As shown in the Table 1, this study found that total 44,460 clients attended the ICTC from January 1, 2011 to December 31, 2015 in whom 30,073 were male and 14,378 were females. We found in different years the visit to ICTC by females was increasing continually. The average HIV positivity rate was 1.28% (572/44,460) and in male it was 1.10% (331/30,073) and in female was 1.61% (241/14,378). As shown in Figure 2, in the gender-wise distribution of HIV positive clients in different years (2011–2015), we found that in total positive cases 57.86% (331/572) were men and 42.13% (241/572) was women. In 2011 men were 61.72% and women were 38.27%; in 2012, men were 59.63% and women were 40.36%; in 2013 men were 54.95% and women were 45.04%; in 2014 men were 62.24% and women were 37.75%; and in 2015 men were 48.70% and women were 45.66%.

As shown in Figure 3, the male–female distribution among positive cases in different years from 2011 to 2015. The total male–female ratio in 5 years was 1.37:1 (331/241), and in

Table 1: Distribution of client attending ICTC from 2011 to 2015

Year	No of client visit to ICTC			No. of HIV positive			M/F among HIV positive
	Total	Males	Females	Total	Males	Females	1.37:1
2011	5049	3434	1615	81	50(61.72)	31(38.27)	1.61:1
2012	9579	6865	2723	109	65(59.23)	44(40.36)	1.45:1
2013	9583	6609	2974	111	61(54.95)	50(45.04)	1.21:1
2014	10144	6517	3627	98	61(62.24)	37(37.75)	1.64:1
2015	10105	6648	3457	173	94(48.70)	79(45.66)	1.18:1

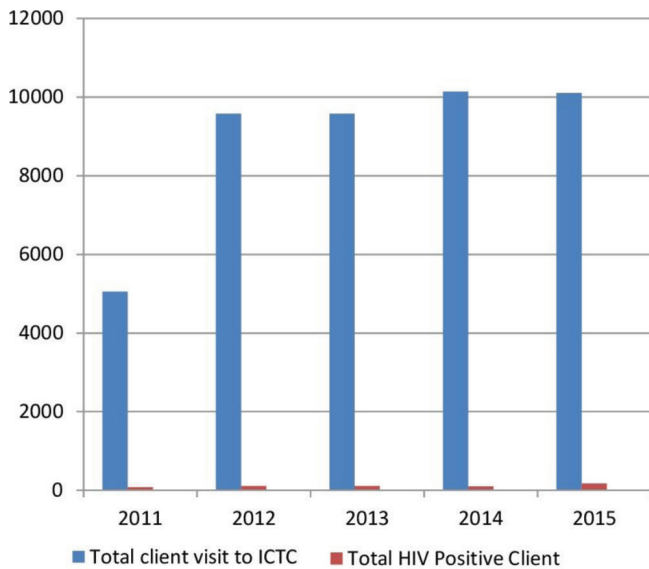


Figure 1: Seroprevalence of HIV clients.

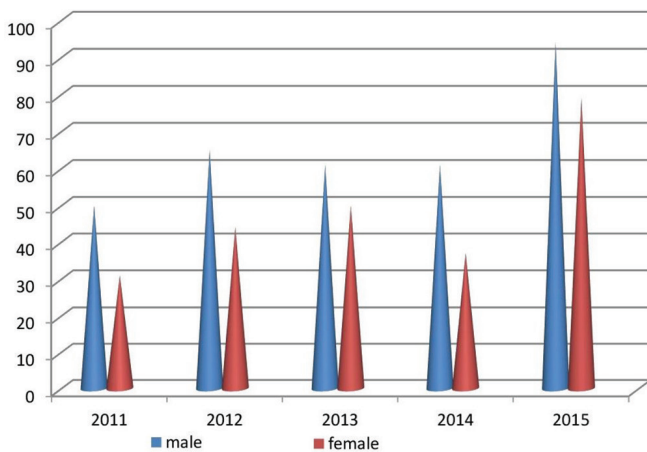


Figure 2: HIV positive male-female distribution in different year.

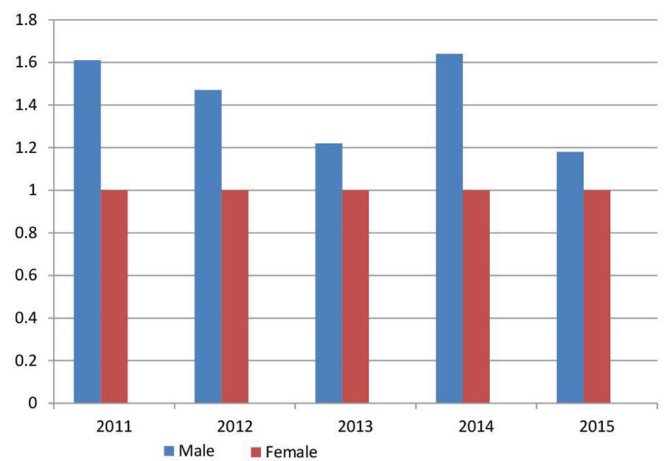


Figure 3: Ratio of male-female among HIV positive in different year.

different years it was: in 2011 it was 1.61:1, in 2012 was 1.45:1, in 2013 was 1.22:1, in 2014 was 1.64:1, and in 2015 was 1.18:1. As shown in Figure 4, the prevalence of HIV infection in 2011 was 1.60%, 2012 was 1.13%, 2013 was 1.15%, 2014 was 0.96%, and in 2015 it was 1.71%. The overall prevalence of HIV infection from 2011 to 2015 was 1.28%.

As shown in Table 2, this study found that the prevalence of pediatric HIV among total positive cases in different years from 2011 to 2015. In 2011 it was 00%, in 2012 it was 7.33%, in 2013 was 4.50 %, in 2014 was 5.10%, and in 2015 it was 3.46%. And overall prevalence in 0–14 years was 4.19% (24/572), and male-female ratio was 1.4:1.

As shown in Figure 5, the proportion of pediatric HIV positive cases among total HIV positive cases in different years from 2011 to 2015. In this study we found that the prevalence of pediatric cases first increased from 2011 to 2012 and then it decreased continually from 2012 to 2015.

Pie chart [Figure 6] shows the prevalence of HIV-TB coinfection among positive cases from 2011 to 2015: the prevalence in 2011 was 12.34%, in 2012 it was 11%, in 2013 was 4.50%, in 2014 was 4.08%, and in 2015 was 9.24%. The five-year prevalence of HIV-TB coinfection was 8.21%.

Table 2: Prevalence of pediatric HIV infection

Year	Total Positive (572)	Pediatric Age group Positive		
		Male (14)	Female (10)	Total
2011	81	0	0	0(00%)
2012	109	5	3	8(7.33%)
2013	111	2	3	5(4.50%)
2014	98	5	0	5(5.10%)
2015	173	2	4	6(3.46%)

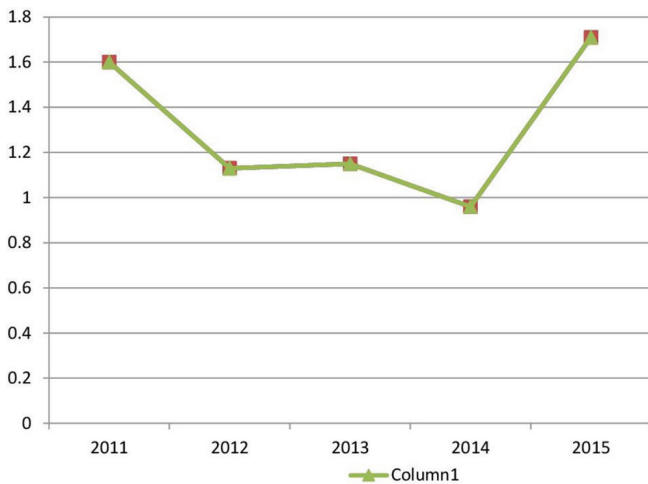


Figure 4: HIV prevalence in different year in attendees of ICTC.

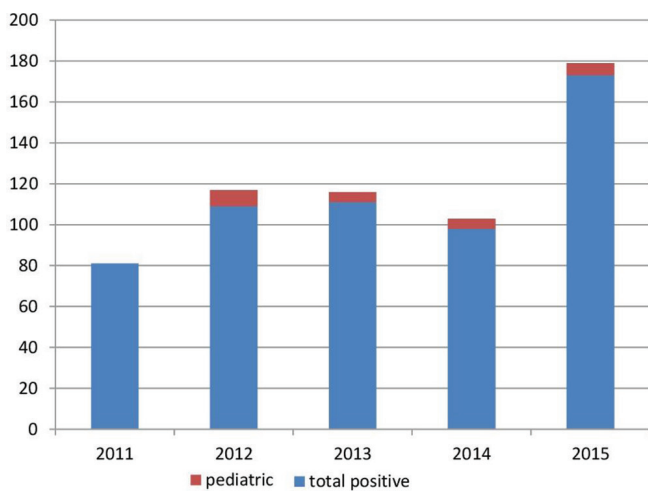


Figure 5: Pediatrics prevalence among total HIV-positive cases.

Discussion

This study was conducted in ICTC situated in Microbiology Department of Shyam Shah Medical College Rewa, Central India. We concluded the result for this study that of total 44,460 clients who attended the ICTC from January 1,

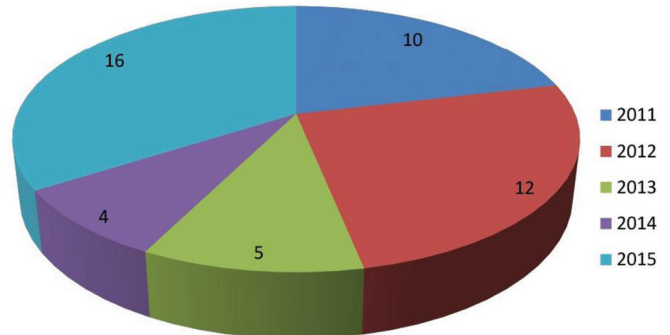


Figure 6: HIV-TB coinfection in different years.

2011 to December 31, 2015 in whom 30,073 were men and 14,378 were women. The average HIV prevalence was 1.28% (572/44,460) and in male it was 1.10% (331/30,073) and in female was 1.61% (241/14,378). In the analysis of last five-year data we found that the prevalence of HIV infection varies: in 2011 was 1.60%, 2012 was 1.13%, 2013 was 1.15%, 2014 was 0.96%, and in 2015 it was 1.71%. It does not have any significant variation; it first decreases and then increases in 2015. The prevalence of pediatric HIV positivity among total positive cases varies in different years from 2011 to 2015; in 2011 it was 00%, in 2012 it was 7.33%, in 2013 was 4.50%, in 2014 was 5.10%, and in 2015 it was 3.46%. And overall prevalence in 0–14 years was 4.19% (24/572), and male–female ratio was 1.4:1, and HIV-TB coinfection among positive cases from 2011 to 2015, in 2011 it was 12.34%, in 2012 it was 11%, in 2013 was 4.50%, in 2014 was 4.08%, and in 2015 was 9.24%. And five year (2011–2015) prevalence of HIV–TB coinfection was 8.21% (47/572). Similarly a study conducted by Sherwal *et al.*^[15] was found, of the total 25,413 clients tested for HIV infection, 963 (3.78%) were found to be HIV-1 seropositive. Seropositivity was higher in male clients (i.e. 625 (64.4%)) than female (i.e., 336 (34.8%)) followed by transgender (TG) (i.e., 2 (0.2%)). While Delhi is a low prevalence state and HIV prevalence in general population is 0.25%,^[16] high seroprevalence in this area is because more clients in this ICTC are from high-risk groups (HRG) such as NGO's, MSM's, and TG. Similarly a study conducted by Sherwal *et al.*^[15] found that the attendees of ICTC have shown a significant increase from 2986 (in the year 2008) to 7507 (in the year 2012). There was also a significant increase in the percentage of positive female clients from 9.47% (51/173) in the year 2008 to 37.95% (93/245) in 2012. This may be attributed to either increased awareness about the disease; lesser stigma associated with it nowadays, expanded coverage and the availability of antiretroviral therapy (ART). In this study, the positivity was higher in women 1.61% than men 1.10%.

But contrast to this a study conducted by Sherwal *et al.*^[15] found that the prevalence was higher than this study was (26.58%) with male to female ratio of 1.81:1 when compared to study carried out by Madkar *et al.*^[18] (8.86%). The significant

difference was observed as Lady Hardinge Medical College (LHMC) is associated with Kalawati Saran Children Hospital (KSCH) which is the largest children hospital in Delhi. All the suspected children are referred from KSCH to ICTC, LHMC which is probably the reason for increased number of clients in this age group.

TB is the most common serious opportunistic infection in HIV-positive patients worldwide. After the detection and recognition of HIV in 1983, the declining curve of TB infection started to show a sudden rise during 1990s. Coinfection of HIV and TB has already been reported which is also one of the most significant global public health concerns. But similar to this study a study conducted by Banke Lal Sherwal, Poonam Gupta *et al.*^[15] was found with low HIV-TB coinfection of 6.28% (39/621) over the period of 3 years (2010–2012). Coinfection of HIV-TB was 5.2%, 9.3%, and 4.9%, respectively in the year 2010, 2011, and 2012. It supports the findings of this study. But contrast to this study, according to Kamath *et al.*,^[19] HIV-TB was diagnosed in 18.9% with higher prevalence among males at an ART in Southern India and according to Giri *et al.*,^[20] the prevalence was 17% and as per Ghiya *et al.*,^[21] the prevalence of HIV-TB coinfection was 49% in Vadodara, Gujarat which was substantially higher than that reported in previous studies.

According to the latest UNAIDS report, India managed to reduce its HIV count by a staggering 57% while both Bangladesh and Sri Lanka saw an increase in HIV cases by 25%. India is not alone though in reining the overall spread of the disease. Worldwide, the number of people newly infected continues to fall, the number of people (adults and children) acquiring HIV infection in 2011 (2.5 million) is 20% lower than in 2001. In 2011, 1.7 million people died from AIDS-related causes worldwide. This represents a 24% decline in AIDS-related mortality compared with 2005 when 2.3 million deaths occurred.^[22]

India had responded promptly to the HIV/AIDS challenge at the initial stage itself by setting up an AIDS task force under the Indian Council of Medical Research and a National AIDS Committee headed by the Secretary, Ministry of Health and Family Welfare. In 1990, a medium-term plan was launched in four states (Tamilnadu, Maharashtra, West Bengal, and Manipur) and four metropolitan cities (Mumbai, Kolkata, Chennai, and Delhi). The plan facilitates targeted IEC campaigns, establishment of surveillance system, and safe blood supply.^[10] The National Response to HIV/AIDS in India over the last decade has yielded encouraging outcomes in terms of prevention and control of HIV. As the HIV testing in India is a voluntary testing, that is, not mandatory or strict for every individual in the community, it is actually a very challenging job to estimate the actual prevalence of HIV among the people who are not attending ICTC or any of the testing centers voluntarily.

Limitation of Study

This study was conducted on a short scale, only on single ICTC so we cannot predict the actual status of HIV in whole Rewa district so for actual prediction need a broad scale study.

Conclusion

ICTCs are important for prevention, detection, and care of HIV infection. The ICTC of Shyam Shah Medical College Rewa, India, it gives services such as pretest counseling, testing of HIV, posttest counseling, communication with ART center for treatment of positive patients. With these services, this center is taking responsibilities in terms of testing HIV infections, helping in behavioral modifications of high-risk people through counseling as well as care and support of the people living with HIV.

In this study HIV prevalence in 5 years was 1.28% (572/44,460) and in men it was 1.10% (331/30073) and in women it was 1.61%.(241/14,378) and we observed that the prevalence of female positivity rate increases in different year follow-up so we need intensification of IEC activity especially focused on high-risk women. And HIV-TB coinfection emerged as a new problem in the control of AIDS so we need a more intense collaboration between RNTCP and NACO activities to control it in an effective way.

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