SOCIO-DEMOGRAPHIC AND CLINICAL PROFILE OF HIV POSITIVE PATIENTS ATTENDING INTEGRATED COUNSELING & TESTING CENTRE OF A PRIMARY HEALTH CENTRE IN DELHI

Dahiya N[1], **Bachani D**[2] **, Das R**[2] **, Rasania SK**[2]

[1] Department of Community Medicine, Maulana Azad Medical College & Associated Hospitals, New Delhi
[2] Department of Community Medicine, Lady Hardinge Medical College & Associated Hospitals, New Delhi

ABSTRACT

Introduction: The Human Immunodeficiency Virus (HIV) infection is a global pandemic affecting principally the sexually active and economically productive population of any country. Additionally the dual epidemic of HIV and TB infection is of growing concern in Asia, where nearly two-third of TB-infected individuals live and where tuberculosis now accounts for 40 percent of HIV/AIDS deaths. Keeping this in mind, a study was conducted to understand the profile of HIV/AIDS patients attending Integrated Counseling and Testing Center (ICTC) located at Primary Health Centre, Palam in Delhi.

Methodology: This was a descriptive record based study undertaken at ICTC, PHC PALAM, New Delhi. Records of all HIV seropositive patients identified in reference period (January 2010 to December 2014) were analyzed retrospectively to assess the socio-demographic and clinical profile including possible route of transmission, CD4 counts at the time of first reporting to the Anti Retroviral Treatment (ART) centre and the presence of co-infections including tuberculosis were recorded. Total 77 HIV seropositive patients were identified.

Results: Mean Age of presentation of male was 31.18 ± 8.85 years (12-60 years) and female 30.30 ± 10.07 years (7-53 years). Majority of HIV+ persons were married (16% of males and 6% females were unmarried).24% of women were widows. Majority of HIV+ males and females had only primary schooling. 11% males and 21% females were illiterate. Main occupations of HIV+ males were daily wages labor and salaried service or other unspecified four out of 5 HIV+ women were housewives 70% of subjects were either referred from RNTCP or were self reporting. Heterosexual route was the most common route of transmission. Mean CD4 counts Males: 190.48 ± 180.52, Females: 286.21 ± 220.25 (t=2.09; p=0.039, significant).At the time of first reporting to ART centers, mean CD4 count was significantly higher in HIV+ females as compared to males. More than 50% of HIV+ males and 30% of females had co-infection of HIV & TB. CD4 count was associated with gender and co-infection with TB. Significantly higher odds of HIV-TB co-infection among male as compared to females (chi-square=4.49, p=0.034) and odds Ratio=2.76(1.07 – 7.14)

Conclusions: Low literacy and some occupations carry higher risk of HIV. CD4 count was associated with gender and co-infection with TB. Odds of co-infection with TB were higher in males. Analysis of information at ICTC & ART centre should be used to monitor and plan HIV prevention and control in the area.

Key words: *HIV, Tuberculosis, Socio-demographic profile, Clinical profile*

INTRODUCTION

The Human Immunodeficiency Virus (HIV) infection is a global pandemic[1] and a significant public health problem which has serious socio-economic and developmental consequences as it affects principally the sexually active and economically productive population of any country.[2] Additionally the dual epidemic of HIV and TB infection is of growing concern in Asia, where nearly two-third of TB-infected individuals live and where tuberculosis now accounts for 40 percent of HIV/AIDS deaths. The overlap of TB-HIV co-infection with multidrug resistant TB (MDR) and extensively drug-resistant TB presents a substantial challenge and threatens to

Correspondence:
Dr. Neha Dahiya
Senior Resident
Department of Community Medicine
Maulana Azad Medical College
New Delhi 110002, India
Email: drnehadahiya@gmail.com

curtail the progress in controlling TB and HIV/AIDS and in reducing the mortality associated with these diseases. Tuberculosis accounts for 1 in 4 of AIDS deaths globally and is amongst the commonest causes of morbidity in people living with HIV and AIDS (PLWHA). Currently, approximately 34 million people are infected with HIV, and of them at least one-third are co- infected with TB.[3] Individuals co-infected with HIV and TB are 30 times more likely to progress to active tuberculosis. Tuberculosis infection enhances replication of HIV and can possibly hasten the progression of HIV infection to AIDS. HIV/AIDS and TB co-infection present special challenges to the expansion and efficacy of DOTS programs and the Stop TB Strategy. The lifetime risk of developing active tuberculosis in immunocompetent individuals has been estimated to be 5%–10% during the lifetime, however in HIV-positive patients this risk is increased by 5% to15% annually.[3]

The epidemiology and clinical presentation of the syndrome varies greatly across the globe. To enable planning of targeted interventions involving focus on high risk groups including female sex workers, men who have sex with men, injecting drug users (IDU), trans-gender, single male migrants and long distance truckers under National AIDS Control Program (NACP) in India, it is desirable to know the epidemiological pattern and clinical profile of the disease in a particular area.[4] Keeping this in mind, a study was conducted to understand the profile of HIV/AIDS patients attending Integrated Counseling and Testing Center (ICTC) located at Primary Health Centre, Palam in Delhi.

METHODOLOGY

Under National AIDS Control Programme (NACP) in India, Integrated Counseling and Testing Centres (ICTC) have been set up to provide comprehensive services including testing for HIV infection for walk-in-clients as well as those referred from various healthcare facilities in Government sector, NGOs and private sector. Dedicated counselors and laboratory technicians posted at ICTC are trained at accredited institutions under the programme. Diagnostic kits of approved specifications are procured and supplied to ICTCs and stored at prescribed temperature. Even if a client visits a private facility for HIV testing, the client is retested for HIV at ICTC and confirmed for HIV infection based on algorithm prescribed under NACP. Thus data generated at ICTC have high level of validity with negligible element of bias or error. There is high level of cross-referrals between ICTCs and DOTS centres throughout the country as per NACP guidelines.

ICTCs are set up throughout Delhi at strategic locations for providing services to the catchment area. ICTC at Palam Primary Health Centre is the only testing centre under NACP in the catchment area which comprises of families from all sections of the society including nearby Dwarka, a large multi-rise residential sub-city. The services are free of cost for all clients, irrespective of socio-economic status. Confidentiality of clients and their HIV status is maintained with high level of integrity. As ICTCs are the gateway for free anti-retroviral treatment centres set up under NACP, these centres have high level of coverage and thus adequate level of representativeness.

This was a descriptive record based study conducted at Integrated Counseling and Testing Centre of primary health centre, Palam situated in New Delhi. All subjects who were identified to be HIV sero-positive during the reference period i. e. in between 1st January 2010 to 31st December 2014 were included. The socio-demographic and clinical profile was assessed with the help of a semi-structured proforma. Socio-demographic profile included identification characteristics, age in completed years, marital status, education and employment status. Clinical profile included possible route of transmission, CD4 counts at the time of first reporting to the Anti Retroviral Treatment (ART) centre and the presence of co-infections including tuberculosis.

Data analysis was performed using Statistical Package for the Social Sciences (SPSS) version 18 and Epinfo. Qualitative data was expressed in proportions while mean and standard deviation were calculated for quantitative data. Student t-test and Chi square tests were used for comparing the characteristics of the study participants.

RESULTS

Total 77 subjects were identified to be HIV sero-positive out of which 44 were males and 33 were females including 6 pregnant women. Mean age of the study subjects was 31.18 ± 8.85 years (12-60 years) for males and 30.30 ± 10.07 years (7-53 years) for females. Nearly 59% of HIV+ males were in the age group of 25 to 34 years and one in four HIV+ females were in the age group of 15

to 24 years. Majority of the study subjects were married. Only16% of males and 6% females were unmarried. Out of total females, 24% of women were widows.

Table 1. Profile of HIV positive persons detected at ICTC, Palam, Delhi: 2010-14

Parameters	Groups	Male (%) (n-44)	Female (%) (n=33)	Total (%) (N=77)
Age in years	<15	2(4.5)	2(6.1)	4(5.2)
	15 to 24	4(9.1)	8(24.2)	12(15.6)
	25 to 34	26(59.1)	12(36.4)	38(49.4)
	35 to 44	9(20.5)	7(21.2)	16(20.8)
	45+	3(6.8)	4(12.1)	7(9.1)
	Mean Age	31.18 ± 8.85	30.30 ± 10.07	30.8 ± 9.34
Marital Status	Unmarried	7(15.9)	2(6.1)	9(11.7)
	Married	37(84.1)	23(69.7)	60(77.9)
	Widowed	0(0.0)	8(24.2)	8(10.4)
Education	Illiterate	5(11.4)	7(21.2)	12(15.6)
	Primary	31(70.5)	23(69.7)	54(70.1)
	Middle	6(13.6)	2(6.1)	8(10.4)
	Secondary +	2(4.5)	1(3.0)	3(3.9)
Occupation	Daily wagers	10(22.7)	0(0.0)	10(13.0)
	Homemakers	0(0.0)	27(81.8)	27(35.1)
	Salaried	8(18.2)	2(6.1)	10(13.0)
	Business	5(11.4)	0(0.0)	5(6.5)
	Retired	2(4.5)	1(3.0)	3(3.9)
	Students	3(6.8)	1(3.0)	4(5.2)
	Others	16(36.4)	2(6.1)	18(23.4)
Referring Facility	Govt. Facility	8(18.2)	1(3.0)	9(11.7)
	TB Unit	22(50.0)	7(21.2)	29(37.7)
	STI Clinic	2(4.5)	1(3.0)	3(3.9)
	Antenatal Clinic	0(0.0)	8(24.2)	8(10.4)
	NGO	3(6.8)	0(0.0)	3(3.9)
	Self-reporting	9(20.5)	16(48.5)	25(32.5)
Route of Transmission	Heterosexual	39(88.6)	31(93.9)	70(90.9)
	Homosexual	2(4.5)	0(0.0)	2(2.6)
	Blood Transfusion	1(2.3)	1(3.0)	1(1.3)
	Infected Needles/ others	2(4.5)	2(6.1)	4(5.2)

Table 2. Co-infection with TB among HIV positive persons detected at ICTC, Palam, Delhi during 2010-14

Groups	Male (%) (n=44)	Female (%) (n=33)	Chi-square	P	Odds Ratio
HIV & TB	24(54.5)	10(30.3)	4.49	0.034*	2.76 (1.07-7.14)
Only HIV	20(45.5)	23(69.7)			

*Statistically significant

Nearly 70% of HIV+ males as well as females had only primary schooling. 11% males and 21% females were illiterate. 23% of males were daily wage labourers, 18% were salaried and 11% had their own business. Majority of females (82%) were homemakers and only 6% were salaried (Table 1).

Nearly 38% of the subjects were referred from tuberculosis unit running under Revised National Tuberculosis Control Programme (RNTCP), 12% from government health facility, 10% from antenatal clinic, 5% from STI clinic and 3% from Non-governmental organizations (NGOs) and 32% were self reported. In majority of the patients possible route of transmission was heterosexual (90%), 5.2% from infected needles, 2.6% homosexual and 1.3% from blood transfusion during treatment in health care facilities. Mean CD4 count at the time of diagnosis was 190.48 ± 180.52 in males and 286.21 ± 220.25 in females (Table 2 & 3).

It was observed that 54.5% of males and 30.3% of females had co-infection with tuberculosis. Odds of HIV-TB co-infection was higher among male as compared to females (x^2=4.49, p=0.034, odds ratio= 2.76 (1.07-7.14). Mean CD4 count among PLWHA co-infected with tuberculosis was 152.03, which was significantly lower than mean CD4 count (297.74) of those without co-infection (t= 3.34, p=0.0013). Sex-wise analysis revealed significant difference only in males (t=2.26; p=0.029) and not in females (t=1.94; p=0.06).

DISCUSSION

The mean age of PLWHA in our study was 31.18 ± 8.85 years in males and 30.30 ± 10.07 years in females. This is consistent with the findings of other studies.[5,6,7] However, this is in contrast to a study done in Thailand, which revealed that women aged less than 16 years had a higher prevalence.[8,9]

In our study 57% of HIV positive individuals were males which is lower than finding of other studies where 62.51% of HIV positive individuals were males.[3] Males had 1.6 times more chance of being positive as compared to females (CI 1.321-2.022).[7] In our study the infection in men was highest among daily wagers labourers (23%), salaried (18%) and those having own business (11%). Majority of females 82% were housewives and only 6% were salaried. Similar findings were noted in several studies.[8] Majority

Table 3. CD4 Count of HIV positive persons and co-infection with TB

CD4 Count	Males (n=44)				Female (n=33)				All Subjects (N=77)			
	HIV+		HIV-TB+		HIV+		HIV-TB+		HIV+		HIV-TB+	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<200	3	15.0	12	50.0	2	8.7	4	40.0	5	11.6	16	47.1
200-399	6	30.0	6	25.0	9	39.1	5	50.0	15	34.9	11	32.4
400+	6	30.0	1	4.2	7	30.4	0	0.0	13	30.2	1	2.9
Missing	5	25.0	5	20.8	5	21.7	1	10.0	10	23.3	6	17.6
Mean	254.9±216.5		136.8±124.8		336.7±235.8		185.3±147.1		297.7±227.8		152.0±132.0	
Test of Significance	t=2.26; p=0.029 (Significant)				t=1.94; p=0.06 (Not significant)				t=3.34; p=0.0013 (Significant)			

of clients were daily wage workers in the low socio economic background (34.94%) followed by housewives (31.72%), salaried individuals (12.23%) and students (11.08%). Majority of HIV positive clients were daily wage workers in the low socio economic background (52.18%).[7] This result was in contrast with the finding of other studies where the incidence of HIV infection was highest among the unemployed youth (49%) and business personnel (35%).[5] In other studies in India it was highest among the manual laborers, followed by truck drivers.[10]

HIV is a preventable disease and improved awareness and changes in behavior practices can bring down the transmission. Socioeconomic status measured by individual's income, occupation, or education reflects their position in the society and is one of the key predictors of sickness and health.[11] People with lower socioeconomic status are more likely to contract and transmit HIV/AIDS, perhaps because they have inadequate knowledge about the modes of transmission of HIV and preventive measures. They are more likely to use drugs and practice unsafe sex to escape from stress.[12] Increased awareness and knowledge about the disease is very essential to protect self from the disease by using appropriate precautions. School education has been known to play a significant role in preventing early sexual initiation and risky sexual behavior.[13]. The significantly higher positivity amongst patients with lower education and daily wage workers from low socio economic background in the current study supports these interventions. Out of total females 24% of women were widows. This proportion is much higher than findings of other studies where 5.5% of individuals were widow/ers.[7,8] Compared to married individuals, divorced, separated and widowed individuals had a significantly higher risk of being positive. In contrast, the unmarried individuals had a lower risk of being positive. This may be due to the fact that as per the socio-cultural norms in India especially in the middle and lower class population who form the majority of our study individuals, pre and extra marital sex is still considered a taboo.[7]

In our study, most common possible route of transmission was heterosexual (90%), 5.2% from infected needles, 2.6% homosexual and 1.3% from blood transfusion during treatment in health care facilities. These results are similar with the findings of other studies.[7,9.] However, in one of the study done by Devi BS IDU was the most common risk factor (87%) and it was most commonly found among the unemployed youths sharing the needless. Persons with high risk of HIV and spouses of affected individuals need to be educated regarding all levels of prevention of HIV. Patients who are already HIV positive should be counseled about the importance of antiretroviral treatment that it not only prolongs the life but is also effective in reducing the transmission of the disease and decreasing the overall viral load.[9] Best antidote to the HIV/AIDS challenge remains increased awareness and adoption of safe behavioural practices and the solution lies in planning and designing the IEC activities keeping in mind the specific situations in the area.

National AIDS control organization (NACO) also has reported TB as the commonest opportunistic infection (62.3%) in the HIV infected persons.[4] In this study, 54.5% of males and 30.3% of females had co-infection with tuberculosis, with higher risk in males. This is consistent with the findings in another study[5,14] but contrasting results were found in other studies 5.06%[10] 11.76%[9] had co-infection with T.B. In our study Mean CD4 count among patients co-infected with tuberculosis was significantly lower. This is similar to the results of study done in Ethiopia where the mean CD4+lymphocyte count of HIV mono-infected participants were 296 ± 192 Cells/mm3 and tuberculosis-HIV co-infected patients had lower mean CD4+ lymphocyte count of 199 ± 149 Cells/

mm3 with p value = 0.007. Lower CD4+ lymphocyte count was found to be the only predicting factor for co-infection. Early detection of co-infection is very necessary to prolong their ART initiation time and thereby strengthening their immune status. In this study, nearly 38% of the subjects were referred from tuberculosis unit running under revised national tuberculosis programme (RNTCP), 32% were self reported and 30% from other healthcare facilities. This finding is important to set up a cross-referral network between various units functioning in the hospital and other service providers in the area. In another study done by Ingole N, majority of individuals were direct walk-in clients who were referred by clinicians (provider initiated testing).[7]

The changing face of the HIV/AIDS epidemic and dual burden of HIV-TB co-infection warrants improved access to voluntary HIV counseling and testing. As access to HIV treatment becomes more widely available, the need for identification and linking of positive patients to care and support services would become even greater. Under National TB/HIV framework, a new model has started which requires all TB patients under RNTCP service providers referred to Integrated Counseling and Testing Centers (ICTCs) and "TB-suspects" are referred from ICTC to RNTCP facilities for diagnosis and treatment of TB. HIV–TB co-infected patients are then referred to Anti Retroviral Treatment (ART) center for initiation of ART between two weeks and two months of initiating TB treatment. Although, significant efforts are being made at the national level, it is essential to make efforts at the micro level to achieve system of cross-referrals with sustainable results. Considering the significantly high positivity of tuberculosis in HIV positive patients, further information campaign at local level is needed. Also, the data generated at each center should be analyzed regularly to understand the demographic profile and use the generated knowledge towards enhanced management of the dual epidemic.

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