

A Six-year ICTC based study on the sociodemographic profile of the HIV infected individuals in North-West Region of India.

Nusrat Perween¹, Hiba Sami², Meher Rizvi³, Parvez A Khan², Adil Raza², Nazish Fatima², Haris M Khan²

¹Department of Microbiology, GMCH, Bettiah

²Department of Microbiology, JNMCH, AMU, Aligarh,

³Department of Microbiology and Immunology, College of Medicine and Health Sciences, Sultan Qaboos University Hospital, Muscat, Oman

Correspondence:

Dr. Nusrat Perween, Senior Resident, Department of Microbiology, JNMCH, AMU

Email- nusratzafar60@gmail.com

Abstract

Introduction- It is well recognized that, if left untreated HIV progresses through several stages due to the progression in immunosuppression. The level of immunosuppression is linked directly to the CD4+ T-lymphocyte count as well as to acquisition of opportunistic infections. The data generated in the Integrated Counselling and Testing Centre (ICTC) provides a valuable information pertaining to the demographic epidemiology and clinical profile of the HIV positive patients of that particular region. In this study, we analysed the sociodemographic and clinical profiles of the attendees at the ICTC of a tertiary care hospital over a period of 6 years.

Material and Methods- This study included 1205 HIV positive patients who attended ICTC either voluntarily or after being referred by various departments and being tested for their HIV serostatus since January 2014 to December 2019 in the ICTC, JNMCH, Aligarh, U.P.

Results- Out of the 32680 attendees, the total HIV positives were 1205 (3.68%), out of which 61.3% were males and 38.4% were females. Majority of the patients (755/1205), belonged to the age group of 20-39 yrs. The pattern of risk behaviour showed that a large percentage (59.9%) of HIV positive patients had a sexual mode of transmission. Most of the HIV Positive patients presented with fever (47.4%), weight loss (46.5%), cough (15.4%), diarrhoea and oral ulcer (8.8%), coinfection of TB (6.8%) whereas 14.4% were asymptomatic. In the Pre ART monitoring, most of the patients (498; 41.3%) had a CD4 Count <200 whereas after 6 months of ART the number of HIV positive patient with CD< 200 decreased to 324; 26.8%. 128 (10.6%) patients died while on ART treatment. Majority (72%) of the patients with unfavourable outcome belonged to WHO Stage 3 and 4.

Conclusion- Most of the patients were young and in the sexually active age group. This disease not only results in financial loss to the family but also adds an extra burden of taking the treatment lifelong. The ICTC programme is playing an important role in early diagnosis of HIV and connecting the patients to ART facilities.

Keywords: HIV, ICTC, Socio-demographic profile, AIDS, ART.

Introduction

AIDS is a chronic immune system disease caused by the Human Immunodeficiency Virus (HIV). HIV targets the immune system and impairs the function of immune cells. Infected individuals, if left untreated or are non-compliant, are lost to follow up gradually become immunodeficient and succumb to various opportunistic infections such as tuberculosis, fungal infections, severe bacterial infections and some cancers. According to the recommendations of World Health Organisation (WHO), every person who may be at risk should seek comprehensive and effective HIV prevention, testing and treatment services (1). People who are diagnosed with HIV should be offered ART (Antiretroviral treatment) and referred to ART Centres as soon as possible and should be monitored periodically using clinical and laboratory parameters, including tests to measure the viral load and CD4 count (before and after the start of ART) (2). According to the WHO 2021 report, there were approximately 38.4 million people living with HIV/ Acquired immunodeficiency syndrome (AIDS) worldwide and 6,50,000 people even died from HIV related causes (1). About 28.7 million people living with HIV/AIDS were receiving antiretroviral therapy (ART) globally till 2021. In India, the number of People Living with HIV (PLHIV) is estimated at around 24 lakhs and the AIDS-Related Deaths (ARD) are estimated as 41,970 in 2021 (1). Annual New Infections (ANI) are estimated as 62,970 in 2021. There is an estimated 46.3% decline in ANI at the national level from 2010-2021 (3). The northeast region states have the highest adult HIV prevalence (2.70% in Mizoram, 1.36% in Nagaland, and 1.05% in Manipur) followed by southern States (0.67% in Andhra Pradesh, 0.47% in Telangana, and 0.46% in Karnataka) (3,4). It is cause for concern that that only 10 to 20% of those infected with HIV know that they are infected, which considerably impedes treatment and prevention efforts (5). To cope up with these challenges, new models of care and cost-effective health care delivery systems are needed with a better understanding of HIV/AIDS epidemiology in a particular region especially with regards to various socio- demographic factors, level of awareness as well as pattern of risk behaviours of the population. The most effective approaches available are generating awareness and modifying lifestyles. The Integrated Counselling and Testing Centre (ICTC) is an excellent programme where people are offered an opportunity to be confidentially imparted with appropriate knowledge and awareness about HIV and to come to terms with their sero-status in a mature manner and proceed to responsible management of the disease (6). The data generated in the Integrated Counselling

and Testing Centre (ICTC) provides valuable information pertaining to the demographic epidemiology and clinical profile of the HIV positive patients of that particular region. In this study, we analysed the sociodemographic and clinical profiles of the attendees at the ICTC of a tertiary care hospital over a period of 6 years.

Material and Methods

The present study was focused the attendees of ICTC, in the Department of Microbiology, Jawaharlal Nehru Medical College and Hospital, AMU, Aligarh (U.P.) to develop an insight of the trends in this group of patients over the last six years. Ethical approval was obtained prior to the study. This study included 1205 HIV positive patients who attended either voluntarily or after being referred by various departments and being tested for their HIV serostatus from January 2014 to December 2019 in the ICTC Centre of JNMCH, Aligarh, U.P. Anonymous information about all the attendees of the ICTC was available from the records which were maintained at the ICTC. Information pertaining to age, sex, occupation, the pattern of risky behavioural pattern, the place of residence and the HIV serostatus of the attendees was collected while maintaining confidentiality. The guidelines of NACO were followed strictly. The counsellor of the ICTC interviewed the attendees under strict confidentiality. All the attendees were tested after obtaining their consent following the standard NACO guidelines (7). Relevant data of all the HIV positive individuals during the study period was compiled and analysed by using standard statistical methods.

Results

Out of the 32680 attendees, the total HIV positives were 1205 (3.68%) during the six-year period. A declining trend in HIV positivity was observed over the last six years. In 2014, it was 4.54% while by 2019, it had declined 2.16%, with peaks in 2015, 5.48 and 4.4 in 2017) as can be seen in Figure 1. Among the HIV positive patients, 61.3% were males, and 38.4% were females and 0.24% were transgenders. Overall, male predominance was found with male, female and transgender ratio of 1.59: 0.62: 0.002. Gender-wise distribution of HIV positive individuals is shown in Figure 2. Majority of the HIV positive patients, 62.6% (755/1205), belonged to the age group of 20-39 years and least (2.4%) belonged to the age group of >60yrs. (Table 1). Among the seropositive patients, the pattern of risk behaviour (Table 2) showed that a large percentage of 59.9% (722) had a hetero-

sexual mode of transmission. Among the other mode of transmission were blood transfusion; 118 (9.79%), vertical transmission; 68 (5.64%), intravenous drug abusers; 60 (4.97%), homosexuals 7 (0.58%) and needle stick injury; 3 (0.24%).

Most of the HIV positive patients presented with fever (47.3%), weight loss (46.5%), cough (15.4%), diarrhoea and oral ulcer (8.8%), coinfection of TB (6.8%) whereas 14.4% were asymptomatic (Figure 3).

During the Pre ART monitoring, most of the patients (41.3%) had CD4 Count <200; 20.7% had counts ranging between 200-349; 12.3% had a count range of 350-500 and only 9% of HIV positive patients had a count > 500 (Table 3) while during post ART monitoring, it was found that 26.9% had a CD4 count of <200; 22.5% patients had count in the range of 200-349; 17.1% patients had count ranging between 350-500 and 16.9% had CD4 count >500. 128 (10.6%) patients died while on ART treatment. Majority (72%) of the patients with unfavourable outcome belonged to WHO Stage 3 and 4.

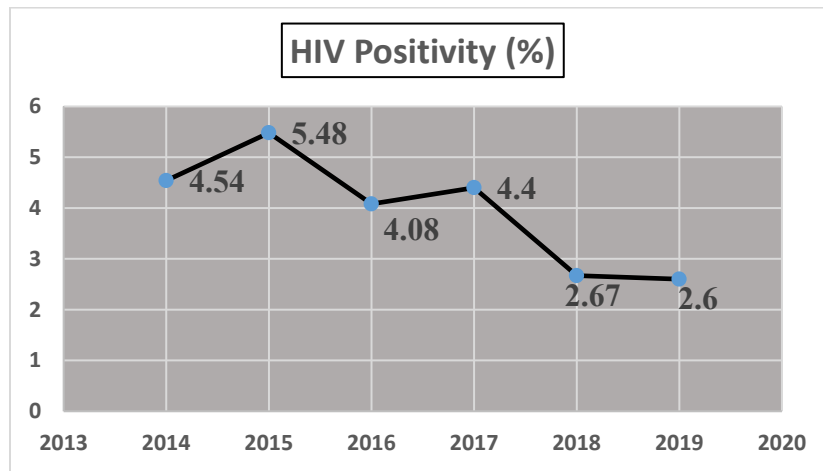


Figure 1: Year Wise trends of HIV Prevalence at ICTC centre during the study period (2014-2019)

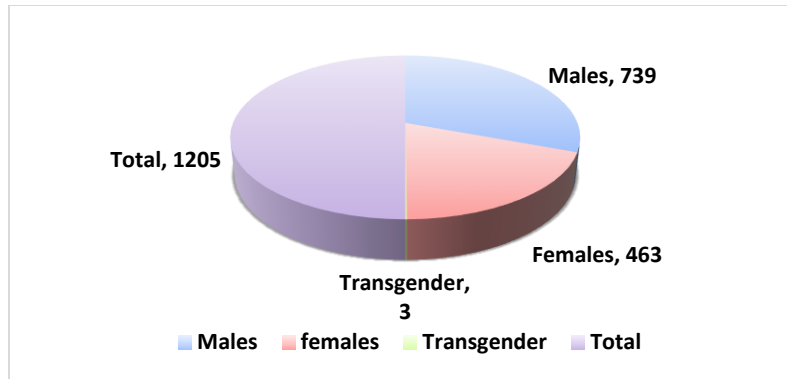


Fig 2: Gender distribution of HIV positive Patients (n=1205)

Table 1: Distribution of HIV positive patients according to their age group

Age Groups	No. of Patients (%)
0-19	108 (8.9)
20-39	755 (62.6)
40-59	313 (25.9)
>60	29 (2.4)

Table 2: Routes of transmission of HIV among the study population

Route of transmission	No. of patients (%)
Sexual intercourse	722(59.9)
Blood Transfusion	118(9.79)
Parent to Child transmission	68(5.64)
Intravenous drug Abuse	60(4.97)
Homosexuality	7(0.58)
Needle Stick Injury	3(0.24)

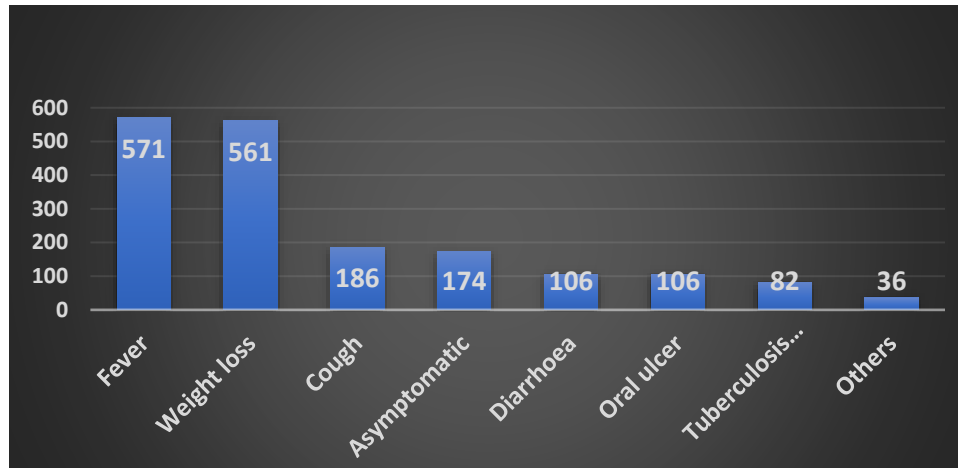


Figure 3: Clinical Features in HIV Positive Patients (n=1205)

Table 3: Pre and Post ART CD4 Count of HIV positive Patients

CD4 Range	Pre ART CD4 Count	Post 6 months ART CD4 Count
<200	498	324
200-349	250	271
350-500	148	206
>500	109	204

Discussion

With no vaccine available till date, early detection and counselling are the mainstay for the control of HIV. This study describes the socio-epidemiologic profile, risk factors, trends in HIV and pre and post ART CD4 Count. The estimated prevalence of HIV in 2019 was 2.6% while overall it was 3.68% which is lower compared to the current national HIV prevalence in India (8). Male patients outnumbered the female patients, a finding which is similar to other studies (9). Majority of the HIV positive patients in this study were within the age-group of 20-39 years (63%). The prevalence of HIV in 0-19 years age group was 8.9% which is comparable to the national prevalence of HIV in children and young adults (3% and 7% respectively) according to NACO technical Report (8).

Trends of HIV prevalence at our ICTC centre during 2014 to 2019 showed an initial increase in HIV proportion from 4.54% (2014) to 5.48% (2015) followed by a decline in proportion from 4-

4.4% (2016-2017) to 2.6% (2018-2019). Other studies analysing the trend of HIV prevalence in North India have also reported a decline in HIV prevalence from the year 2010 to 2014 (2) and year 2011 to 2015 (3) respectively. Such steadily falling seropositivity rates is an encouraging sign. ICTCs play an important role in prevention and care as they increase awareness about HIV and help in decreasing associated stigma. Moreover, the well-functioning National Aids Control Programme is also playing an important role by increasing awareness about the disease aetiology and preventive measures.

In the present study, male patients (61.3%) far outnumbered the female (38.4%) patients. Similar gender prevalence has also been reported from South India (10) and Punjab (11). The male-to-female ratio of HIV patients in a given population may be associated with the medical seeking habits (negligence in females), gender bias, and the level of stigma of HIV among women. Though in this study males outnumbered females, it's a cause of concern as females are at high risk because of the high-risk behaviour of their male partners.

In the present study, the most common mode of transmission of HIV was through the heterosexual route (59.9%), followed by blood transfusion (9.79%) and third was parent to child transmission (5.64%). Intravenous drug abuse, homosexual and needle stick injuries were among the other mode of transmission. Heterosexual mode has been reported as the commonest mode of transmission of HIV not only in India (9,12,13) but also throughout South Asia (14). It may be considered a tragic systems failure that as high as 9.79% transmission is by blood transfusion and 5.64% from parent to child. Both these are avoidable and greater stress should be placed on accurate testing of blood prior to transfusion and mandatory testing of pregnant women and optimal treatment of mother and child.

In the present study, fever (47.3%), weight loss (46.5%) and cough (15.4%) were the three predominant complaints. Our findings are comparable with earlier studies from Maharashtra, Mangalore and Ethiopia (15–17). The second most frequent presenting symptom was weight loss (35.1%), which is consistent with other studies (16,18,19). 14.4% of HIV positive patients in this study were asymptomatic. In studies conducted by Umesh et al (20), (7.0%) and Kaiser Ahmed Wani et al (18) in Kashmir (18.0%), asymptomatic individuals were found in the same proportions as in the present study. Co-infection of TB was found in 6.8% of HIV positive individuals. Pulmonary tuberculosis is the most prevalent opportunistic infection among HIV-positive

individuals in India (15,21). PLHIV are more vulnerable to developing new TB or experience a reactivation of latent infection due to low level of immunity. Different parts of India have reportedly varying rates of co-infection with HIV and TB. It is reported to range from 0.4 to 20.1% in North India (22,23). The prevalence of coinfection in this study was in the range as reported by others in North India.

Most of the patients in this study had CD4 count < 200 cells/mm³ at the time of diagnosis. Very few patients had CD4 count of more than 500 cells/mm³ at the time of diagnosis but this number increased significantly after 6 months of ART treatment. The reason for this low CD4 count at presentation may be attributed to late seeking of medical care which allowed the disease to advance. According to a study conducted in Ethiopia, the main obstacles to early presentation for HIV/AIDS care included low awareness, nondisclosure, perceived ART side effects, and HIV stigma (24). Patients with a decline in CD4 count even after ART treatment should get tested for viral loads and antiviral resistance. Low CD4 count even on ART may be caused by non-adherence to treatment, lack of family support, medicine shortage, or drug toxicity. 10.6% patients in this study died while on ART treatment. Majority (72%) of these patients belonged to WHO Stage 3 and 4. WHO (1) states that even after beginning ART, people with advanced HIV Disease (WHO stage 3 and 4) are at significant risk of death and this risk rises as their CD4 cell counts drop.

Conclusion

Most of the patients in this study were young and in the sexually active age group. This disease not only results in financial loss to the family but also adds an extra burden of lifelong treatment. Low baseline CD4 count at the beginning of an ART regimen was linked to higher mortality. The ICTC programme is playing an important role in early diagnosis of HIV and connecting the patients to ART facilities.

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