

Demographic Profile and Clinical Features of Admitted HIV Positive Patients and their Correlation with CD4 Counts in a North India Tertiary Care Hospital.

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ABSTRACT

Background: HIV Infections continues to be a burden globally and presents serious public health problems in the developing countries, especially in India. **Aims and objectives:** To study the demographic profile and clinical features of HIV positive admitted patients and to evaluate the correlation of clinical features with their CD4 counts. **Methods:** The present study was conducted to assess the socio-demographic profile and clinical features of 150 HIV+ve /AIDS patients admitted in various wards of Department of Medicine, Rajindra Hospital, Patiala from September 2013 to October 2015. For these patients a preformed questionnaire was prepared to enquire about socio-demographic characteristics such as age, sex, literacy status, marital status, occupation and socio-economic status. Thorough clinical examination was performed and correlation of clinical features with CD4 counts was evaluated using Pearson Coefficient of correlation. **Results:** The results of study showed that the most common age group affected was 26-45 years (56%). Male patients were 69.3% and females constituted 30.7%. Most common mode of transmission was heterosexual (73.3%), followed by intravenous drug abuse (6.7%), unsafe injections/needle stick injury (4.6%), blood transfusion (2.7%), 8% were both HS and IDU and transmission was unknown in 2.7%. The common presenting symptoms in admitted HIV patients were fever (71.3%), weight loss (50%), night sweats (39.3%), dry cough (36%), anaemia (32%), cough with expectoration (26%), lymphadenopathy (24%), shortness of breath (22%), chest pain (20.7%), diarrhoea (15.3%) and mouth ulcers (8.7%). Others were, headache (10.7%), haemoptysis (10%), icterus (6.7%), change of voice (4%), altered sensorium (14%) and neurological deficit (7.3%). 16 patients had pulmonary and 13 had extra pulmonary tuberculosis. It was also found that most patients (52%) had CD4 count in range of 200-500, with mean CD4 count of 282.61 ± 14.31 cells/cmm at time of presentation. The frequency of these symptoms increased with fall in CD4 count indicating negative correlation. **Conclusion:** A thorough knowledge of the demographical & clinical profile of admitted patients will go a long way in managing resources and planning management of these patients. This will serve as a great step in achieving zero deaths as envisaged by NACO.

Keywords: CD4 counts, Clinical features, Demographic profile and HIV positive patients

INTRODUCTION

The HIV/AIDS in India came into public view in 1986 with detection of first case of HIV in Chennai, Tamilnadu and first AIDS case in Mumbai in 1987.

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In the year 2006, there were about 5.206 million people living with HIV in India. Males account for

78.5% of AIDS and females 21.5%, the ratio being 3:1, however more and more women are being infected.^[1] Adult HIV prevalence in Punjab is 0.27% as per 2015 Punjab AIDS control society report. HIV prevalence in males is 0.32% and females are 0.22%. Total HIV positive cases registered for HIV care (Pre ART) till April 2015 are 34819 and total number of patients currently on ART are 15575.^[2]

HIV infects vital cells in the human immune system such as helper T cells (specifically CD4+T cells), macrophages and dendrites cells.^[3] The epidemiological scenario of the disease has been changing. From a disease mainly of homosexuals and drug abusers, there is now a rapidly growing

population of HIV infected females, children and men who are not homosexuals.

Most of the infected women contract HIV infection from their already infected husbands because women have very little say in decision making, like condom use with their partners, especially if she is economically dependent on her husband.^[4] More patients are from rural background and many of them have history of migration to high risk areas. The professions involving long periods of stay away from the family are a major risk factor for breeding promiscuity.^[5] The commonest mode of transmission in India is heterosexual contact as compared to homosexuality and IV drug abuse.^[6] Fever, weight loss, cough, fatigue and malaise are the commonest symptoms seen in these patients. The majority of opportunistic infections include pneumococcal and other pneumonia, pulmonary tuberculosis, Herpes Zoster, Candidiasis, Kaposi's sarcoma, Cryptosporidiosis, oral hairy leukoplakia, pneumocystis carinii pneumonia, Toxoplasmosis, Cytomegalovirus and Mycobacterium Avium Complex.^[7]

There is a large pool of HIV infected patients coming for treatment in Rajindra hospital Patiala, but very little is known about co-morbidity conditions for which patients are admitted here. In the present study we have studied the demographic profile and clinical features of these admitted patients and did laboratory evaluation. Correlation of clinical features with CD4 counts of the admitted HIV positive patients was also done to see their interdependence.

Aims and Objectives:

To study the demographic profile and clinical features of HIV positive admitted patients and to evaluate the correlation of clinical features with their CD4 counts

MATERIALS AND METHODS

This observational, cross sectional and prospective study was conducted in Department of Medicine, Rajindra Hospital, Patiala from September 2013 to October 2015. A total of 150 admitted patients were studied. Inclusion criteria for sample included previously or newly diagnosed HIV positive patients (ART and Pre-ART) admitted in various wards of department of medicine who were above 15 years of age. HIV patients with past history of diseases like cerebrovascular accidents, epilepsy, Parkinsonism, hypertension, COPD and with Comorbid conditions like diabetes mellitus were excluded. The Study was duly approved by Institutional ethics committee. All patients and their relatives were informed about the study in their vernacular language and written consent was taken. Admitted HIV Positive patients were properly interviewed for their identification data, thoroughly questioned for their symptoms and clinically examined with consideration to

Respiratory system, cardiovascular system, Abdomen and Central Nervous System and the correlation of clinical features with CD4 counts was evaluated. Results were analyzed statistically using percentages and Pearson Coefficient of Correlation.

RESULTS

In the present study, the most common age group affected by HIV / AIDS was 26-45 years (56%) with mean age of 40.02 ± 1.008 years Male patients were 69.3%. Mostly patients were married 120 (80%), rest were:- single (10.7%), widow (6%), divorced (2.7%) and involved in live-in relation (0.6%). Among the spouses of male patients, 41.25% were HIV positive and among the spouses of female patients, 52.5% were HIV positive. Children of HIV patients were positive in 7.3%. Majority of HIV patients were taxi/bus/truck drivers (16%) followed by unskilled /agricultural workers (12.7%). Majority of females affected were housewives. Majority of the admitted HIV positive patients (38%) had primary education, 32% were illiterate, 14% had secondary education and 16% had higher education (college and above). 74% of the patients' monthly income was below Rs. 10000 i.e. they belong to low socioeconomic status. Majority of patients belonging to low socioeconomic status had CD4 count < 200 cells/cmm at the time of admission. [Table 1]

Most common mode of transmission was heterosexual (73.3%), followed by intravenous drug abuse (6.7%) and unsafe injections/needle stick injury (4.6%). 4 cases (2.7%) of blood transfusion were reported. 12 patients (8%) were both HS and IDU. Transmission was unknown in 4 (2.7%). [Table 2]

The common presenting symptoms in admitted HIV patients were fever (71.3%), weight loss (50%), night sweats (39.3%), dry cough (36%), anaemia (32%), cough with expectoration (26%), lymphadenopathy (24%), shortness of breath (22%), chest pain (20.7%), diarrhoea (15.3%) and mouth ulcers (8.7%). Others were, headache (10.7%), hemoptysis (10%), icterus (6.7%), change of voice (4%), altered sensorium (14%) and neurological deficit (7.3%) Nine patients presented with hemiplegia and one each with monoplegia and paraplegia]. The frequency of these symptoms increased with fall in CD4 count. 16 patients had pulmonary and 13 had extrapulmonary tuberculosis. Nine patients had stroke and Four patients had viral meningitis. Anaemia was the most common haematological abnormality detected, with mean Hb- 9.86 ± 2.42 gm%. It was more common in patients with CD4 count < 200 cells/cmm. One patient (0.7%) was co-infected with HBV and 5 (3.3%) were HCV positive. [Table 3]

Most patients (52%) had CD4 count in range of 200-500, with mean CD4 count at presentation 282.60 ± 14.31 cells/cmm. [Table 4]

Table 1: Demographic profile of admitted HIV positive Patients

Demographic Factors	Number of cases	Percentage
Age		
15-25	14	9.4
26-35	44	29.3
36-45	40	26.7
46-55	35	23.3
>55	17	11.3
Sex distribution		
Male	104	69.3
Female	46	30.7
Marital status		
Single	16	10.7
Widow	9	6.0
Married	120	80.0
Divorced	4	2.7
Live in	1	0.6
Occupation		
Unskilled Worker	19	12.7
Driver	24	16.0
Factory Worker	6	4.0
Service	17	11.3
Student/ Housewife/ Unemployed	56	37.3
Others	28	18.7
Education		
Illiterate	48	32.0
Primary School	57	38.0
Secondary School	21	14.0
College or Above	24	16.0
Socio- economic status (income)		
<10000	111	74.0
10000-50000	39	26.0

Table 2. Mode of Transmission of HIV infection

Mode Of Transmission	Number of Cases	Percentage
Heterosexual	110	73.3
heterosexual /Intravenous drug user	12	8.0
Intravenous drug user	10	6.7
Blood Transfusion	4	2.7
Mother to child	3	2.0
Probable unsafe injection	7	4.6
UNKNOWN	4	2.7

Table 3. Diagnosis of patients at the time of admission

Diagnosis	CD4 _grp<=200	CD4 _grp 200-500	CD4 grp > 500	TOTAL
ANAEMIA	9	13	3	25
% within grp	16.0%	16.7%	18.7%	16.7%
DIARRHOEA	7	13	3	23
% within grp	12.5%	16.7%	18.7%	15.3%
PULM.KOCH'S	10	9	1	20
% within grp	17.9%	11.6%	6.3%	13.3%
Pneumonia	7	9	2	18
% within grp	12.5%	11.6%	12.5%	12.0%
CVA (Stroke)	4	5	2	11
% within grp	7.1%	6.4%	12.5%	7.3%

UTI	2	7	1	10
% within grp	3.6%	8.9%	6.3%	6.7%
TB. Meningitis	6	3	0	9
% within grp	10.8%	3.8%	0.0%	6.0%
Tubercular PL Effusion	0	4	3	7
% within grp	0.0%	5.2%	18.7%	4.7%
PUO	4	2	1	7
% within grp	7.1%	2.5%	6.3%	4.7%
HEPATITIS C	2	3	0	5
% within grp	3.6%	3.8%	0.0%	3.3%
Esophageal Candidiasis	0	5	0	5
% within grp	0.0%	6.4%	0.0%	3.3%
Viral Meningitis	4	0	0	4
% within grp	7.1%	0.0%	0.0%	2.7%
Seizure Disorder	0	3	0	3
% within grp	0.0%	3.8%	0.0%	2.0%
Abdominal Tuberculosis	1	1	0	2
% within grp	1.8%	1.3%	0.0%	1.3%
Hepatitis B	0	1	0	1
% within grp	0.0%	1.3%	0.0%	0.7%
Total	56	78	16	150
	37.3%	52.0%	10.7%	100%

Table 4: CD4 count of the patients at the time of admission

CD4 Count	Number of Cases	Percentage
<=200	56	37.3
200-500	78	52.0
>500	16	10.7
Total	150	100.0

DISCUSSION

Our Study revealed that 29.3% of the admitted HIV patients belong to 26-35 years of age group, followed by 26.7 % belonging to 36-45 years of age group and 9.4 % were less than 25 years at the time of admission. The mean age was 40.02 years. This section of the population is more affected because they are economically productive and sexually more active. Most of the admitted HIV patients were male 104 (69.3%). Females were 46 (30.7%). No case of transgender was reported. The ratio of male to female was 2.3:1. Results are in correlation with studies conducted by Zaheer et al^[8] and Gupta et al^[9], but results of Singh et al^[10] and Bose et al^[11] show much lower male preponderance. This difference may be explained as both of these studies screened a set population randomly to first detect HIV patients and then sex ratio was calculated. The male preponderance might have been due to the fact that in the existing social milieu, females do not seek medical care fearing criticism, gender bias, social stigma and neglect attached with the disease which decreases the number of females seeking treatment. So the low number of females may not be the true representation of the proportion of females.

As far as marital status is concerned, mostly patients were married 120 (80%), rest were:- single (10.7%), widow (6%), divorced (2.7%) and patients with live-in relations (0.6%). Shisana O et al^[12] conducted a study on marital status and risk of HIV infection in South Africa, which showed, risk of HIV infection did not differ significantly between married and unmarried people (odds ratio (OR)=0.85, 95% confidence interval (CI):0.71-1.02) when age, sex, socio-economic status, race, type of locality and diagnosis of a sexually transmitted infection (STI) were included in the logistical regression model. However, the risk of HIV infection remained significantly high among unmarried compared with married people only when sex behavior factors were controlled for in the model (OR 0.55;95% CI:0.47-0.66). No similar study is available on Indian population comparing HIV prevalence in married and unmarried people where sex behavior factors are matched in either group. The relationship between marital status and HIV is complex. The risk depends on various demographic factors and sex behavior practices. Increased prevention strategies that take socio-cultural context into account are needed for married people.

HIV was most prevalent in taxi/bus/truck drivers (16%), followed by unskilled/agriculture workers (12.7%). Majority of the females affected were housewives. Together students, housewives and unemployed group constituted 56 patients out of 150 (37.3%). HIV/AIDS disproportionately affects economic sectors such as agriculture and transportation that have large numbers of mobile or migratory workers.

Regarding education, majority (38%) of the admitted HIV patients had primary education, 32% were illiterate and 14% had secondary education. This is in accordance with results reported by Singh et al^[10], Bose S et al^[11], Joge US et al^[13] and Tumano I et al^[14]. These findings demonstrate that HIV/AIDS knowledge is strongly associated with patients' health literacy. These findings reiterate the need to target HIV prevention strategies toward populations with inadequate health literacy levels and to dispel misconceptions regarding HIV/AIDS that directly influence risk-taking behaviours and health care utilization.

Our study reveals that 74% of the patients' monthly income was below Rs. 10000 and that they belong to low socioeconomic status. No case was reported with monthly income above 50000. This shows, HIV infection is more prevalent in low socioeconomic group. Monthly income affects educational status, employment and living environment. Lack of knowledge of HIV, its mode of transmission and preventive measures is one of the most important risk factors for HIV prevalence. Our observation correlates well with results reported by Joge US et al^[13] and Kar JK et al.^[15]

Most common mode of transmission was heterosexual (73.3%), followed by intravenous drug abuse (6.7%) and unsafe injections/needle stick injury (4.6%). 4 cases of blood transfusion were reported. 12 patients were both HS and IDU. Transmission was unknown in 4 (2.7%). HIV is sexually transmitted infection. 41.25% of the wives of HIV males were HIV positive, where as 52.5% of husbands of HIV females were positive for HIV infection. Similar results were reported by Joge US et al^[13], that were :- among the spouses of male patients, 51.46% were HIV positive and among the spouses of female patients 85.94% were HIV positive. Marital life itself becomes a risk factor for those who get infected by their spouses. HIV-negative individuals living in stable HIV-discordant partnerships (in which one partner is HIV-infected while the other one is not) are more likely to get infected with HIV as those living in concordant HIV-negative relationships. A combination of interventions including behavioural (promotion of couples' counseling, testing and disclosure) and biomedical interventions is urgently needed to increase knowledge of HIV status as well as reduce the risk of HIV transmission within married and cohabiting couples.

The common presenting symptoms in admitted HIV patients were fever (71.3%), weight loss (50%), night sweats (39.3%), dry cough (36%), anaemia (32%), cough with expectoration (26%), lymphadenopathy (24%), shortness of breath (22%), chest pain (20.7%), diarrhoea (15.3%) and mouth ulcers (8.7%). Others were, headache (10.7%), hemoptysis (10%), icterus (6.7%), change of voice (4%), altered sensorium (14%) and neurological deficit (7.3%) Nine patients presented with hemiplegia and one each with monoplegia and paraplegia]. 16 had pulmonary and 13 had extrapulmonary tuberculosis while Four patients had viral meningitis. All these above mentioned symptoms were studied in relation with CD4 counts and it was found that there was negative correlation between CD4 Count and fever ($r = -0.068$), weight loss ($r = -0.056$), diarrhea (-0.077), chronic cough ($r = -0.007$), night sweats ($r = -0.018$), anaemia (-0.152), lymphadenopathy ($r = -0.093$), neurological deficit ($r = -0.024$), tuberculosis ($r = -0.030$). Anaemia was the most common haematological abnormality detected, with mean Hb- 9.86 ± 2.42 gm% & mostly of Microcytic Hypochromic type one patient was HbsAg positive and five were Anti-HCV positive. Similar results were found in various other studies. Fever, asthenia and weight loss were the most common presenting symptoms in studies of Mir et al^[16], Mulla et al^[17], Joge US et al^[13], Tumano I et al^[14], Rajiv AD et al^[18] and Kar JK et al.^[15] Most patients (52%) had CD4 count in the range of 200-500 cells/cumm, 37.3% patients had CD4 count less than 200 cells/cumm and 10.7% had greater than 500 cells/cumm. The mean CD4 count at

presentation was 282.61 ± 14.31 cells/cmm. The mean CD4 count of our study is in accordance with results of Martin et al^[19] study of HIV patients in Dhaka. In comparison to our study, only 20% cases had CD4 count below 200 cells/cumm at the time of diagnosis in study conducted on HIV patients in West Bengal.

CONCLUSION

Delay in the diagnosis of HIV in infected patients may compromise timely management and enhances propagation of the epidemic in our country. All patients belonging to high risk category should be evaluated for HIV infection. According to our study, high risk group includes economically productive and sexually active adults, mobile and migratory workers, spouses of HIV infected individuals, lesser educated and lower socio-economic strata. This high risk category has high frequency of behavioral risk factors, together with unawareness, and too little health infrastructure, thus creating an impending risk for the rapid spread of HIV/AIDS. It therefore also becomes imperative and urgent to address the health concerns especially those of admitted patients.

Our study concluded that comprehensive knowledge of the socio demographic and clinical features of admitted HIV +ve / AIDS patients will go a long way in effective planning, managing resources and achieving ultimate goal of NACO i.e. Zero new infections, Zero discrimination and Zero deaths. However, larger studies are needed.

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