SOCIO-CLINICAL PROFILE OF HIV PATIENTS VISITING TO AN ART CENTRE

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ABSTRACT

Introduction: Scenario of the AIDS epidemic, clinical course and pattern of opportunistic infections in HIV patients is changing world-wide. The study aims to fulfill the paucity of socio-clinical profile among the patient of HIV with geographical population of this region.

Methodology: This is a hospital based cross sectional clinical study with a sample size of 110 respondents presenting to ART center at Jayarogya Hospital (JAH) Gwalior from May 2010 to Oct 2011.

Results: Mean age of study population was 35.44±9. High Frequency of weight loss > 10% ($P<0.001$), fever ($P=0.0027$), breathlessness ($P=0.03$), itching ($P<0.001$), lymphadenopathy ($P<0.001$), oral thrush ($P=0.006$), extra pulmonary tuberculosis ($P=0.04$), candidiasis ($P=0.006$) at low CD4 count (<200) and difference in mean CD4 count ($P=0.0039$) among male (202.21) and female (291.41) was found to be statistically significant. CD4 counts of the patients were significantly inversely correlated with the number of opportunistic infections and the number of symptoms ($R=-0.369$; $P<0.001$, $R=-0.223$; $P=0.019$ respectively)

Conclusion: The study depicts male predominance, young sexually active group vulnerability, with a quite difference in clinical presentation and occurrence of opportunistic infections from other part of the world necessitating formulation of different set of guidelines for subjects of Indian subcontinent to improve life-span of such patients.

Key words: ART, Clinical profile, Heterosexual, Socio-demographic profile.

INTRODUCTION

HIV has rapidly established itself throughout the world over the past three decades, with an estimated 2.5 million persons were prevalently HIV-infected as of 2007.[1] India is the country with the second largest population of HIV infected individuals. There is a changing scenario of the AIDS epidemic in India with 35% of all reported AIDS cases among the age group of 15-24 years, reflecting the younger population vulnerability to the epidemic, shift from high-risk groups such as sex workers to the general population and from urban to rural populations.[2]

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HIV affects the immune system and reduces the body's defenses to protect against various infectious diseases and cancer.[3] Prolonged course of human immunodeficiency virus (HIV) infection is marked by a decrease in the number of circulating CD4+ T helper cells and persistent viral replication, resulting in immunologic decline leading to clinical course and pattern of opportunistic infections varying from patient to patient and from country to country.[4] The clinical manifestations of HIV infection in India (like other developing countries) are diverse. Spectrum of OIs with which most of the patients present in the clinics, reflects a wide variety of other endemic diseases prevalent within each region.[5] It is important to understand the presentation of HIV disease in the local context. Such estimates would be useful to guide healthcare workers in the institution of appropriate intervention strategies for the prevention of specific OIs, and also in the decision to initiate ART.[5,6]

There is plethora of epidemiological and clinical data obtained through various studies on HIV patients conducted in almost all continents and in India.[6] These data indicate the globally variable presentation of clinical manifestations. However, due to the non availability of recognized reporting centre for AIDS patients in northern region of the state of Madhya Pradesh in India, the quantum of the HIV patient available for the study had been very less till about two years back. Recently, a NACO recognized state AIDS centre (ART) has started running at G. R. Medical College, Gwalior (M.P.). Hence, in this institution the present study had been conducted to fulfill the paucity of socio-clinical profile among the patient of HIV with geographical population of this region.

METHODOLOGY

A total of 110 HIV infected patients has been registered for the study, presenting to antiretroviral treatment center (ART) of Jayarogya hospital between May 2010 to October 2011. The prevalence of HIV/AIDS in Madhya Pradesh as per NACO report is 0.19%, so the calculated sample size for the study is to be 54178 study subjects. Since it's not possible to achieve the calculated sample size in the present study, so we approached to gather the sample through purposive convenient sampling method. According to our methodology we have selected 110 patients in a period of 18 months keeping in mind our feasibility, our convenience and also the reporting rate of HIV patients in ART center. We divided the calendar months in 3 slots each of 10 days. We visited the ART center twice in each slot of 10 days. At each visit we decided to interview 1 patient, as the interviews were too long and since most of the patients declined to participate in the study owing to time constraint and other unexplained issues. At two visits we interviewed 2 patients which took the sample size to a figure of 110.

A pretested proforma was used for recording the patient data. All patients were subjected to detailed history, examination and investigation. Recording tool comprises history of duration and severity of symptoms like cough, fever, diarrhoea, weight loss and lymphadenopathy. Epidemiological details like high risk sexual behavior, homosexuality, history of blood transfusion, intravenous drug abuse, spouse of a known HIV infected patient were also recorded. Any possibility of professional exposure in health workers, laboratory workers, nurses, and doctors was also elicited. Family, personal, menstrual and obstetric history was looked into and detailed marital history was elicited.

Recording of Clinical Examination for parameters, such as Vital signs, pallor, lymphadenopathy, examination of oral cavity for oral candidiasis, leukoplakia, apthous ulcers, skin lesions, genital lesions and detailed cardiovascular examination was done. Other systems, such as GIT, CNS, RS and skin were also examined for any associated abnormality. Information on age, sex and anthropometric measures were recorded for all cases. Some known cases of HIV infection in the spectrum of the disease were on therapy at the time of presentation. In such patients nature of anti-retroviral therapy and duration was also recorded.

Diagnosis of HIV was confirmed by three rapid tests SD Bioline HIV, Pareekshk HIV ½ triline and Pareekshk HIV ½ Tri-spot. CD4 lymphocyte counts were determined by FACS count (Becton-Dickinson). Socio-Clinical profile of HIV infected patients was assessed and was correlated with their CD4 count. Opportunistic infections were diagnosed using the standard protocol. Statistical analysis for frequency distribution, fisher exact and independent t test was done using SPSS version 12.0. Written consent was taken from all the patients prior to interview and the ethical consideration was taken from the institutional ethical committee (IEC) prior to the advent of the study.

RESULTS

The study comprises of 110 patients of which 81(73.63%) were males and 29 (26.36%) were females. Their socio demographic profile is depicted in table 1. Mean age of study population was 35.44±9.66. Overall male to female ratio was 2.79:1 with 2.53:1 in rural population and 2.80:1 in urban population. CD4 profile of patients in the category <200, 200-350 and >350 cell/μL were 76 (69.09%), 17 (15.45%) and 17 (15.45%) respectively. The major part of the population was constituted by truck drivers, house wives and farmers as 35(31.81%), 22(20%) and 20(18.18%) respectively. Predominant mode of transmission was heterosexual constituting 106 (96.36%), from commercial sex workers (CSWs) 86 (78.18%)

and 20(18.18%) infected spouse respectively followed by parental route in 3 (2.72%) comprising infected blood and blood product in 2 (1.81%) and intravenous drug use by shared needle in 1 (0.90%), undetermined transmission in 1 (0.90%).

Table 1. Socio demographic profile of study participants

Socio demographic variables		Male	Female	Total
Age group (years)	Mean	35.8±9.38	34.4±8.58	35.44±9.66
	15-25	9(11.11)	5(17.24)	14(12.72)
	26-35	35(43.20)	13(44.82)	48(43.63)
	36-45	26(32.09)	8(27.58)	34(30.90)
	46-55	10(12.34)	3(10.34)	13(11.81)
	>55	1(1.23)	0	01(0.90)
Marital status	Married	73(90.12)	21(72.41)	94(85.45)
	Unmarried	8(9.87)	2(6.89)	10(9.10)
	Widowed/ Widower	0	6(20.68)	6(5.45)
Residence	Rural	42(51.85)	14(48.27)	56(50.90)
	Urban	39(48.14)	15(51.72)	54(49.09)
Occupation	Laborer	13(16.04)	2(6.89)	15(13.63)
	Farmer	18(22.22)	2(6.89)	20(18.18)
	Truck driver	35(43.20)	0	35(31.81)
	Housewife	0	22(75.86)	22(20)
	Self employed	6(7.40)	2(6.89)	08(7.27)
	Govt. servant	9(11.11)	1(3.44)	10(9.09)
Socioeconomic status*	Low	78(96.29)	24(82.75)	102(92.72)
	Middle	2(2.46)	5(17.24)	7(6.36)
	High	1(1.23)	0	1(0.90)

Data shown in parenthesis are in percent.

*****BJ Prasad classification was used to calculate the socioeconomic status. Since no of patients were too low in upper middle and lower middle so this two groups has been cumulatively reported as middle and the same done for the lower to maintain the uniformity, so the overall classification has been reported in three class of low, middle and high and not as upper, upper middle, lower middle, upper lower and lower.

The most common presenting symptom was weight loss >10%, fever and cough in 102 (92.72%) subjects followed by diarrhea 90 (81.81%) and breathlessness 41 (37.27%) mostly seen in patients with CD4 count <200 as shown in (table 2). High Frequency of weight loss > 10% (P<0.001), fever (P=0.0027), breathlessness (P=0.03), itching (P=0.001), lymphadenopathy (P=0.001), oral thrush (P=0.006), extra pulmonary tuberculosis (P=0.04), candidiasis (P=0.006) at low CD4 count (<200) was found to be statistically significant (table 2). Enteric infection was the most common manifestation 80(72.72%) followed by tuberculosis 37 (33.63%) and urinary tract infection 30(27.27%) mostly seen in patients with CD4 count <200 as depicted in (table 2). The number of opportunistic infections and presenting symptoms increased with a decrease in CD4 counts, with a highly significant inverse correlation (R=-0.369, P<0.001), (R=-0.223, P=0.019) between number of opportunistic infection and CD4 count, symptoms and CD4 count respectively (table 3). Independent t test for HIV Positive among male, female and rural, urban groups has been shown in (table 4). Difference in mean CD4 count (P=0.0039) among male (202.21) and female (291.41) was found to be statistically significant (table 4).

Out of 37 subjects 25 (67.56%) had pulmonary tuberculosis (PLTB), 8 (21.62%) had extra pulmonary tuberculosis (EXPLTB) and 4 (10.81%) with both. Out of 25 subjects with PLTB 17(68%) were male as compared to 8(32%) female with a male to female ratio 2.12:1 while in EXPLTB figure for male and female was 8(100%) and 0(0%) respectively. Independent t test for PLTB and EXPLTB/both among male and female and rural and urban population has been shown in (table 5). Chest X ray PA view, among 25 pulmonary tuberculosis cases, comprises normal in 2(8%), unilateral lesions in 13 (52%) out of which lower lobe infiltration was the most common 5(20%) followed by fibro cavitory lesions 3(12%), pleural effusion 2(8%) and others 3(12%), bilateral lesions in 10 (40%) with extensive infiltration in 8 (32%) and miliary tuberculosis in 2 (8%). Hepatitis B co infection with HIV was found in 5 (4.54%) subjects.

Table 2. Correlation of clinical symptoms and manifestation with CD4 count

Symptoms and manifestations	CD4 count			Total (n=110)	Fisher's exact test (two-tailed p-value)
	>350 (n=17)	350-200 (n=17)	<200 (n=76)		
Weight loss >10%	12	15	75	102(92.72)	<0.001*
Fever	12	16	74	102(92.72)	0.0027*
Cough	15	15	72	102(92.72)	0.31
Diarrhea	12	14	64	90(81.82)	0.50
Breathlessness	4	11	26	41(37.27)	0.03*
Itching	0	12	18	30(27.27)	<0.001*
Lymphadenopathy	0	6	2	8(7.27)	<0.001*
Pain in abdomen	01	01	03	05(4.45)	0.64
Neurological Symptoms	0	0	4	04(3.63)	0.99
Oral thrush	0	3	0	03(2.72)	0.006*
Enteric infection	10	10	60	80(72.72)	0.10
Tuberculosis (n=37)	4	10	23	37(33.63)	0.05
PTB(n=25)	4	5	16	25(22.72)	0.69
Ext. PTB(n=8)	0	4	4	8(7.27)	0.04*
Both(n=4)	0	1	3	4(3.63)	0.77
UTI	2	8	20	30(27.27)	0.08
Bacterial pneummonitis	1	5	15	21(19.09)	0.25
Contact dermatitis	0	4	9	13(11.81)	0.06
Sebhorric dermatitis	0	3	9	12(10.90)	0.23
Scabies	0	2	8	10(9.09)	0.58
PID	1	1	8	10(9.09)	0.88
Folliculities	0	1	7	8(7.27)	0.54
Herpes zoster	0	2	1	3(2.72)	0.12
Candidiasis	0	3	0	3(2.72)	0.006*
Cryoptococal meningitis	0	0	1	1(0.90)	0.99
Oral hairy leucoplakia	0	0	1	1(0.90)	0.99

Data shown in parenthesis are in percent. * Variables those are statistically significant.

Table 3. No of opportunistic infection and major symptoms with their corresponding CD4 lymphocyte counts

Variables	Number	N (%)	Mean CD4 count ±SEM (cells/ml)	Correlation coefficient(R) and Coefficient of determination(r^2)
Symptoms	Zero	3(2.72)	410±164.51	R=-.223 r^2 =0.05 P=0.019*
	One (Fever)	3(2.72)	445.33±60.68	
	Two(Fever,cough,weight loss)	6(5.45)	173.33±44.85	
	Three(Fever,cough, weight loss, Breathlessness)	55(50)	220.96±20.48	
	Four (Fever, cough, weight loss, Breathlessness, Pain in abdomen)	42(38.18)	209.71±20.14	
	Five (Fever, cough, weight loss, Breathlessness, Pain in abdomen)	1(.90)	263	
Opportunistic infections	Zero	5(4.54)	200.05±89.46	R=-0.369 r^2 =0.136 P<0.001*
	One(Enteric infection, Folliculitis, SD, TB)	19(17.27)	271±35.96	
	Two (Enteric infection, Folliculitis,SD,TB,Scabies, UTI)	47(42.72)	226.89±23	
	Three (Enteric infection, SD, TB, Scabies, UTI)	25(22.72)	185.44±18.78	
	Four (Enteric infection, Folliculitis,SD,TB, Scabies, UTI)	8(7.27)	162.75±28.34	
	Five (Enteric infection, Folliculitis, SD, TB, UTI)	4(3.63)	132.75±37.72	
	Six (Enteric infection, Folliculitis,SD, TB, Scabies, UTI)	2(1.81)	117.5±7.50	

SD = Sebhorric dermatitis, TB = Tuberculosis, UTI = Urinary tract infection.

Table 4. Independent t test for HIV Positive among male, female and rural, urban groups

Variables		Differences					(Degree of freedom)	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% confidence interval of differences			
					Lower	Upper		
Age(years)	Male	35.8	9.38	1.036	33.74	37.86	0.70(108)	0.47
	Female	34.41	8.58	1.566	31.21	37.62		
CD4 Count	Male	202.21	122.12	13.48	175.36	229.06	2.94(108)	0.003*
	Female	291.41	198.56	36.25	217.23	365.6		
Hb profile	Male	11.05	3.43	0.37	10.3	11.81	0.97(108)	0.33
	Female	10.41	1.82	0.33	9.73	11.09		
Age(years)	Urban	36.43	9.57	1.29	33.84	39.01	1.12(108)	0.26
	Rural	34.48	8.72	1.15	32.17	36.8		
CD4 Count	Urban	221.13	156.44	21.09	178.82	263.44	0.31(108)	0.75
	Rural	230.16	145.71	19.3	191.48	268.84		
Hb profile	Urban	10.22	2.38	0.32	9.57	10.86	0.73(108)	0.46
	Rural	10.57	1.57	0.20	10.16	10.99		

Table 5. Independent t test for pulmonary TB and extra pulmonary or both among male, female and rural, urban groups

Variables		Differences					(Degree of freedom)	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% confidence interval of differences			
					Lower	Upper		
CD4(PLTB)	Male	195.56	145.59	35.31	120.67	270.46	0.037(23)	0.97
	Female	197.88	144.05	48.01	87.08	308.67		
CD4 (EXPLTB/ BOTH)	Male	151.45	98.49	27.36	91.9	211	0.63(10)	0.54
	Female	105.5	6.36	3.67	89.79	121.21		
CD4 (PLTB)	Rural	210.79	159.64	39.91	125.67	295.9	0.57(23)	0.57
	Urban	176.1	117.8	35.51	96.91	255.29		
CD4 (EXPLTB/ BOTH)	Rural	162.22	96.67	30.57	93.03	231.42	0.93(10)	0.37
	Urban	104.25	74.28	30.32	26.26	182.24		
Age(years, PLTB)	Male	39.31	8.82	2.023	35.06	43.57	0.68(23)	0.50
	Female	36.63	10.77	3.59	28.34	44.91		
Age(years, EXPLTB/ BOTH)	Male	33.91	9.21	2.59	28.05	39.77	0.016(10)	0.98
	Female	34.0	4.24	2.44	23.53	44.47		
Age (years, PLTB)	Rural	39.0	9.59	2.47	33.69	44.31	0.37(23)	0.71
	Urban	37.6	9.49	2.86	31.22	43.98		
Age(years, EXPLTB/ BOTH)	Rural	34.11	7.98	2.52	28.44	39.82	0.10(10)	0.91
	Urban	33.5	10.91	4.45	22.05	44.95		

DISCUSSION

This study demonstrates the socio clinical features of HIV/AIDS patients attending an ART centre at tertiary care centre with a mean age group of 35.44 years which is in accord with studies of Tamuno et al who also reported mean age group of 33.6 years, of subjects visiting to a virology clinic at a tertiary care center in western Nigeria and 33.4 years by Sampaio MS et al from Salvador, Brazil.[7,8] Maximum ART (73.6%) attendies were in 26-45 year age group as being the sexually active and productive group this group are highly affected evolving a sense of fear and urgency in fight against the disease threatening the presence and future of the nation (7,9-13). The overall male outnumbered the female with male to female ratio 2.79:1 observed in similar other studies like Joge et al, who reported 68.04% male and 31.96%

female attendees at an ART center from a rural tertiary care centre of Maharashtra. Another study from an ART center at a tertiary care hospital in south India by Badiger et al reported that 64.4% visitors were male, similarly Wal et al reported 60.9 % male attendees from a tertiary care hospital in north India (9,12-16) but in contrast to other studies showing female preponderance, as Tamuno et al reported a distribution of 32.8% of male and 67.2% of female subjects, visiting to a virology clinic at a tertiary care center in western Nigeria, with a male to female ratio of 1:2.[7] This might not be a true representation of female proportion as disease prevalence among both the groups are equal and even female are biologically more vulnerable to HIV/AIDS and more likely to contract infection from their male counterpart.[7] So the reason behind the scene is that in the existing social milieu, females do not seek medical care fearing ostracism financial constraints, gender bias and social stigma and neglect, attached with the disease decrease the number of females attending the HIV clinics.[17]

Married subjects constituted maximum 85.45% of the study population with widowed and widower to be 5.45% Which is in accord with the report of Badiger et al from south India suggesting that 58.4% of the visitor to the ART center were married, similarly 77.1% of the AIDS patients were married in a study conducted by Zaheer et al in and around Aligarh area, Baig et al also reported that a large proportion of subjects, 75.50%, attending an ART center in tertiary care hospital in Rajasthan were married with similar other reports from other part of the country.[12,14,15,18.] As male counterpart acquires the HIV earlier then female, they are likely to die before their wives even if both the members are infected reported by higher widowed in other studies[7] an indirect indicator of later contraction of infection by females, this deplorable situation land up female widowed population in exchange sexual activity for emotional and financial help leading this population as most important risk factor for HIV infection and continuous transmission in India.[19,20,21]

Rural population outnumbered urban with slight difference, observed in other studies also, which could be due to frequent migration of rural population as compare to urban for occupational reasons as the maximum population is constituted by truck drivers involving a higher regular mobility in male and house wives in female.[14,15,22] Majority of population (92.72%) belonged to low socioeconomic status[22] proving the hypothesis that poverty decide social behavior that promote HIV infection[23] and might be also due to negative impact of low socioeconomic status on adherence to therapy.[16]

Heterosexual route was found to be the most common mode of transmission in 96.36% which is in accord with other studies. Tamuno et al from western Nigeria reported that 100% of studied subjects had only heterosexual relation. Joge et al from a rural tertiary care centre of Maharashtra also reported that heterosexual route was found to be most common in 94.39% of the patients and only 2.99% of the patients had given a history of blood transfusion. In a study from in and around Aligarh area zaheer et al reported that sexual contact was mood of transmission in 56.3% of the case while blood and blood product were in 14.6% patients, while in 33.3% patients no cause was specified. Baig et al from a tertiary care hospital in Rajasthan also reported that heterosexual mode was found to be the commonest mode of transmission (95.62%).[7,9,14,15,24.] With 78.18% from CSWs and 18.18% from infected spouses, visiting to this CSWs, as women have very little say in decision making, like condom use with their partners, especially if she is economically dependent on her husband.[15,25] Transmission by other modes like blood transfusion and intravenous drug abuse were low also depicted by other studies.[26]

Most common presenting complaint was fever, weight loss, cough followed by diarrhea similar to the other studies[7,9,14,27] but in contrast to data from other part of the world.[8] The spectrum of opportunistic infections has a similar presentation with data from other part of the country[12,17,22] but in contrast to studies from other part of the world[28,29] with tuberculosis being the second commonest opportunistic infection (33.63%) strengthening the high prevalence of fever, cough and weight loss in the studied population.[12,17,27,30] Low mean CD4 count and high social interaction in male as compare to female might be a reason for higher frequency of PLTB in male subjects than females. A highly inverse correlation was found between the CD4 count and the number of opportunistic infections (OIs) and symptoms per individual suggesting the increase in incidence of OIs and major symptoms with decrease in CD4 count.

Hepatitis B co infection was found to be present in only 4.54% of the study subjects. This was

found to be too low as compared to western data coating an incidence of 90-95% of Hepatitis B co infection among HIV patients. This differential finding might be due to heterosexual rout being the most common mode in the study population then infected needle and blood transfusion as in western world. Maximum subjects presented with CD4 count below 200 with each clinical manifestation and symptoms outnumbering the percentage of subjects presenting with CD4 count above 200.[8] Late diagnosis might be a reason for such a low CD4 count in maximum subjects due to late reporting to ART center making them vulnerable to number of opportunistic infections. Sampaio et al in a study from Brazil showed that men were having high viral load which is suggestive of delayed arrival of this men to health care services. Chakravarty et al in a study from Institute of Medical Sciences BHU reported that CD4 count was significantly higher in female at time of presentation (323 ± 28.26 vs 179± 9.3ss; p < .000). they reported that most of the female acquired their infection through their husband and high CD4 values among this female is an indirect indication of later contraction of infection by females as suggested in our study.[8,17]

CONCLUSION

Study reported younger age group vulnerability with mean age group of studied subjects 35.4 years. The similar finding has been reported from other part of the world suggesting sexually active younger age group as a highly vulnerable population towards HIV/AIDS contraction, which if not tackled genuinely will lead to a diseased society suffering from the most stigmatized disease of the world in future. Male preponderance (2.79:1; M:F) in the study which is in accord to studies from other countries suggest that this might not be the true representation of female contracting the disease as one of the study from western Nigeria showed that proportion of females visiting to virology clinic was 67.2% as compared to 32.8% male. This justifies the fact that there is utmost need of women empowerment ranging from financial to gender equality regarding access to health care facilities. High proportion of married subjects in the study which is also seen in studies from other part of the country, with heterosexual route the most common concludes the high risk behavior of male in studied population and their role in putting the health of their female partner on stake of contracting the disease. The fact is being justified from the high mean CD4 count of the female as compared to male suggesting that most of the female acquired their infection through their husband and high CD4 values among this female is an indirect indication of later contraction of infection by females. The spectrum of opportunistic infections has a similar presentation with data from other part of the country with tuberculosis being the second commonest opportunistic infection (33.63%) strengthening the high prevalence of fever, cough and weight loss in the studied population. Study depicts a quite difference in clinical presentation and occurrence of opportunistic infections, very low Hepatitis B co infection (4.54%) as compared to 90-95% from western world, from other part of the world necessitating formulation of different set of guide lines for subjects of Indian subcontinent. This will help in better screening, early detection and prompt treatment thus increasing the quality and quantity of life-span of such patients.

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