Australasian Medical Journal AMJ 2010, 3, 6, 344-348

A profile of patients attending an Anti Retroviral Therapy (ART) centre at a tertiary care hospital in South India

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RESEARCH

Please cite this paper as: Badiger S., Thapar R., Mithra P., Ganesh S., Jain A., Unnikrishan B., Jayaram S. A profile of patients attending an Anti Retroviral Therapy (ART) centre at a tertiary care hospital in south India. AMJ 2010, 3, 6, 344-348 Doi 10.4066/AMJ.2010.279

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Abstract

Background
An estimated 2.5 million Indians are currently living with HIV. In 2004, the Indian government began providing free antiretroviral therapy (ART), through ART centers. This was conducted to assess the socio-demographic and clinical profile, opportunistic infection and treatment pattern of ART center attendees.

Method
This record based cross sectional study was conducted at District Government Wenlock hospital, one of the teaching hospitals attached to Kasturba Medical College Mangalore, India. The hospital caters to patients from within and the neighbouring districts. Records of 233 seropositives were analyzed for a period of six months in 2008.

Results
Among 233 seropositives, 150 (64.4%) were males, 51.5% were aged 30-40 years and 58.4% were married. 50.7% of the subjects were from Dakshina Kannada district. 84.1% of the attendees had availed the services through Voluntary Counselling and Testing Centre (VCTC) and 68.7% of the study subjects were in “working” and as per the WHO staging, 51.1% were in stage 3. Tuberculosis (32.3%) and diarrhoea (21%) were the most common opportunistic infections and 54.1% of the subjects received ART regimen 3. There was significant improvement in CD4 count, bodyweight and functional status of the subjects after receiving the ART on an average for 6 months.

Conclusion
The economically productive & sexually active people and those with lesser education are at higher risk of becoming seropositive. TB and diarrhoea continue to be the most common opportunistic infection. The subjects showed significant improvement after receiving ART with respect to the CD4 count and average body weight.

Key Words
ART, seropositives, opportunistic infections, clinical staging.

Background
An estimated 2.5 million Indians are currently living with HIV. Although data gathered by National AIDS Control Organization (NACO) in 2007 has revealed that HIV prevalence has stabilized, at least in Tamil Nadu, Andhra Pradesh, Karnataka and Maharashtra, it is increasing in at-risk populations in other states. As a result, overall HIV prevalence has continued to rise. [1]

In 2004, the Indian government began providing free antiretroviral therapy (ART) in a phased manner, through established ART centers. Subsequently, the incidence of tuberculosis and opportunistic infections decreased to 2 cases per 100 person-years from 5 cases per 100 person-years [1, 9]

Despite the fact that ART is provided free by the government, there are a large number of sero positive people who do not come forward to receive treatment. Non-adherence is another aspect even when they come for ART. These problems affect the overall success of the programme.[2]

There is a need to study the profile of patients who come to ART centres and their clinical and socio demographic profile. Therefore, the study was conducted in order to understand the clinico-epidemiological profile of patients attending ART centres and the effectiveness of the therapy. This information can be utilized to enhance the utility and adherence to therapy among attendees.

Method

A cross sectional study was conducted at an ART center of Government Wenlock hospital (a tertiary care hospital), in Mangalore of Dakshina Kannada District in Karnataka State; which is one of the teaching hospitals attached to Kasturba Medical College, Mangalore. The study area is in a southern coastal district of Karnataka state. It is a rapidly developing area, where many people migrate seeking job opportunities. This has resulted in a high number of migrating and transit populations contributing to the HIV/AIDS disease burden in the area. The hospital also caters to patients from neighbouring districts (including the border Districts of Kerala State). The data was collected for a period of six months from July to December 2008. During this period, 246 seropositives for HIV attended the ART centre. They were selected as the subjects for our study. After explaining the objectives of the study and assuring the confidentiality of the subjects, permission was obtained from the District Health Authorities and the in charge Medical Officer of the ART centre; following which the data was collected using the records of the seropositives. The demographic information of the subjects was collected along with the clinical profile, place of referral for ART and the treatment details. The clinical staging was done according to the WHO classification of HIV/AIDS.[3] The functional status of the subjects was done as working, ambulatory and bed ridden [3] (for analyses, the working and the ambulatory categories were clubbed). The records with incomplete information were excluded from the study. Data was entered and analyzed using SPSS version 11.5 and the results presented as proportions in the form of tables. For statistical analysis, Wilcoxon Rank test and Chi square tests were used and $p < 0.05$ was considered significant.

Results

Socio-demographic profile of seropositives

Our study included 233 seropositive patients who had received ART and for whom complete information was available. Table 1 shows the demographic profile of the study population. Among the subjects, 150 (64.4%) were males. In our study 51.5% of the study subjects were aged between 30 and 40 years (n=120), men being in older age group than women (57.3% versus 40.9% were between 30 and 40 years). More than half of the study participants were married (58.4%) and 16.7% were single.

Overall, 50.7% of the subjects were from Dakshina Kannada district (among whom, 14.2% were from Mangalore) and 43.3% from other districts in Karnataka. Among the employed subjects, 78.1% were males and 21.9% were females. The employment rate was higher among males and in total, 54.9% of the subjects were unemployed. Most attendees of the ART centre (84.1%) have availed the services through Voluntary Counselling and Testing Centre (VCTC) and the remaining were referred by private practitioners or non governmental organizations (NGOs) (9.4%) and Prevention of Parent to Child Transmission (PPTCT) (1.3%). The majority of participants were non-alcoholics (96%) and non-smokers (95%).

Clinical profile of study subjects

The functional status of seropositive attendees revealed (Table 2) that 68.7% of the study subjects were in “working” and 30% were in “ambulatory” stage. As per the WHO staging, 51.1% of subjects were in stage 3 and 29.2% were in Stage 2. Tuberculosis 32.3%) and diarrhoea (21%) were the most common opportunistic infections. Overall, 54.1% of the subjects received ART regimen 3.

Health status of the seropositives before and after ART

Table 3 shows the comparison of the CD4 count and weight before and after receiving the ART. The mean CD4 count and the body weight of the subjects increased after receiving ART. There was a statistically significant difference in both CD4 count and weight; before and after receiving the ART on an average for 6 months. (Wilcoxon Rank test and <0.05 – level of statistical significance).

Table 4 shows the comparison of the functional status of the subjects before and after receiving the ART. It was observed that there was improvement in the functional status of the subjects after receiving the ART among the working and ambulatory subjects taken together. Among the 3 bedridden subjects, there was an improvement among two. The difference between the working & ambulatory and the bedridden subjects was statically significant (Chi square 76.9 p <0.0001).

Discussion

The present study revealed that males constituted 64.4% of the total subjects which was higher than National figures, i.e. 61%[1] This is similar to the findings in a study conducted in the neighbouring Udupi District by Kumar A et al. [4] Similar observation was made by Sarna A et al, [2] and Cauldbeck et al [5] in Bangalore, where majority of the attendees were males (84%).

Majority of the subjects belonged to the age group 30-40years (51.5%), which is lower than the National figures, i.e. 88% in the age group 15-49 years [1]. But our study results were consistent with that of study by Cauldbeck et al [5] which had 50% of the subjects in 30 to 40 years age group and the overall mean age of the subjects 39.9 years. The distribution according to marital status showed that married subjects constituted 58.3% and 39% of subjects are single. This showed a high number of seropositivity among the divorced and widow/widowers.

The distribution according to educational status showed that the seropositivity was higher among the subjects with lesser education. These findings are similar to the study conducted by Jayaram S et al [6] and to that of the study conducted by Safren SA et al (17%) [7] though the number of subjects with primary education was lesser than those with secondary

education and above. In our study, 43.3% of the subjects were from outside Dakshina Kannada District. Similar results were also observed in the study conducted by Jayaram S et al [6] (21.2%). But Cauldbeck et al [5] observed no trends for education level with respect to the seropositivity.

As per the employment status of the study subjects, 46.9% of female seropositives were unemployed. Our results were consistent with results of the study conducted by Kumar A et al [4] (44.5%). In the present study 84.1% of the subjects availed the services through VCTC. The contribution of Private or NGO service /care centers was lesser than VCTC regarding referring to ART centre. Tuberculosis and diarrhoea were the most common opportunistic infections. Giardia Lamblia was the commonest parasite. These findings were similar to the study conducted by Sharma SK et al [8] (71%) in North India and Kumarasamy N et al [9] in South India. In our study, the health status of seropositives revealed improvement in the CD4 count, average body weight and functional status of the subjects after receiving the ART indicating the efficacy of ART. Pant Pai N et al [10] in San Francisco also observed an improvement in CD4 cell counts after continuous ART therapy for HIV/AIDS.

Conclusion

More than half of the subjects were in economically productive age group and majority of patients who sought ART were males. People from outside the district under study also sought ART from the study area. TB and diarrhoea were the most common opportunistic infections. The subjects showed significant improvement in CD4 count and average body weight after receiving the ART.

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ACKNOWLEDGEMENTS

Authors would like to thank all staff members of ART center, District Government Wenlock hospital, Mangalore

PEER REVIEW

Not commissioned. Externally peer reviewed.

CONFLICTS OF INTEREST

The authors have no conflicting interests.

FUNDING

Nil

Tables

Table 1: Socio-demographic characteristics of the study population (n=233)

Chara-cteristic		Males No.(%)	Females No.(%)	Total No.(%)
Age group (years)	≤10	12 (8)	08 (9.6)	20 (8.5)
	11-20	6 (4)	02 (2.4)	8 (3.4)
	21- 30	14 (9.3)	20 (24)	34(14.5)
	31- 40	86 (57.3)	34 (40.9)	120 (51.5)
	41-50	25 (16.6)	15 (18)	40 (0.4)
	>50	7 (4.6)	04 (4.8)	11 (18.0)
Marital status	Single	27 (69.2)	12 (30.8)	39 (16.7)
	Married	81 (59.6)	55 (40.4)	136 (58.4)
	Divorced	12 (100)	0 (0)	12 (5.2)
	Widowed /widower	30 (65.2)	16 (34.8)	46(19.7)
Educational status	Illiterate	17 (48.6)	18 (51.4)	35 (15.0)
	Primary school	66 (58.4)	47 (41.6)	113 (48.5)
	Secondary school	55 (77.5)	16 (22.5)	71 (30.5)
	College and above	12 (85.7)	2 (14.3)	14 (6.0)
Place of residence	Mangal-ore	24 (72.7)	9 (27.3)	33(14.2)
	Dakshina Kannada District	56(65.9)	29(34.1)	85(36.5)
	Rest of Karnata-ka	61(60.4)	40(39.6)	101(43.3)
	Kerala	9(64.3)	5(35.6)	14(6.0)
Emplo-yment status	Employ-ed	82 (78.1)	23 (21.9)	105 (45.1)
	Unempl-oyed	68 (53.1)	60 (46.9)	128 (54.9)
Entry point	VCTC	123 (62.8)	73 (37.2)	196(84.1)
	Private practiti-oner/ NGO	17 (77.3)	5 (22.7)	22 (09.4)

Table 2 Clinical profiles, Diseases classification and WHO staging of the subjects (n=233)

Characteris-tic	Male (%) N=150	Female (%) N=83	Total N=233
Functionality status			
Working	104 (65.0)	56(35)	160(68.7)
Ambula'ry	43(61.4)	27(38.6)	70(30.0)
Bedridden	3(100)	0(0)	3(1.3)
WHO staging (During first visit)			
Stage 1	2(25)	6(75)	8(3.4)
Stage 2	39(57.4)	29(42.6)	68(29.2)
Stage 3	78(65.5)	41(34.5)	119(51.1)
Stage 4	31(81.6)	7(18.4)	38(16.3)
Opportunistic infections			
Tuberculosis	50 (33.3)	26(31.3)	76 (32.3)
Diarhhoea	31 (20.7)	18(21.7)	49 (21.0)
Herpes Zoster	10 (6.7)	7(8.4)	17 (07.3)
Oral candidiasis	9 (6.0)	3(3.6)	12 (05.2)
Others	40 (26.7)	38(45.8)	78 (33.4)
ART received			
Regimen 1	30 (20.0)	17(20.5)	47(20.2)
Regimen 2	18 (12.0)	9(10.8)	27(11.6)
Regimen 3	78 (52.0)	48(57.8)	126(54.1)
Regimen 4	24 (16.0)	12(14.5)	36(15.5)

Table 3 Comparison of Health status of the subjects before and after receiving ART (N=233)

Characteristic	**Before ART**	**After ART**	p value
CD4 count			
Mean	263.59	421.42	
Median (95% CI)	136 (92.82 – 179.18)	327 (278.42 – 375.58)	<0.0001*
Weight			
Mean (95% CI)	36.99 (35.11 – 38.87)	39.38 (37.36 – 41.40)	<0.0001 *
Median	40.00	43.00	

***** Wilcoxon Rank test and <0.05 – level of statistical significance

Table 4 Comparison of the functional status of the subjects before and after receiving the ART (n=233)

ART / Functional status	Status before ART	Status after receiving ART	P Value
Working & Ambulatory	230	232	Chi Square = 76.9
Bedridden	3	1	
Total	233	233	P <0.0001