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Research Article

**HEALTH PROFILE OF HIV POSITIVE INDIVIDUALS  
AT ANTI RETROVIRAL TREATMENT CENTRE, KADAPA DISTRICT**

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**ABSTRACT**

**Introduction:** WHO recommends that criteria for starting ART be defined in national protocols and that these protocols be based on the minimum clinical data and, wherever available and CD4 counts.

**Research question:** What is the health profile of HIV positive patients at ART Centre.

**Aim:** The aim of the study to know the improvement in the quality of life among the HIV positive individuals.

**Objectives:** 1.To know the demographic profile of HIV positive cases. 2.To find the CD4 count improvement among the ART initiated individuals.

**Methodology:** This study was carried out at outpatient department of Anti Retroviral Treatment centre at Rajiv Gandhi Institute of Medical Sciences, Kadapa during the period from January 2007 to September 2008. About 7483 HIV positives were interviewed with pre structured questionnaire and statistical analysis was done with the help of Statistician.

**Results:** Out of 7483 HIV Individuals, about 91.6% people were in the age of 15-49 years of age group. About 28% people were having less than 200 CD4 count before initiation of treatment. Literacy status was significantly associated among HIV positive males ( $P < 0.001$ ). Majority (82.6%) of HIV positive individuals were from daily labour occupation. In the present study most common opportunistic infection was pulmonary tuberculosis among the HIV positive individuals was about 31%.Out of 2113 ART individuals, about 35% of

people developed different adverse reactions during the course of treatment. Before initiation of ART treatment, the mean value of CD4 counts 76.8 among those CD4 count less than 100 individuals. After one year with ART the mean CD4 count raised were about 219.65 among the same individuals.

**Conclusion:** In the present study about 7483 HIV positive individuals were participated, of which 91.6% people in the age group of 15-49 years. Statistically significant association was found with literacy status and occupation ( $P < 0.05$ ). Most common opportunistic infection noticed was pulmonary TB among HIV individuals. CD4 count increases with ART treatment.

**Study Variables:** Age-Sex-Occupation-Literacy-Opportunistic infections-Adverse reactions-CD4 count.

### **Introduction:**

Global HIV infection incidence peaked in the late 1990s at over 3 million infections per year, and was estimated to be 2.5 million new infections in 2007. This reduction in HIV incidence reflects natural trend of epidemic as well as the result of prevention programmes resulting in behavioural changes in different contexts<sup>1</sup>. At present there is no Vaccine or cure for treatment of HIV infection/AIDS. However, the development of drugs that suppress the HIV infection itself rather than its complications has been important development. These antiviral chemotherapy, while not a cure, have proved to be useful in prolonging the life of severely ill patients. The drugs used for antiretroviral therapy was as per the guideline of NACO<sup>2</sup>.

The availability of agents that along and in combination suppress HIV replication has had a profound impact on the natural history of HIV infection. Patients who achieve excellent suppression of HIV generally have stabilization or improvement of their clinical course which results from partial immunologic reconstitution and a subsequent decrease in complications of immunosuppression. Concept about the timing of such therapy gave changed considerably.

WHO recommends that criteria for starting ART be defined in national protocols and that these protocols be based on the minimum clinical data and, wherever available, CD4 counts. Eligibility criteria, including any requirements there may be antiretroviral therapy (ART), especially for patients who meet the clinical criteria for starting ART<sup>3</sup>.

Recommendations for initiating ART in adults, adolescents and children were given as per the guidelines, ART is also essential to prevent vertical transmission. Revised criteria have recently been developed for initiating antiretroviral therapy among infants, and revised recommendations have been made for infants requiring ART who have been exposed to nevirapine pre-delivery, parentally or post delivery. WHO recommends that all infants diagnosed with HIV start immediate ART.

Currently recommended first-line regimens for adults, adolescents and children contain two nucleoside reverse transcriptase inhibitors (NRTIs) plus one non-nucleoside reverse transcriptase inhibitor (NNRTI) drug. WHO recommends the use of fixed-dose combination regimens to support adherence and programme delivery. For adults, AZT or tenofovir combined with 3TC or FTC are the preferred first line NRTI medicines. In children, AZT or ABC combined with 3TC are preferred. First line regimens for those with active hepatitis B should contain tenofovir and lamivudine and avoid nevirapine wherever possible. For people with HIV-2 infection, a triple nucleoside regimen is recommended. Patients who develop failure of their first-line therapy go on to need second-line therapy. Treatment failure is recognized by using, at a minimum, clinical criteria and CD4 cell thresholds and, where feasible, the results of virological monitoring.

**Objectives:**

1. To know the demographic profile of HIV positive cases.
2. To find the CD4 count improvement among the ART Initiated individuals

**Materials & Methods:** This study was carried out at out patient department of Anti Retroviral Treatment centre at Rajiv Gandhi Institute of Medical Sciences, Kadapa during the period from January 2007 to September 2008. About 7483 HIV positives were interviewed with pre structured questionnaire. Of which, 2113 HIV positive individuals were receiving Anti Retroviral Treatment from the ART Centre. These ART patients were followed with clinical improvement, CD<sub>4</sub> count at six month interval and observed the mean increase of CD<sub>4</sub> count for the one year among the males and females.

Study Design : Hospital based descriptive study

Study setting : OPD of ART Centre

Study Participants : All HIV positive individuals

Study Period : Jan 2007 to Sep 2008

Sample Size : 7483 individuals

Inclusion Criteria : All HIV positive cases

Exclusion Criteria : For mean increase of CD4 count Jan to Dec2007 cases were included. CD<sup>4</sup> count usually takes once in Six months.

Statistical Analysis : Percentages and Chi square tests were applied

**Table-1: HIV positivity in relation to Demographic variables.**

Age	Male	Female	Trans Gender	Child	Total	
<15 Yrs	0(0.00)	0(0.00)	0(0.00)	3.67(100.0)	367	X <sup>2</sup> -23.91, P<0.001
15-49yrs	3928(57.3)	2923(42.6)	6(0.09)	0(0.00)	6857	
>50 Yrs	188(72.6)	71(27.41)	0(0.00)	0(0.00)	259	
Total	4116(55.0)	2994(40.0)	6(0.1)	367(4.90)	7483	
Literacy						
Illiterate	1214(55.5)	898(41.1)	0(0.00)	74(3.39)	2186	X <sup>2</sup> -3.99 P=0.37.
Primary Sch.	2465(54.3)	1796(39.6)	2(0.04)	276(6.08)	4539	
Secondary School	417(56.97)	294(40.16)	4(0.55)	17(2.37)	732	
Inter	12(75.00)	4(25.00)	0(0.00)	0(0.00)	10	
Degree/PG	8(80.00)	2(20.00)	0(0.00)	0(0.00)	10	
Occupation						
Daily Labour	3564(57.6)	2425(39.2)	4(0.06)	195(3.15)	6188	X <sup>2</sup> -38.64,
Salaried	4(100.00)	0(0.00)	0.(0.00)	0(0.00)	4	
Business	370(100.0)	0(0.00)	0(0.00)	0(0.00)	370	

House Wife	0(0.00)	494(100.0)	0(0.00)	0(0.00)	494	P<0.001
Retired	8(100.00)	0(0.00)	0(0.00)	0(0.00)	8	
Students	20(15.15)	0(0.00)	0(0.00)	112(84.85)	132	
Others	150(52.26)	75(26.13)	2(0.70)	60(20.91)	287	

Table 1 depicts that about 91.6% HIV +ve were between 15-49 yrs of age group. 95.4% of males were between the age group of 15-49 yrs. 3.4% HIV +ve were above 50yrs of age group. About 29.2% HIV +ve people from Illiterates group and 60.6% +ve from Primary school completed individuals. Only 0.13% HIV +ve from Degree and above completed group. 82.6% of HIV +ve people from Daily labour occupation. Less proportion of people from salaried and retired occupations.

**Table-2: CD4 Count status of HIV individuals:**

C D 4 COUNT	MALE	FEMALE	TRANS GENDER	CHILD	TOTAL
<200/CMM	1242 (58%)	831(39)	1 (0.05)	39 (1.85)	2113
>200/CMM	2874(53)	2163(40)	5(0.09)	328(6.11)	5370
Total	4116(55)	2994(40)	6(0.08)	367(4.90)	7483

$X^2=4.91$ ,  $p < 0.05$ , Table 2 shows that about 58.8% HIV positive males were showing < 200 CD<sub>4</sub> count. Statistically significant association was found among them.

**Table-3: Opportunistic infections among the HIV patients.**

Opportunistic	Male	Female	Total
TB	226(60.81%)	162(39.19)	388(100%)
Candidiasis	0 (0.00%)	0(0.00)	0.(0.00)
Chronic Diarrhoea	208(56.99)	157(43.01)	388 (100%)
PCP	0(0.00)	0(0.00)	0(0.00)
Herpes Zoster	7(87.50)	1(12.50)	8 (100%)
Bacterial Infection	196(80.00)	49(20.00)	245 (100%)
Cryptococcal Meningitis	0(0.00)	0(0.00)	0(0.00%)

Toxoplasmosis	0(0.00)	0(0.00)	0(0.00%)
CMV retinitis	0(0.00)	0(0.00)	0(0.00%)
CMV retinitis	0(0.00)	0(0.00)	0(0.00%)
Anaemia	117(47.95)	127(52.05)	244 (100%)
Total	754(60.32)	496(39.68)	1250 (100%)

Most common opportunistic infection among HIV patients was TB, Accounts 31.6% (388/1250).

**Table-4: Side Effects of ART patients.**

Side effects	Male	Female	Child	Total
Anaemia	66 (46.81)	62 (43.97)	13(9.22)	141
Peripheral neuropathy	53 (52.48)	47 (46.53)	1 (0.99)	101
Hepatitis	31 (43.06)	32 (44.44)	9 (12.50)	72
Pancreatitis	8 (53.33)	7 (46.67)	0 (0.00)	15
Skin reaction	84 (47.73)	71 (40.34)	21 (11.93)	176
CNS Side effects	31 (39.24)	48 (60.76)	0 (0.00)	79
Iris	8(53.33)	7(46.67)	0 (0.00)	15
Others	69(45.10)	71(46.41)	13(8.50)	153
Total	350(46.54)	345(45.88)	57(7.58)	752

Table 4 reveals that about 23.4% (176/752) ART individuals developed skin reactions during the treatment

**Table-5: Adherence of ART taking individuals:**

Adherence @95%	Male	Female	Trans Gender	Child	Total
Yes<3dose	1181(58.87)	789 (39.33)	1 (0.05)	35 (1.74)	2006

No>3dose	61 (57.01)	42 (39.25)	0.(0.00)	4 (3.74)	107
Total	1242 (58.78)	831 (39.33)	1 (0.05)	39 (1.85)	2113

Table 5 depicts that 94.9% ART people missing < 3 doses /month and about 5.1% ART people missing more than 3 doses /month.

**Table-6: Mean increase of CD4 Count status following treatment (From Jan.2007 to Dec.2007).**

Year	<100 CD <sub>4</sub>		Mean CD <sub>4</sub> before Treatment		Mean CD <sub>4</sub> after Treatment	
	Male	Female	Male	Female	Male	Female
Jan. 2007 to June2007	29	9	76.8	71.2	221.1	220.6
Jul.2007 to Dec.2007	27	17	73.2	69.4	219.4	218.7

Table 6 highlights that among < 100 CD<sub>4</sub> count HIV individuals (from Jan 2007 to June 2007), before ART the mean CD<sub>4</sub> count in males was 76.8 and females the mean CD<sub>4</sub> count was 71.2. Same individuals treated with ART the mean value of CD<sub>4</sub> Count after 6 months was 221.1 and 220.6 respectively in males and females.

Among < 100 CD<sub>4</sub> count HIV individuals (From July 2007 to Dec 2007), before ART the mean CD<sub>4</sub> count in males was 73.2 and females the mean CD<sub>4</sub> count was 69.4. Same individuals treated with ART the mean value of CD<sub>4</sub> Count after 6 months was 219.4 and 218.7 respectively in males and females. Significant improvement was observed with ART treatment (P<0.01).

**Discussion:**

The present study was conducted at out patient department of ART Centre of Rajiv Gandhi Institute of Medical Sciences, Kadapa, Andhra Pradesh during the period of January 2007 to September 2008 by using

stratified random sampling method. The main purpose of this study is to know the effectiveness of Anti Retroviral Treatment for the HIV positive individuals and certain demographic variables associated with HIV. Same group of the people followed for the last 2 years.

About the 91.6% of the HIV positive individuals were between the age group of 15-49 years of age group, 3.5% of the HIV people were in the age group of more than 50 years of age and lastly 4.9 % were under 15 years of age group in this study. Similar findings were observed in Singh S, Thapta et al (Jipmer)<sup>4</sup> – Mean age for HIV seroprevalence was 32.07 years, Benerji Pantosh, Mandal Manol Kumar observed that highest prevalence HIV was approved 30 yrs of age except for a study conducted by Kumar R and Prakash Bhatia et al<sup>5</sup>.

About 18.4% (388/2113) ART patients were developed pulmonary Tuberculosis in our study and stands first common opportunistic infection among HIV patients and this finding was correlated in many Indian Studies. Out of 2113 ART patients 752 (35.5%) people were developed different adverse reactions during the course of ART Treatment, of which commonly seen adverse reaction in our study was skin reaction (176/2113) followed by anaemia (141/2113).

Total of 7483 HIV positive patients were interviewed, of which 2113 patients were started Anti Retroviral Treatment and whose CD<sub>4</sub> count was <200 which accounts 28.2% and were followed for the improvement of CD<sub>4</sub> count after 1 year treatment. About 2113 were received Treatment from ART Centre, of which 78% were kept on Stavudine + Lamivudine + Nevirapine (SLN) combination and 16.5% were used Zidovudine + Lamivudine + Nevirapine (ZLN). Only 5.5% of the children received Fixed Drug Combination (FDC 30) & FDC 6. Among < 100 CD<sub>4</sub> count HIV individuals (from Jan 2007 to June 2007), before ART the mean CD<sub>4</sub> count in males was 76.8 and females the mean CD<sub>4</sub> count was 71.2. Same individuals treated with ART the mean value of CD<sub>4</sub> Count after 6 months was 221.1 and 220.6 respectively in males and females. Among < 100 CD<sub>4</sub> count HIV individuals (From July 2007 to Dec 2007), before ART the mean CD<sub>4</sub> count in males was 73.2 and females the mean CD<sub>4</sub> count was 69.4. Same individuals treated with ART the mean value of CD<sub>4</sub> Count after 6 months was 219.4 and 218.7 respectively in males and females. Many Indian studies



revealed that the same type of treatment regimens applied to the different HIV positive individuals at different ART Centres of India (Chennai) <sup>14, 15</sup>.

**Conclusions:** Based on the above observations in this study there was considerable CD<sub>4</sub> count improvement from 78.6 to 221.1 among less than 100 CD<sub>4</sub> count before starting treatment and after starting treatment respectively in males and females (P<0.01). About 91.6% HIV Positive people in the age group of 15-49 years. Statistically significant association was found with Daily labour occupation. Most common opportunistic infection noticed was **Pulmonary TB** (388/2113) among HIV individuals.

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