



Clinical and Immunological Profile of Patients on Antiretroviral Therapy

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Abstract

Availability of antiretroviral therapy has changed the scenario of HIV endemic and now HIV disease has become a chronic manageable condition. Under NACP III nationwide free ART program was started. The purpose of this study was to document clinical and immunological profile of patients on ART attending ART centre OPD. The present retrospective study was conducted in the ART centre of a tertiary care hospital, Nanded which was started in April 2007. Amongst 2980 patients on ART under regular follow up in ART centre, oral candidiasis was the most common OI observed in 953 (31.97%) patients followed by enteritis in 709 (23.47%) and herpes zoster in 284 (9.6%) patients. Pulmonary tuberculosis in 566 (19.58%), tuberculous lymphadenopathy in 417(14.42%) and abdominal tuberculosis was found in 635(21.97%) patients. Median baseline CD4 count increased from 240 to 467 cells/cm over a period of 18 months. Mean adherence to ART was found to be 94.95% in the study population.

Keywords- *Clinical, immunological profile, Antiretroviral therapy.*

Introduction

Less than a decade ago, someone living with HIV/AIDS had little hope. HIV infection causes complete destruction of immune system making patient prone for opportunistic infections, AIDS and death. The introduction of antiretroviral therapy (ART) in 1996 was a turning point for thousands of people. Although these cannot cure HIV/ AIDS, ART has dramatically reduced morbidity and mortality, prolonged lives and improved quality of life of many people living

with HIV. In most of the patients, ART results in increase in CD4 count above critical threshold and functional reconstitution of immune system.¹

Early diagnosis and prevention programs conducted under NACO like VCTC/ICTC/PPTCT, screening of high risk population has encouraged diagnosis of HIV infection at earlier stage which in turn has reduced morbidity and mortality due to AIDS. Establishment of network of ART centers and ART sub centers all over the India by NACO has revolutionized diagnosis ,

treatment and counseling of HIV patients and has also improved quality of life of these patients. Similar to developed countries, Indian patients on ART are experiencing a decrease in number of opportunistic infections and HIV related morbidity and mortality.

The present study was undertaken to collect data on different aspects of HIV patients attending ART center of a tertiary care center during their follow up visits and to document clinical and immunological profile of patients on ART under ART centre of Government Medical College, Nanded.

AIMs and objectives- AIM:-To study patients on Antiretroviral therapy (ART) under ART centre during their follow up visits.

Objectives

1. To find out demographic characteristics of study population.
2. To find out presence and occurrence of opportunistic infections in these patients.
3. To observe immunological progress (CD4 count) of these patients on ART.
4. To find out the adherence rate of these patients on ART.

Methodology

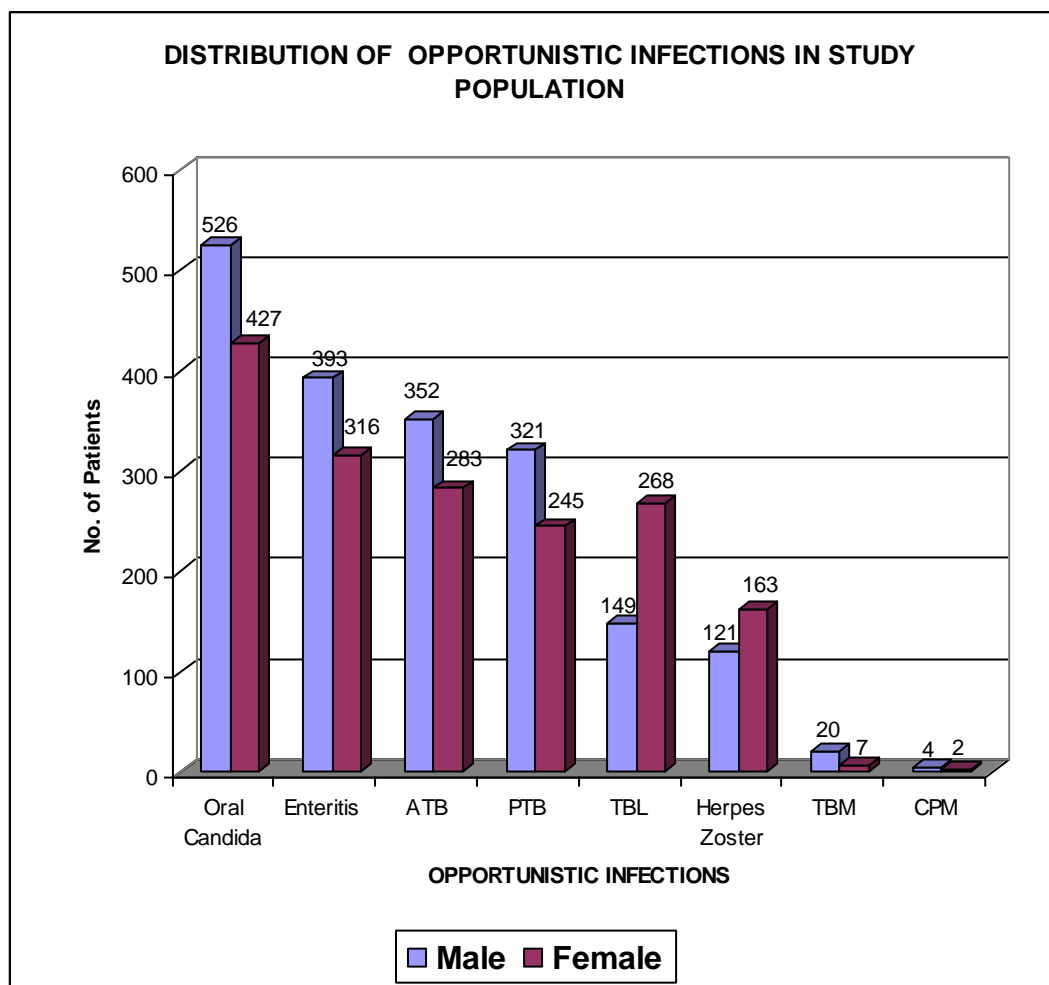
The present retrospective observational study was conducted in the ART centre of a tertiary care Dr. Shankarrao Chavan Government Medical College, Nanded. over a period of 18 months from January 2011 to June 2012.. Ethical clearance was sought from institutional ethical committee in December 2010. Permission was obtained from concerned authority, record section Incharge and nodal officer ART Centre before starting the study. This ART centre was started on 27 April 2007. Since then 6885 patients were enrolled until the study period. 4569 patients were started on ART as per NACO guidelines. Out of these 2980 patients were continuing regular follow up on antiretroviral treatment. 2092 patients were not started on ART as they did not fulfil NACO guidelines criteria for starting ART. Data of all these patients was collected from previously filled

NACO ART sheets and analysed analyzed by statistical measures such as percentage, chi-square test using software Graph pad prism version 5.01.

Results

Total 2980 patients started on ART from ART centre of a tertiary care centre satisfying inclusion criteria were studied over a period of 18 months. Demographic characteristics, presence of opportunistic infections, immunological progress and adherence were studied on the collected data. In the present study, 1648 (55.30%) out of 2980 patients were male and 1332 (44.69%) were female. Maximum number of male patients were in the age group 31 to 40 years 43.69% followed by 21 to 30 years 29.79%. Maximum number of female patients were in the age group of 21-30 years 47.37% followed by 31-40 years 35.06%. In the study population 97.15% of patients had acquired HIV infection through heterosexual route. Mother to child (0.537%), Through blood products 0%, unknown route 2.31%. Most of the male 43.20% and female 56.16% patients were illiterate. 73.54% male and 16.14% female patients were employed. And 26.46% male 83.86% female were unemployed. Maximum number of the patients 58.62% belonged to lower socioeconomic group (class V) having monthly income less than 3163 Rs. 32.04% patients belonged to class IV of B G Prasad classification.

Figure no.1 Bar diagram showing distribution of opportunistic infections in study population



Oral candidiasis was the most common opportunistic infection in 31.97% patients. Enteritis was second common opportunistic infection occurring in 23.47% patients. Pulmonary tuberculosis was found to have prevalence of 19.58% followed by abdominal tuberculosis 21.97% and Tubercular lymphadenopathy in 14.42% patients. 27 (0.90%) patients had tubercular meningitis. While prevalence of herpes zoster in present study was found to be 9.6%.

Major side effects found in study population were zidovudine induced anemia in 22.75% patients, and nevirapine rash in 12.31% patients. In the study population, 397(58.55%) female patients developed zidovudine induced anemia and 224 (61.03%) female patients developed nevirapine rash. Total number of patients on ART were 4569. Out of these patients 2980 had continuous regular follow up, 879 patients died over the period. 586

were transferred out to other ART centers and 124 patients lost to follow up.

Table no 1. Showing immunological progress in study population

Treatment Duration	Mean CD4 count
At the start of treatment	240
At 6 month of treatment	344
At 12 month of treatment	418
At 18 month of treatment	467

It was observed that at the start of treatment patients had mean CD4 count of 240, at 6 months it was 344, after 12 months it was 418 and increased to 467 after 18 months of treatment.

In the study population mean adherence to ART therapy was found to be 94.95 %. Highest adherence rate was in the year 2007.

Discussion

In the present study population oral candidiasis was the most common opportunistic infections

(31.97%) and enteritis was second common opportunistic infection occurring in 23.47% while the prevalence of herpes zoster was found to be

9.6%. Pulmonary tuberculosis had the prevalence of 19.58% and extra pulmonary tuberculosis 36.20%.

Table no.2 Comparison of prevalence of opportunistic infections with different indian studies.

Study	Present study	S.Kumar et al	N.KumaraSamy et al	K.AyodhyaRamaih et al	SreeRanga et al
Year	2012	2007	2001	2009	2010
Place	-----	Chandigarh	Chennai	Tirupati	Karnataka
No of patients	2980	3067	594	10500	2101
Results					
1) Candidiasis	31.97%	10.89%	54.5%	10.00%	--
2) Enteritis	23.47%	--	--	---	--
3) PTB	19.58%	--	49.00%	38.00%	33.69%
4) Extra PTB	36.20%	--	11.1%	---	17.46%
5) Herpes Zoster	9.6%	--	8.6%	8.00%	--

In the similar study done by N.Kumarasamyat Chennai on 594 patients observed that pulmonary tuberculosis occurred in 49% patients, candidiasis in 54.5% patients, extra pulmonary tuberculosis in 11.1% and herpes zoster in 8.6% of the patients². In the study done by K. Ayodhya Ramaih et al on

10,500 patients at Tirupati showed prevalence of tuberculosis was 38.00%, Candidiasis 10.00% and herpes zoster 8.00%³. As the present study was a retrospective study and data was collected from ART record sheets, further investigation to confirm the results is necessary.

Table no.3 Showing comparison of prevalence of opportunistic infections with different with foreign studies

Study	Present study	E.O.Idigbe et al	R.Bellamy et al	Wang X C et al	Fortes Deguenonvo L. et al	GedluBeshah et al
Year	2012	1999	2001	2005	2007	2011
Place	-----	Nigeria	Singapore	China	Dakar	Ethiopia
No of patients	2980	--	1504	181	527	566
Result						
1) Candidiasis	31.97%	26.00%	--	52.9%	38.9%	58.0%
2) Enteritis	23.47%	--	--	--	--	--
3) PTB	19.58%	38.00%	22.7%	21.2%	40.9%	45.9%
4)Extra PTB	36.20%	--	--	--	--	--
5) Herpes Zoster	9.6%	18.00%	--	--	--	35.00%

Similar results were obtained from the western countries. In the study done by GedluBeshah et al at Ethiopia on 566 patients prevalence of TB was found to be 45.9%, candidiasis 58.0% and herpes zoster 35.00%⁴. In the study done by E.O.Idigbe et al in Nigeria (1999) showed pulmonary tuberculosis in 38.00% patients, candidiasis in 26.00% patients and herpes zoster in 18.00% patients⁵. The study from Singapore done by

R.Bellamy (2001) on 1504 patients also found similar result of TB prevalence of 22.77%⁶.

ART side effects

In the present study population major side effects of ART were zidovudine induced anemia in 22.75% patients and Nevirapine rash in 12.31% patients.

In the present study it was observed that CD4 count increased from 240 to 467 over 18 months of the study period. In the study done by Damodar

Bacchani et al 2004 on 972 patients from 3 different ART centres in Mumbai, Chennai and Hyderabad observed mean CD4 count increased from 119 to 142 at 6 months and 184 at 12 months⁷. In the study done by Stephen D Lawn et al, "CD4 cell count recovery among HIV-infected patients with very advanced immune deficiency commencing antiretroviral treatment in sub-Saharan Africa" on 596 patients showed increase in median CD4 baseline count from 97 to 261 in 48 weeks of ART.⁸ Also in a study by Lyle R. McKinnon-et al, "Effect of Baseline HIV Disease Parameters on CD4+ T Cell Recovery after Antiretroviral Therapy initiation in Kenyan Women", done on 79 patients showed increase in baseline median CD4 count from 180 to 339 over period of 5 years while on ART⁹.

Conclusions

Total registrations under ART centre were 6885. Those patients who were started on ART as per NACO guidelines were 4569. Out of these, 2980 patients were followed up regularly during study period. 879 patients died over the period. 586 were transferred out to other ART centres and 124 patients lost to follow up. oral candidiasis was the most common OI observed in 953 (31.97%) patients followed by enteritis in 709 (23.47%) and herpes zoster in 284 (9.6%) patients. Amongst tuberculosis, pulmonary tuberculosis was seen in 566 (19.58%) patients. Abdominal tuberculosis was observed in 635 (21.97%) patients and tuberculous lymphadenopathy in 417 (14.42%) patients. patients on ART showed immunological progress, median baseline CD4 count increased from 240 to 467 during study period. Mean adherence to ART was found to be 94.95% in the study population.

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