



Clinico-epidemiological profile of patients attending ART Clinics in Kerala, South India

Community Medicine

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ABSTRACT

Introduction and Background: HIV-AIDS has become a chronic manageable disease with the advent of antiretroviral therapy (ART). Kerala is the first state in India to start free antiretroviral treatment for HIV positive people in 2004. This study looked into the benefits of ART as experienced by, as well as the clinical and epidemiological profile of the patients attending ART clinics in Kerala.

Methods: 124 patients attending in ART clinic, Thiruvananthapuram were enrolled. History and physical examination including body weight were recorded on a pre-designed schedule along with other clinical findings. The epidemiologic profile, probable route of infection and the perceived benefits of antiretroviral therapy were measured using a structured questionnaire. The CD4+ lymphocyte (CD4) count (cells/ μ l) was estimated at baseline and at 6-month interval during follow-up. Body weight and CD4 counts were compared with the baseline.

Results: Three fourth of the subjects are in the economically productive age group (25-44 years) and males (63.7%) outnumbered the females (36.29%). The mean age was 35.2 years. Commonest mode of acquiring the infection was through heterosexual contact (67.7%). CD4 count has been increased following antiretroviral therapy in 92.5%. Mean increase is 175.73 (\pm 133.5). 70.09% had weight gain and the mean weight gain was 4.15 kg. 78.2% patients had at least one opportunistic infection at the time of their first presentation in the clinic. The opportunistic infections have been significantly subsided in 58.06%. ART was very much useful for 46.77%, it improved their overall health and was just useful for 37.9%, benefits were not sure for 8.06% and 7.26% felt that ART gives no benefits at all. 22.9% of patients have some minor side effects.

Conclusion: Antiretroviral therapy significantly improves the quality of life in HIV infected patients by reducing morbidity in terms of virus load and opportunistic infections. It also helps to regain their bodyweight.

KEYWORDS

Clinico-epidemiological profile, Anti-Retroviral therapy (ART), Opportunistic Infection (OI), ART Clinic, CD4 count, Directly observed treatment, short-course (DOTS)

INTRODUCTION AND BACKGROUND

Before the era of antiretroviral treatment, a diagnosis of HIV positive status meant patient's inevitable progression to AIDS and death. The HIV-AIDS has become a chronic manageable disease with the advent of antiretroviral therapy (ART). The anti-retro viral drugs are establishing their role as agents which can delay the progression from HIV to AIDS and can give a reasonably good quality of life to AIDS patients. It has been shown to be beneficial in many fronts in AIDS management.

Antiretroviral therapy was offered to these patients in accordance with NACO guidelines.¹ The use of typically three or four anti HIV drugs, taken in combination is known as Anti-Retroviral Therapy, improved virologic and immunologic responses became the standard of care to maintain viral suppression and minimize the emergence of resistant strains and, thereby, reduce the risk of disease progression and death.² As long as the HIV positive individual takes the medication on a regular basis he/she retains close-to-normal quality of life including working capacity. This has resulted in a dramatic decline in opportunistic infections (OI) and HIV-related deaths.

The default rate, representing less than 1 percent³ of those who started antiretroviral therapy, suggests that patients are highly committed to treatment and that antiretroviral therapy adherence protocols implemented at the ART Clinics are being rigorously observed. Kerala is the first state in India to start antiretroviral treatment for HIV positive people in 2004. The ART centers set up in all the Government Medical Colleges in the state providing antiretroviral treatment, drugs for opportunistic infections and the CD4 cell count estimation, which is to be done once in six months for all HIV positive persons is facilitated through ART centers and done free of cost.

Given that HIV largely affects younger and middle aged adults, expanding treatment access should help to prevent breakdown of societal structure and restore economic development. In these circumstances, to study the clinical outcomes of antiretroviral therapy among people living with HIV-AIDS and to know the socio-demographic profile of patients will be highly useful. This study looked into the benefits of ART as experienced by, as well as the epidemiological profile of the patients attending ART clinics. Around 250 patients attend ART clinic at Government Medical College Hospital, Thiruvananthapuram every month.

OBJECTIVES

It has been aimed to study the epidemiological profile, clinical presentations and the perceived benefits of antiretroviral therapy, among the patients attending an ART clinic at Government Medical College Hospital, Thiruvananthapuram, Kerala.

METHODS

In this study, 124 HIV positive patients attending the ART clinic at Government Medical College Hospital, Thiruvananthapuram were enrolled. People who received antiretroviral therapy for a minimum period of one month have been included after getting informed consent and those who are very sick or not willing to participate are excluded from the study.

History and physical examination including body weight were recorded on a pre-designed schedule along with other clinical findings. The epidemiologic profile, probable route of infection and the perceived benefits of antiretroviral therapy were measured using a structured questionnaire. The CD4+ lymphocyte (CD4) count (cells/ μ l) was estimated at baseline and at 6-month interval during follow-up. Body weight and CD4 counts were compared with the baseline.

The perceived benefits of antiretroviral therapy measured using Likert scale. The patient perception scores were grouped in to *very much useful*, *useful*, *not sure* and *not useful*. This has been done by asking the patients about whether they feel any difference after the initiation of antiretroviral therapy, whether they can work normally, attend family and public functions, enhancing quality of life and enjoy life as before getting contracted with HIV/AIDS; we give the highest score (*very much useful*). If they feel just a sense of wellbeing and they do not get other infections frequently and the symptoms are relieved and they are not active as before, grouped under the category 'useful'. The third group is those who are responded as 'not sure'. The fourth group feels that there is 'no benefits at all'.

RESULTS

Socio demographic Profile: Three fourth (75%) of the subjects were in the economically productive age group (25-44 years) and male patients 79 (63.7%) outnumbered the female patients 45 (36.29%) (Table.1). The mean age at the time of diagnosis was 35.2 (\pm 12.5) years.

Table 1

Age in years	Frequency	Percent
1-14	12	9.7
25-34	39	31.5
35-44	54	43.5
45-54	15	12.1
55-64	3	2.4
75-84	1	.8
Total	124	100.0

Almost three fourth (70%) belong to low socio economic group. None of the subjects belong to high socio economic group. More than half of the subjects (62%) educated up to secondary school and 2.4% were illiterate. Half of them (50%) having no regular job at present (Table.2).

Mode of transmission: Commonest mode of acquiring the infection was through heterosexual contact (67.7%) and 2.4% patients think that they contracted the infection while receiving blood transfusion. Unsafe sex with commercial sex worker was the reason for infection among 48 males (60.8%). Most of the females (80%) contracted the infection from their spouse. History suggestive of a risk factor for HIV transmission could not be elicited in 37 (29.8%) patients. Majority (56%) came to know their disease status during investigation for other illnesses.

Table 2

Present Occupations	Frequency	Percent
Children	12	9.7
Unemployed	62	50.0
Unskilled	16	12.9
Semiskilled	10	8.1
Skilled	12	9.7
Clerk / Shop / Farm worker	10	8.1
Semiprofessional	2	1.6
Total	124	100.0

Effect of Antiretroviral Therapy on CD4 count, body weight and OI

The mean duration of infection was four years and the effect of antiretroviral therapy has been studied in a subset of patients who has completed a minimum duration of six months of the therapy. The change in CD4 count has been used to measure the immunologic response.

CD4 count has been increased following antiretroviral therapy in 92.5% people, but the count has decreased further in the rest of the patients (7.5%). Mean increase is 175.73 (\pm 133.5). There is no significant association between the duration of antiretroviral therapy and increase in CD4.

Clinical responses have also been encouraging. There is significant weight gain noticed in 70.09% of people ($p=0.000$). Mean weight gain is 4.15 kg (\pm 5.78). Weight loss was noticed among 10.28% and the body weights remain unchanged in 19.65%.

Opportunistic Infections: For another major indicator of clinical response, the incidence of opportunistic infections, 78.2% patients had at least one opportunistic infection at the time of their first presentation in the clinic. Fever (58.4%), weight loss (41.1%), chronic diarrhea (31.7%) and cough (38.1%) were the common presenting symptoms. The most common opportunistic infection was tuberculosis (36.6%) followed by oropharyngeal candidiasis (18.1%) and diarrhea (10.5%). The percentage of people had opportunistic infections have been dropped to 20.16% while on antiretroviral therapy for a minimum period of one month. There is significant reduction in opportunistic infections after antiretroviral therapy. 58.06% had managed to cure the opportunistic infections ($p=0.003$).

Adverse effects: A majority of participants (72.7%) did not report any immediate adverse reactions to antiretroviral therapy. The commonest adverse reaction reported was rashes (10.7%) followed by nausea and vomiting (7.5%). 9.1% had some side effects like head ache, giddiness, constipation etc.

Patient perception: Many of the participants felt that they benefited

from ART by achieving improved physical health. Among them, 46.77% stated that ART was very much useful and they can work normally, enhancing quality of life and enjoy life as before getting contracted with HIV/AIDS. One third (37.9%) of the participants reported that ART is just useful and it improves their health. Some (8.06%) participants are not sure about the benefits of ART. 7.26% felt that ART gives them no benefits at all. 22.9% of patients have some minor side effects. Most of the clinical findings corroborate with the patient perception.

DISCUSSION

In our study population, the ratio of male to female patients was 1.8 to 1, which is similar to rates from other parts of India.⁴ The most common mode of transmission in the study is heterosexual intercourse, and most of the females acquired the infection through their husband, who in turn got it from commercial sex workers, similar to other studies in India^{5,6}. None of the patients gave a history of homosexual contact. History of any risk factors could not be elicited in 29.8% patients, the reason could be social taboos associated with the practice of risk factors. Transmission by other modes like blood transfusion, vertical transmission and intravenous drug abuse were low and not much different from other reports.⁷ The mean age of the participants was 35.2 years in the present study which is similar to other reports^{8,9}.

On comparison of pre and post - highly active antiretroviral therapy (HAART) data for CD4 count, in a study conducted at Eastern part of North India, weight and hemoglobin, there was a significant improvement in all the three parameters.¹⁰ The mean CD4 count of males and females was $179 \pm 9.3/\mu\text{l}$ and $323 \pm 28.26/\mu\text{l}$ respectively. The mean CD4 lymphocyte count in asymptomatic patients was 295 ± 30.3 (SEM) cells/ μl and the number of presenting symptoms increased with a decrease in CD4 counts, with a highly significant inverse correlation ($p=0.000$) between number of symptoms and CD4 count. Regarding weight gain, 61% of patients gained weight, from a median of 50 kg at baseline to 57.5 kg at 36 months, reported in northern India.¹¹

The spectrum of opportunistic infection observed in this study also is similar to those reported from other parts of the country. TB (50%) is the most frequent OI followed by candidiasis (49%), pneumocystis (16%) and others.¹² Tuberculosis accounts for maximum cases with 49.80%. Second most common OI reported was candidiasis with 18.80% cases. Other OI reported were diarrhoea, bacterial infections (respiratory), herpes zoster, cryptococcal meningitis, pneumocystis carinii pneumonia (PCP), CMV retinitis and herpes simplex with distribution of 11.95%, 8.80%, 1.46%, 0.57%, 0.33%, 0.27% and 0.12% respectively.¹³

Identification and treatment of patients earlier in the course of their illness and increased use of antiretroviral therapy could improve probability of survival and decrease drug resistance.¹⁴

STRENGTHS AND LIMITATIONS

Of the total 250 patients enrolled in the ART clinic, Government Medical College Hospital, Thiruvananthapuram, >95% adhere to regular treatment as per clinic records. Body weight is measured and recorded every month and the CD4 count is done every six months. Opportunistic infections are diagnosed and treated at the Infectious disease OP of MCH and TB is treated at the DOTS center there itself. So the patients attending ART clinic will get all the necessary medical care under one roof. So all the variables required for the study could be accurately measured from hospital records and documents available with the patients. High prevalence of adult literacy even among poor socio economic groups made it easy to assess perceived benefits through the interview method.

As the people belonging to high socio economic category rely on private institutions than the government medical college, our study group comprised only of middle and low socio economic categories. This might have excluded the effects that the high socio economic group might have had on the results. The long term side effects antiretroviral therapy on all subjects could not be explored due time constraints.

CONCLUSION

Antiretroviral therapy significantly improves the quality of life in HIV infected patients by reducing morbidity in terms of virus load and opportunistic infections. It also helps to regain their bodyweight.

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