ORIGINAL ARTICLE

Effectiveness of Management of HIV-TB Patients Under Programme Conditions in India

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Abstract

HIV patients, on antiretroviral therapy (ART), with co-existing tuberculosis patients were assesed for clinical and immunological progress at GHTM ART centre for effectiveness of management programme. Six hundred and twenty two HIV-TB patients are placed under both Anti-TB Treatment (DOTS) and ART. While 337 patients are continuing their ATT, details of the remaining 283 patients are provided. 214 patients (76%) completed their treatment successfully. 29 patients (10%) expired before completing treatment for TB and 40 patients (14%) were treatment defaulters. Immunologicallly CD4 cells registered significant increase from 101(mean) to 306 (mean) in 202 treatment-completed patients (p=.001). Linking HIV patients on ART to their nearest DOTS centres for treating tuberculosis is feasible. High Mortality, even before completing the prescribed course of ATT is attributable to low immunity and complicating opportunistic infections. Referral and linkage services shall be improved and strengthened for enhanced treatment adherence.

Kye Words

HIV, AIDS, TB, ATT

Introduction

Control of tuberculosis in HIV afflicted individuals is one of the greatest challenges in the resource poor settings in India (1). Anti Retroviral Therapy (ART) for eligible Persons Living with HIV / AIDS (PLHAs) is likely reduce the development of Tuberculosis among individuals. However, Coexistence of dual diseases, HIV and Tuberculosis, needing both ART and Anti-TB treatment (ATT) simultaneously is being witnessed in a significant number of patients. Managing these patients in two different places, ATT at the nearest DOTS Centres and ART at the ART Centres, depends on the effective coordination of two different national programmes. This study looks into the effectiveness of Anti-TB DOTS in HIV-TB patients receiving ART. Further, it studies immunological profile of HIV-TB patients before and after ART.

Material & Methods

Govt. Hospital of Thoracic Medicine, Tambaram Sanatorium, Chennai (GHTM, Tambaram) is largest care and support centre in the country, in identifying HIV-TB co diseases and in providing treatment for them. All the patients with the HIV disease were also being screened for the possible co-existence of tuberculosis by performing sputum smear microscopy for AFB and Radiological investigations including chest radiography. Other specimens given by patients from extra-pulmonary sites are also subjected to smear microscopy.

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ART Treatment: Persons living with HIV, found to be eligible by National AIDS Control Organization (NACO) Guidelines (2004), were enrolled in ART Program and provided with ART. For the purpose of this study adult patients presenting with tuberculosis at the commencement of ART or those developed tuberculosis subsequently were selected. They received their free treatment and clinical check-up as during monthly visits to GHTM. ART regimens consist of Zidovudine (AZT) or Stavudine (d4T) and Lamivudine (3TC) and Efavirenz. Zidovudine was preferred drug except in patients with anaemia. Efavirenz was preferred in the place of Nevirapine, when Rifampicin was administered in the concomitant treatment for tuberculosis. Patients identified a treatment guardian, such as a family member, friend, or drawn from NGO organization, who will assist them during treatment.

In addition to a monthly clinical assessment, patients on ART are provided with multiple counseling sessions, which address psychological issues, drug adherence and follow-up support. Body weight and Hemoglobin level were measured every month. Laboratory monitoring including the baseline CD4 cell count by Flow cytometry was done every six months.

Anti-TB Treatment (DOTS): For managing tuberculosis these patients were referred to the DOTS Centres nearer to their homes. They were provided with either Category 1 or Category 2 treatment according to their needs and guidelines. The details of treatment were ascertained from the patients on their monthly visits to the ART centres. There was absolutely no feedback from the DOTS centres and the information on Sputum smear conversion and treatment default was not available.

Computerized database of Hospital Information System provides patient records and all the data analysis of various aspects HIV-TB co-infection. Those HIV-TB patients, who had completed or supposed to have completed the prescribed course of anti-TB treatment, while on ART, were selected for the analysis. Proportion test was done with the null hypothesis value of 50% to compare the pulmonary and other forms of tuberculosis and the sex ratio. Chi-square test was done compare the distribution of various sociodemographic variables smear positive rates.

Results

Six hundred and twenty two HIV-TB patients are placed under both Anti-TB Treatment (ATT) and ART from April 2004 to December, 2006. Data for 283 patients, who had completed or supposed to have completed the prescribed course of anti-TB treatment, while on ART, were considered for the further analysis. Table 1 provides the sociodemographic characteristics of the study population. Most of these patients (66.1%) belonged to 30-44 age group in this male dominated (71.4%) study. Majority (64.7%) was drawn from rural areas with 21.6% engaged in agricultural work. There were 20.1% illiterates and 13.1% unmarried.

The largest segment of the patients, 161 (56.9%) had pulmonary tuberculosis with 57 (35.4%) of them excreting Acid Fast Bacilli in their sputa (Table 2). Another 26 (44.8%) of 58 patients with disseminated TB were also found too have sputum smear positive TB. 64 patients had various manifestations of Extra pulmonary tuberculosis. 233 patients (82.3%) were either presenting with tuberculosis at the commencement of ART or having developed TB within 2 months (Table 3).

238 patients (84%) were placed under Category 1 treatment and the remaining 45 were prescribed Category 2 drug regimen. Two hundred and fourteen patients (75.6%) were found to complete the prescribed Anti-TB treatment. 29 patients (10.3%) expired even before completing their treatment. Many of these patients had very low CD4 cell counts to start with and also had the complications of tuberculosis and other opportunistic infections. From the records made available from the patients themselves, there were 40 (14.1%) treatment defaulters.

Table 4 reveals the immunological outcome after the completion of anti-TB treatment. The mean CD4 count was 101.2 at the commencement of ATT in 202 patients. It was found to increase to the level of 360.5 after the completion of ATT. This rise was found to be highly significant (p= .001) by non-parametric test (Signed Rank Test).

Table 1: Distribution of Socio Demographic Characteristics of the Study Patients

Variables	Total (n = 283)	
	n	%
Age		
? 29	56	19.8
30 – 44	187	66.1
45 – 59	37	13.1
> 60	3	1.1
Sex		
Male	202	71.4
Female	74	26.1
Children	7	2.5
Residence		
Rural	183	64.7
Urban	100	35.3
Religion		
Hindu	266	94.0
Muslim	3	1.1
Christian	6	2.1
Others	8	2.8
Marital Status		
Unmarried	37	13.1
Married	218	77.1
Divorced/Separated	8	2.8
Widow	20	7.1
Education		
Illiterate	57	20.1
Primary	78	27.6
Secondary	106	37.5
HSC or College	42	14.8
Occupation		
Agriculture	61	21.6
Unskilled	75	26.5
Housewife	48	17.0
Skilled or Clerk	20	7.1
Driver	37	13.1
Others	42	14.7

Table 2: Types of Tuberculosis and Sputum Smear Microscopy

Type of TB	Sputum Smear for AFB				Total (n = 283)	
	Positive (n = 83)		Negative (n = 200)			
	Patients	%	Patients	%	Patients	%
Pulmonary TB	57	35.4	104	64.6	**161**	**56.9**
Extra Pulmonary TB	0	0	64	100	**64**	**22.6**
Disseminated TB	26	44.8	32	55.2	**58**	**20.5**
Patients Assessed	**83**	**29.3**	**200**	**70.7**	**283**	**100**

Table 3: Development of TB in HIV Patients in Relation to Anti Retroviral Therapy

Development of TB (Months)	Patients	%
0-2	**233**	**82.3**
3-4	**26**	**9.2**
5-6	**15**	**5.3**
>6	**9**	**3.2**
Total	**283**	**100**

Table 4: Immunological Assessment (CD4 Count) Before and After Anti-TB treatment

Assessment	Patients	Mean CD4	SD	P Value*
Before DOTS	**202**	**101.2**	**95.6**	**.001**
After DOTS	**202**	**360.5**	**264.9**	

* Non-Parametric Test (Signed Rank Test)

Discussion

HIV-TB co diseases are found to increase in HIV high prevalent states like Tamilnadu (2-4), Andhra Pradesh, Maharashtra(5, 6) and Karnataka, needing simultaneous administration of Anti-TB treatment and Anti Retroviral Therapy. This study analyses the efficacy Anti-TB treatment (DOTS) under National TB Programme, while patients are having their ART in a specialized ART centre under National AIDS Control Programme. The issues arise in the process are referral and linkages between two pogrammes, the motivation and the ability of the patients to get treated at two different centres and the overriding components of stigma and discrimination prevailing in the community and health care settings.

As in the earlier observations from this institution (7, 8) and from other studies(9-11), clinical presentation of tuberculosis has significant proportion of extra pulmonary tuberculosis (22.6%) and disseminated TB (22.6%). This was the resultant of low CD4 counts (Mean

101 cells) at the time of TB detection in this HIV study population. This is also in a way contributing to the high mortality rate of these patients (10.3%) even before completing the course of anti-TB treatment. However, this study also revealed the important treatment outcome in the form of significant Immunological enhancement of CD4 cells as and when the patients with HIV-TB had regular and appropriate Anti-TB treatment and Antiretroviral therapy.

The lower treatment completion rate (22.6%) and high treatment defaulter rate (22.6%) among these HIV-TB patients on ART, unlike the treatment completion and defaulter rate observed among non-HIV TB patients in RNTCP brings up the need for strengthening the linkages and referral services between the two prgrammes. Severe extent of the co diseases, ordeal of collecting drugs at two different centres and the prevailing discrimination against HIV in the community and the Health Care settings are other important contributing factors.

Conclusion

The co-ordination between the two National control programs dealing with Tuberculosis and HIV/AIDS needs to be enhanced and strengthened. The referral system concerning care and support mechanism of HIV-TB patients shall me made a two-way system incorporating the responsibility and accountability for treatment completion, defaulter-retrieval and of sharing of information on treatment. Implementation of such a system will strengthen both the DOTS centers and ART centers by providing information on Treatment regimens, drug complications including adverse drug reactions and certainly will lead to adequate and appropriate treatment at both the centres.

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