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The Effect of Early Initiation of Antiretroviral Therapy in for Indian HIV-Infected individuals with tuberculosis: An Observational Study done in Patna

Dr. Pawan Kumar Agarwa*, Dr. Surender Kumar

Associate Professor, Department of TB & CHEST, Patna Medical College & Hospital, Patna, Bihar, India

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***Corresponding author:** Dr. Pawan Kumar Agarwal

Abstract **Original Research Article**

Aim: To initiate highly active antiretroviral therapy (HAART) there is uncertainty about the optimal time for human immunodeficiency virus (HIV) infected adults suffering from tuberculosis (TB) as antiretroviral therapy (ART). The main aim of this trial to evaluate the Effect of Early Initiation of Antiretroviral Therapy in for Indian HIV-Infected individuals with tuberculosis. ***Methods:*** This is an observational prospective trial done at Patna Medical College and hospital, patna, Bihar. HIV infected adults suffering from tuberculosis (TB) were randomly assigned to receive HAART after 2-4 weeks of starting ATT, and were followed for 12 months after HAART initiation. Directly observed therapy short course (DOTS) for TB were received by the all participant. This patients were also received antiretroviral regimen which include stavudine or zidovudine, lamivudine, and efavirenz. Progression of HIV disease marked by failure of ART and death from any cause were the primary end points. ***Result:*** 88 patients were included in this trial and there was very less no of mortality and incidence of ART failure. Survival at 12 months was 93%. There were very less adverse events observed during the followup period. The incidence of immunological failure was seen to be significantly lower among which Virological failure documented in 6 patients. Rate of overall treatment failure was also significantly low which was as low as only 6%. ***Conclusion:*** Patients with HIV and TB Early initiation of HAART significantly decreases incidence of HIV disease progression and has good tolerability.

Keywords: HIV, TB, HART, Patna.

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INTRODUCTION

Co-infection with human immunodeficiency virus (HIV) and tuberculosis (TB) poses one of the major ongoing challenge for global tuberculosis (TB) and acquired immune deficiency syndrome (AIDS) prevention and control [1, 2]. 8.6 Million New cases of tuber- culosis (TB) globally and 13% of these cases were HIV positive were estimated in 2012 [3]. To identify and treat TB in HIV-infected persons concerted efforts are needed [4]. To reduce morbidities and mortalities associated with opportunistic infections like TB, timely provision of antiretroviral treatment (ART) is the main intervention [5]. In the absence of ART, 30% of patients die within the first 2 months of TB treatment, as per a recent report stated [6]. Many questions remain unanswered with regard to the treatment of concomitant HIV and TB infections, while TB is the most common cause of death in HIV- infected patients. HIV significantly increases individual risk of progression to active TB in both primary TB and the reactivation of latent TB. Likewise, TB is associated with worsening of the immune suppression, which partly results in a high incidence of death and opportunistic infection [7-9]. While the expanding access to antiretroviral therapy (ART) dramatically decreased the morbidity and mortality of HIV/TB co-infection, individuals with HIV infection still suffered from an excess risk of 10-fold for TB development and a higher TB-associated death rate than those HIV-uninfected individuals [10, 11].

Long recognized as an important statistical technique for the integration of known research evidence, trials has been applied to evaluate the threshold conditions of ART initiation in HIV-associated opportunistic infection.

To initiate highly active antiretroviral therapy (HAART) there is uncertainty about the optimal time for human immunodeficiency virus (HIV) infected adults suffering from tuberculosis (TB) as antiretroviral

therapy (ART). The main aim of this trial to evaluate the Effect of Early Initiation of Antiretroviral Therapy in for Indian HIV-Infected individuals with tuberculosis.

METHODS

This is an observational prospective trial done at Patna Medical College and hospital, patna, Bihar. HIV infected adults suffering from tuberculosis (TB) were randomly assigned to receive HAART after 2-4 weeks of starting ATT, and were followed for 12 months after HAART initiation. Directly observed therapy short course (DOTS) for TB were received by the all participant. This patients were also received antiretroviral regimen which include stavudine or zidovudine, lamivudine, and efavirenz. Progression of HIV disease marked by failure of ART and death from any cause were the primary end points.

For TB, patients were categorized according to Indian Revised National Tuberculosis Control Programme (RNTCP) guidelines for thrice weekly directly observed treatment short-course (DOTS) [12], and treated accordingly with free drugs provided by RNTCP. Antiretroviral drugs were provided free of cost by NACO as part of the National AIDS Control Programme (NACP). According to NACO guidelines Three sets of ELISA tests were done [13, 14].

The electronic data was exported into the STATA software, version 11, for statistical analysis. All the analyses were performed as per the modified intention-to-treat principle with inclusion of only those patients who initiated HAART at the place of the study.

RESULTS

88 patients were included in this trial and there was very less no of mortality and incidence of ART failure.

Baseline demographic characteristic was described in table 1. Average mean age of the participents were 39.42 ± 9.3 with average mean BMI of 19.9 ± 2.7. The entire participant had average mean haemoglobin of 11.0 ± 1.9.

Table-1: Baseline Characteristics of the Study Participants

Variable	Early therapy (n = 88)
Age, years (Mean ± SD)	39.42 ± 9.3
Gender (M/F)	48/40
BMI, kg/m^2 (Mean ± SD)	19.9 ± 2.7
Hemoglobin, mg/dl (Mean ± SD)	11.0 ± 1.9

Survival at 12 months was 93%. There were very less adverse events observed during the followup period.

The incidence of immunological failure was seen to be significantly lower among which Virological failure documented in 6 patients. Rate of overall treatment failure was also significantly low which was as low as only 6%.

Table-2: Outcomes of Antituberculosis and Antiretroviral Treatment

Outcome	Early ART (n = 88)
Successfully treated	82 (93%)
Failure	5 (6%)
Treatment Modified	1 (1%)
Losses during ATT:	
Died	3 (1%)
Outcome of ART at 12 months	
HIV Disease Progression	12 (14%)
Clinical Failure	0
Immunological failure	6 (7%)
Virological failure	6 (7%)

DISCUSSION

To our knowledge, this is the first study evaluating the clinical outcomes of early ART initiation in HIV/TB co-infected patients done in patna Medical college and hospital. Our current findings provided evidence that ART initiation (within four weeks of anti-TB treatment starting) has a significant benefit to avert death, even if there is an increased risk for IRD. We also found that early ART initiation did not increase the risk of grade 3–4 drug-related adverse events. Additionally, although not a specific outcome was reviewed, early ART initiation may be associated with lower likelihood of HIV disease progression [15].

In patients with HIV-associated TB, the best timing to initiate ART has been a subject of intense

debate. Concern about early ART initiation included a overlapping toxicities, IRD and high pill burden. An increased risk of the AIDS-related illness and death may be associated with delayed ART initiation [16, 17].

Antiretroviral and anti-TB drugs have overlapping toxicity profiles—drug-induced liver injury, cutaneous reactions, renal impairment, neuropathy, and neuropsychiatric adverse effects—and drug interactions [18, 19]. Had the advantage of integrated ART and anti-TB treatment in reducing mortality not outweighed adverse effects and risks of drug interaction, sequential therapy of TB and ART would have been recom- mended in avoiding drug interaction and overlapping adverse effects of antiretroviral and anti-TB drugs [20].

Regarding optimal time to initiate ART in HIV-TB cases this study presents important research findings so that detrimental effects of both the diseases can be minimized. The results of this study indicate that these processes may be significant enough to cause failure of ARV therapy after a few months, warranting a switch to second line ART. Some previous studies have demonstrated that death in HIV-TB patients within the first few months of TB treatment may be related to TB, whereas late deaths are attributable to HIV disease progression [21-23].

CONCLUSION

Patients with HIV and TB Early initiation of HAART significantly decreases incidence of HIV disease progression and has good tolerability.

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