

# Prevalence of Tuberculosis in HIV

Dr. B. Ramesh<sup>1</sup>, Dr. Munavar<sup>2</sup>

<sup>1</sup>Associate Professor, Dr. B. R Ambedkar Medical College, Department of General Medicine, Bangalore

<sup>2</sup>Post Graduate, Dr. B. R Ambedkar Medical College, Department of General Medicine, Bangalore

**Abstract:** Tuberculosis is one of the most common opportunistic infection in HIV positive patients. It can affect HIV patients anytime during the course of infection. The aim of our study is to know the prevalence of tuberculosis in HIV positive patients. This study was conducted in Dr. B. R. Ambedkar medical college in the department of medicine for a period of 3 years, January 2012 to January 2015. Total 625 HIV positive patients were included in the study. Result: In our study 62 were diagnosed with tuberculosis, out of which 46 were male patients and 16 were female. The overall prevalence in our study was 10%. Conclusion: Early diagnosis and intervention is necessary to reduce the morbidity and mortality.

**Keywords:** HIV, Tuberculosis, ART, DOTS, Opportunistic infection.

## 1. Introduction

TB-HIV co-infection is one of the biggest public health challenges. The relationship between HIV and tuberculosis is increased in recent times in countries like India between 15-45 years of age [1]

Despite implementation of many programs by RNTCP to control tuberculosis, it remains a major public health problem, particularly in leading countries [2]. The prevalence of TB-HIV co-infection varies from place to place. The prevalence of HIV among TB patients ranged from 3.8 to 72.3%, whereas the prevalence of TB among HIV-positive patients ranged from 2.9 to 64.5% [3]

HIV patients are prone to active tuberculosis in course of time which is one of the main causes of increasing mortality [4]. In 1989, the first international meeting organized by the World Health Organization (WHO) to discuss the dual epidemic of TB and HIV infection concluded that the priority of the countries with poor TB-control programs, which at the time included most countries with an increasing HIV burden, should be to improve the treatment and cure of patients through the DOTS strategy [5].

## 2. Materials and Methods

This prospective study was conducted in the department of medicine at B.R.AMBEDKAR MEDICAL COLLEGE for a period of three years from January 2012 January to 2015. Patients who were HIV positive were included, both males and females were included, their age ranged from 20-60 years. Exclusion criteria were associated Hypertension or Diabetes. Objective of the study was to know the prevalence of TB in HIV patients. Total 625 patients were included out of which 62 patients were detected with tuberculosis.

## 3. Results

In our study 625 HIV positive patients were included, 62 patients were diagnosed with tuberculosis.

Table 1:

Age (years)	Male	Female
35-40	24	8
41-45	14	6
46-50	8	2

Table 2:

	No of HIV pts	Pts with TB positive(sputum)	Percentage
Our study	625	62	10%
Purushottam et al	1012	172	17%
Ngowi et al	233	20	8.3%
Narmela Rabirad et al	71	20	28.2%

## 4. Discussion

HIV is a well-known risk factor for progression to active TB among those infected with *Mycobacterium tuberculosis*<sup>6</sup>. The association between tuberculosis and HIV presents an immediate and grave public health and socioeconomic threat, particularly in the developing world. The association between tuberculosis and HIV is evident from the high incidence of tuberculosis, estimated at 5–8% per year, among HIV-infected persons, the high HIV seroprevalence among patients with tuberculosis, the high occurrence of tuberculosis among AIDS patients, and the coincidence of increased tuberculosis notifications with the spreading of the HIV epidemic in several African countries.<sup>7</sup>

HIV positive patients who are prone to develop Tuberculosis depends on the CD4 cell count, as CD4 cell count decreases they are prone to develop opportunistic infections, tuberculosis being the common cause of death in HIV patients.

Implementation of collaborative TB/HIV activities to reduce the burden of TB among HIV-infected persons—namely, intensified TB case finding, isoniazid preventive therapy, and infection control for TB (which are branded as the 3 I's for HIV infection and TB). Tuberculosis control programmes based on passive case finding and treatment of sputum-smear-positive disease by short-courses of directly observed chemotherapy (DOTS) have been successful in developed countries. However, these strategies have failed to achieve similar success in countries with high burdens of HIV-1

infection.<sup>8,9</sup> Consequently, WHO has formulated a strategic framework aimed at functional integration of control programmes for tuberculosis and HIV/AIDS.<sup>10</sup>

The prevalence of TB in HIV/AIDS patients is a dual epidemic problem of major concern worldwide. A person with HIV is up to thirty times more likely to develop active TB than a person with healthy immune system. HIV infection is the highest risk factor so far identified which increase the chance of latent infection with tubercle bacilli progressing to active TB<sup>11,12,13</sup>

The prevalence of tuberculosis was 20/233 (8.5%)<sup>14</sup>. HIV contributed 4% to the total tuberculosis cases (i.e. 3,00,000) in the world<sup>15</sup>. The rates of HIV/TB co-infection have been reported to vary in different regions of India. It was found to be between 0.4% and 20.1% in north India.<sup>16</sup> However, the incidence was 3.2% in 1991, which increased to 20.1% in 1996 in south India<sup>17</sup>

This study shows that the prevalence of HIV/TB co-infection was 17% among HIV positive patients who attended the ART clinic in western Maharashtra<sup>18</sup>. Mohraz et al. and Mohammadnejad et al. showed that prevalence were 14.7% and 12.7%, respectively in Iran<sup>19,20</sup>

## 5. Conclusion

Prevalence rate is varying from place to place may be because of the different size of the study population. Change of lifestyle, early suspicion of TB among patients with opportunistic infection, strict adherence to ART, proper follow up will reduce the morbidity and mortality.

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