



## A PROFILE OF TUBERCULOSIS CASES AMONG HIV POSITIVE PATIENTS IN NAVI MUMBAI.

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### ABSTRACT

The purpose of the study was to find the prevalence of extra pulmonary and pulmonary TB in the area of Navi Mumbai 113 adult TB patients having confirmed HIV sero-positivity were screened for the current study. The diagnosis of TB was based on clinical impression and relevant investigations including CBC with ESR, Mantoux test, Chest X-ray, USG Abdomen and Pelvis, sputum smear AFB examination in case of pulmonary symptoms, Fluid analysis and studies Bac-T Alert methods, Fine needle aspiration cyto (FNAC), Real-time PCR (Light cycler Roche 480) and CT scan. Prevalence of tuberculosis in HIV -positive patients in this study was (43.3%). Extra pulmonary TB (61%) was found to be more common than pulmonary TB (39%). There is a high prevalence of extra pulmonary TB in HIV patients in this area of Navi Mumbai. The study also inferred that patients with relatively high CD4 counts should be essentially screened for tuberculosis.

**Keywords:** Extra pulmonary TB, HIV, Real time PCR, CD4 counts

### INTRODUCTION

Mycobacterium tuberculosis (MTB) and Human Immunodeficiency virus / Acquired Immunodeficiency deficiency remains the most common infectious disease in resource limited countries. Mycobacterium tuberculosis – HIV co infection causes therapeutic and diagnostic challenges and in turn poses immense pressure on health care agencies in such countries where the populations of coinfectected individuals are ever increasing. At least one-third of the 33.3 million people living with HIV worldwide is infected with TB. Persons co-infected with TB and HIV are 20-

30 times more likely to develop active TB disease than persons without HIV[1]. In patients dually infected with Mycobacterium tuberculosis and HIV, both the organisms together will accelerate the deterioration of the immune system resulting in early death if untreated. Diagnosis of TB in HIV infected patients may be delayed because of atypical clinical presentations and involvement of inaccessible sites and low sputum smear positivity [2]. In individuals co- infected with HIV and tuberculosis, the lifetime risk of developing tuberculosis is 50%-70% as compared to a 10%

risk in HIV negative individuals [3,4,5]. Thus, because of the very frequent association of tuberculosis and HIV, it has become necessary to look for tuberculosis in HIV infected individuals and vice versa. In this study, we describe a profile of a case series of patients with TB/HIV co-infection, in order to obtain a better picture of the clinical profile of these patients. With the continuing emergence of MDR, XDR and XXDR tuberculosis creating havoc. The current study aims at screening HIV infected patients for co-infection with tuberculosis and to analyse the profile of the TB cases in HIV infected patients attending a tertiary care centre in Navi Mumbai.

## METHODOLOGY

113 adult TB patients having confirmed HIV seropositivity either attending OPD or hospitalized in MGM Medical College and Hospital, Navi Mumbai were included in this retrospective analysis from January 2011 to December 2011. Appropriate ethical clearance was taken from the institutional ethical research clearance committee. The HIV status of the patients was known by an initial screening with HIV Tridot (J. Mitra. And Co., India) further, if found positive, were confirmed by HIV ELISA (J. Mitra, India). Apart from clinical manifestations and history of contact with TB patients, the diagnosis of TB was based on clinical impression and relevant investigations including CBC with ESR, Mantoux test, Chest X-ray, USG Abdomen and Pelvis, sputum smear

AFB examination in case of pulmonary symptoms, Fluid analysis and studies Bac-T Alert methods (Becton Dickenson, India), Fine needle aspiration cyto (FNAC), Real-time PCR (Light cycler Roche 480) and CT scan. The RT PCR was performed using IVD approved diagnostic kits obtained from Professional Biotech Ltd (Gurgaon, Haryana, India) Other suggestive investigations were also carried out as when required to establish the diagnosis of TB. The Inclusive criteria for patients data in this study were adult TB patients ( $>12$  years old) diagnosed according to the WHO criteria and with confirmed positive HIV status. Patients with other concomitant non-TB active infections such as fungal or protozoal infection were excluded from this study. All analyses were performed using the Statistical Package for Social Sciences (SPSS version 17.0) by using Chi-square test with 95% confidence level. Values of  $P \leq 0.05$  were considered to be statistically significant.

## RESULTS AND OBSERVATIONS

### *Demographic details of the patients:*

Of the 920 patients treated for TB in the year 2011 at the tertiary care centre were HIV co infected. There were 30 males and 19 females. Majority of the patients were in the age group of 35 – 59 (69.8%). It is common for patients to be diagnosed HIV-1 positive after developing TB, as shown in our study, 20% of patients confirmed their HIV-1 status after TB was diagnosed.

**TABLE 1**  
**TB POSITIVES AMONG SEROPOSITIVE PATIENTS**

| Total no. of HIV infected patients | Total no. of TB patients | Males (TB & HIV co-infection) | Females (TB & HIV co-infection) |
|------------------------------------|--------------------------|-------------------------------|---------------------------------|
| 113                                | 49 (43%)                 | 30 (60%)                      | 19 (40%)                        |

**Table 2**  
**DISTRIBUTION OF PULMONARY AND EXTRA PULMONARY TB CASES**

| Total no. of TB patients | Pulmonary TB cases | Extra Pulmonary TB cases |
|--------------------------|--------------------|--------------------------|
| 49                       | 19 (39%)           | 30 (61%)                 |

**Table 3**  
**DISTRIBUTION OF EXTRA PULMONARY CASES FROM DIFFERENT SAMPLES**

| Extra pulmonary TB cases | Cervical Lymphadenopathy | TB      | Pleural effusion | Abdominal TB | CNS TB  | Miliary TB |
|--------------------------|--------------------------|---------|------------------|--------------|---------|------------|
| 30                       | 14 (47%)                 | 6 (20%) | 4 (13%)          | 3 (10%)      | 3 (10%) |            |

**Table 4**  
**CORRELATION BETWEEN POSITIVITY OF DIFFERENT TESTS**

| Total no. of Pulmonary TB patients | Sputum smear positive cases | AFB | Bac- T Alert | PCR |
|------------------------------------|-----------------------------|-----|--------------|-----|
| 19                                 | 6                           |     | 19           | 19  |

**Table 5**  
**CORRELATION OF NO. OF CASES WITH CD4 COUNTS**

| CD4 counts | HIV cases (113) | No. of TB cases (49) | No. of Pulmonary TB cases (19) | No. of EPTB cases (30) |
|------------|-----------------|----------------------|--------------------------------|------------------------|
| >500       | 37              | 04 (11%)             | 1                              | 3                      |
| 450-499    | 18              | 04 (22%)             | 2                              | 2                      |
| 350-449    | 31              | 16 (52%)             | 6                              | 10                     |
| 250-349    | 20              | 18 (90%)             | 6                              | 12                     |
| <249       | 07              | 07 (100%)            | 4                              | 3                      |

## DISCUSSION

In the present study, only pulmonary TB (PTB) was seen in 19 (39%) patients, while only EPTB was seen in 30 (61%) patients (three- military, 14- lymph node, three- CNS, 10- abdominal) which is similar to the study conducted by Sharma et al [6]. Out of 19 TB patients having pulmonary involvement sputum smear AFB was positive only in 6 (31.5%). Out of 6 sputum smear positive patients, 3 cases (50%) had 1+ positivity; one (16%) had 2+ positivity; one (16%) had 3+ positivity while scanty bacilli were seen in one (16%). Rest of 13 sputum negative cases, were positive by Bact-T Alert culture for *Mycobacterium tuberculosis*. Mantoux test was done in 113 patients and its positive results are 65. Among EPTB, cervical lymphadenopathy was seen in 14 (47%) patients followed by Pleural effusion 6 (20%), and abdominal TB4 (13%) patients. Other forms included CNS TB 3 (10%). Disseminated TB was seen in 3 (10%) patients. Dharmshale *et.al* found 47.5% incidence of EPTB among HIV positive patients [7]. Giri *et.al* found the prevalence of pulmonary tuberculosis among HIV positive patients to be 17% [8]. Patel *et.al* reported that 40% had only pulmonary TB (PTB), 46% had pulmonary and extra-pulmonary TB (EPTB), 10% had only EPTB and 4% had multisystemic EPTB [9]. Sandgren *et. al* in his

descriptive analysis of extrapulmonary TB in EU/EEA countries reported that Extrapulmonary TB accounted for 19.3% of all notified cases [10]. Kingkaew *et. al* in his study of 769 patients, reported pulmonary TB only in 461 (60%), both pulmonary and extrapulmonary TB in 78 (10%), extrapulmonary TB at one site in 223 (29%), and extrapulmonary TB at more than one site in seven (1%) patients[11].

## CONCLUSION

Prevalence of tuberculosis in HIV-positive patients in this study was (43.3%). Extra pulmonary TB (61%) was found to be more common than pulmonary TB (39%), which is usually the commonest in HIV negative individuals. Also among extrapulmonary TB cervical lymph node involvement was more common (47%). This study also showed that CD4 counts of greater than or equal to 500 were also positive (11%) for tuberculosis. So, even patients with relatively high CD4 counts should be essentially screened for tuberculosis.

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