

Clinical Profile of Tuberculosis in HIV Patients Attending the ART Centre in a Tertiary Care Hospital in North India

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Abstract: HIV/AIDS pandemic is responsible for the resurgence of TB worldwide. HIV and Mycobacterium tuberculosis have a synergistic interaction. Coinfection with HIV infection leads to difficulties in both the diagnosis and treatment of tuberculosis, increase risk of death, treatment failure and relapse. The aim of the present study is to study the clinical, radiological profile of pulmonary and extrapulmonary tuberculosis (EPTB) in HIV-seropositive patients. It was a prospective study conducted over a period of 1 year in the department of medicine, Pt B.D Sharma, PGIMS, Rohtak. We examined 100 HIV-infected patients with associated tuberculosis recruited from the department of medicine and antiretroviral center and were subjected to thorough clinical examination, X-ray chest, tuberculin testing and sputum examination for AFB and necessary relevant investigations for Extrapulmonary TB. Most common affected age group was 30-39 years. Pulmonary TB is the commonest form of TB in our study detected in 58 patients. Commonest Extrapulmonary TB was Tuberculosis lymphadenitis. Disseminated tuberculosis was only found in 4 patients. Majority of lymph node TB was diagnosed by fine needle aspiration cytology (FNAC) examination. In present study, 64(64%) patients were cured from TB successfully. Defaulted/lost to follow-up constituted 12(12%) of patients. The results of this study provide information regarding the various forms of TB and their presentation in HIV-infected persons. Early diagnosis of tuberculosis and prompt institution of antitubercular treatment (ATT) reduces mortality and morbidity significantly. Therefore, adequate knowledge of the manifestations of tuberculosis in HIV-infected patients is absolutely necessary for optimal management and to reduce mortality and morbidity.

Keywords: HIV, Tuberculosis, coinfection, pulmonary, Extra pulmonary.

INTRODUCTION

Human immunodeficiency virus (HIV) associated tuberculosis (TB) possess an Immediate and serious threat to public health. With the advent of HIV infection, tuberculosis has emerged as a major opportunistic infection, particularly in developing countries [1]. Due to high Incidence of TB (100 times) in HIV infected population; there has been a dramatic increase in tuberculosis infection in developing countries where prevalence of HIV is high. Tuberculosis is the commonest opportunistic infection occurring among HIV positive persons in India and it is estimated that 60-70% of HIV positive persons will develop tuberculosis in their lifetime [2]. The clinical manifestations of TB in HIV infected are quite varied. In early stages the presentations of TB in TB-HIV co-infection is the same as HIV-negative but in late stages,

extrapulmonary and disseminated forms are more common[3]. Unlike other opportunistic infection which occurs at CD4+ T cell count below 200/ μ L, active TB occurs throughout the course of HIV disease [4]. HIV testing is recommended in all patients with active TB. HIV associated TB is more difficult to diagnose due to several reasons including frequently negative sputum smears, atypical radiographic findings, and higher prevalence of Extrapulmonary TB especially at inaccessible sites. However, the diagnostic approach to suspected TB in a HIV- infected individual is similar to that in immunocompetent patients, except that invasive diagnostic procedures are more often required to establish the diagnosis. Both Antituberculosis treatment (ATT) and highly active antiretroviral therapy (HAART) is indispensable in the management of patients with HIV-TB co-infection. It is currently

recommended that HIV-infected individuals with TB should receive prompt treatment for both diseases. HIV-infected patients are more prone to develop adverse reactions to anti-tuberculosis drugs and needs to be carefully monitored. Development of multi drug resistant tuberculosis (MDR-TB) and extensively drug resistant tuberculosis (XDR-TB) is increasingly being seen in the treatment of TB in HIV patients, these cases must properly address.

STUDY DESIGN

The study was carried out in the Department of Medicine, Pt. B.D. Sharma, PGIMS, Rohtak during May 2011 to October 2012. A total 100 randomly selected HIV positive (Diagnosed by ELISA) patients were included. The aim was to study the clinical profile and radiological profile of pulmonary and extrapulmonary tuberculosis in HIV infected patients.

Inclusion Criteria

All HIV patients (Diagnosed by ELISA) irrespective of their antiretroviral treatment status with clinical and positive Lab features like, Positive AFB smear/culture, Chest X- ray findings, Biochemical analysis and/or positive culture of body fluids, Positive histopathology with demonstration of bacilli in clinical specimen, Imaging studies suggestive of tuberculosis were included.

Exclusion Criteria

HIV positive patients of age <18 years and cases with diabetes mellitus, malignancy, and on Immunosuppressive therapies were excluded from the study.

INVESTIGATIONS

Following investigations like complete haemogram, ESR, LFT/RFT, Sputum for AFB (two samples), Chest X-ray, Pleural fluid analysis for (Protein/sugar/TLC/DLC/ADA/PCR for TB). Ascitis fluid study (protein/SAAG/TLC/DLC/ADA), USG abdomen/chest, CECT chest/abdomen/brain (whenever appropriate), FNAC/ Biopsy of lymph node for histopathology and ZN stain, CD4+ T cell count by flow cytometry, ELISA for HIV was done. Data was collected by using Pre-tested Performa meeting the objectives of the study and analyzed by proper statistical methods.

RESULTS

Demography

A total 100 patients were included in the study. 58% of patients were in pulmonary group, 38% were in extrapulmonary group and 4% of patients in disseminated group. Males were more in number (76%) as compared to females (24%). Male to female ratio in HIV-TB co infection was 3:1 in this study. Most patients were belonged to rural population (81%). most of the cases were married 84 (84%), widowed/widower constituted of 4 (4%) and unmarried were 12 (12%).The

drivers constituted the major part of patients 34 (34%) in the studied group, followed by laborers 20 (20%). All the female patients 10(10%) were housewives. The predominant mode of transmission was through sexual contact (94%), either from commercial sex worker (90%) or from the infected spouse (4%).

Presenting feature

In present study weight loss > 10% was most common presenting symptom (88%), followed by fever (76%), cough (64%), chest pain (21%), and breathlessness (32%). Pulmonary TB 58 (58%) was the more common than extrapulmonary TB 38 (38%). Among extrapulmonary, TB lymphadenitis was most common, occurred in 14 (14%), followed by TB pleural effusion in 10% and abdominal TB in 8 (8%). Disseminated TB constituting both pulmonary TB and extrapulmonary TB constituted 4 (4%) of cases.

Investigations

The sputum smear was positive for AFB in 22 (35.48%) of patients and negative in 40(64.5%) of cases. In x-ray chest Bilateral extensive infiltrate lesion 25 (43.1%) was the most common radiological finding in pulmonary TB patients and military pattern was seen in (12%) of patients. Meningeal enhancement 3(50%) was most common CT brain finding in meningitis patients. Followed by Meningeal enhancement with hydrocephalus in 2 (33.3%) of patients.

Outcome

In present study, 64(64%) patients were cured from TB successfully. Defaulted/lost to follow-up constituted 12(12%) of patients. Treatment Failure was observed in 4 (4%) of patients. During the study period 6(6%) died, whereas 14 (14%) patients were still on treatment at the end of study. A total 8(8%) of patients developed IRIS in our study characterized by increased lymph node size. This was successfully treated with Non-steroidal anti-inflammatory drugs (NSAID).

DISCUSSION

In present study, maximum occurrence of HIV-TB co-infection was found in economically productive age group of 30-39 years 56(56%) which was in conformity to that of Agarwal *et al.* [5] who observed that the mean age of HIV TB co-infected patients was 33.6 years. and Gupta *et al.*[6] of 31.73 yr (20-40 years age group). Male outnumbered the female's i.e 76% vs 24%. Similar observations were also reported by Nissapatorn *et al.* [7]. Most of the patients (84%) were married. The most common presenting symptom was weight loss>10% in (88%) of patients followed by fever in (76%) of patients. The present study correlates well with that of Agarwal *et al* [5] who observed weight loss as the most common clinical symptom followed by fever and cough.

Pulmonary TB cases constituted 58 (58.0%) of cases, 38 patients (38.0%) had extrapulmonary

tuberculosis, whereas 4 (4.0%) patients had both pulmonary and extrapulmonary tuberculosis. This was in agreement with Nissapatorn *et al.* [7] amongst the patients with extrapulmonary TB 13(13.0%) had TB lymphadenitis, 10(10%) had pleural effusion, 10(10%) had abdominal TB, 5(5%) had TB meningitis. Tubercular lymphadenitis was seen in 34.21% of total extrapulmonary tuberculosis cases. Similar observations were seen by Arora *et al.*[8] and Yanamadala & Rayudu *et al.* [9] 53.37% and 35.0% respectively. It was observed that, lymphadenopathy was the commonest form of extrapulmonary tuberculosis in HIV infected patients.

Total 62 cases from 100 cases showed x-ray lesion suggestive of TB. Common findings in the present study were bilateral extensive infiltrate (46.77%), followed by unilateral lower lobe infiltrate (17.7%). This pattern co-related well with Swaminathan & Narendran *et al.*[10] Extensive Bilateral infiltrates and focal lower lobe infiltrates were seen in 38.0% and 14.0% respectively. Miliary pattern was found in 12.9% of patients in present study.

Sputum was positive for acid fast bacilli in 30.64% and negative in 69.35% of patients. In Intra-abdominal lymphadenopathy was the most common (50.0%) USG finding in our study. The observations were similar to those observed by Ghiya *et al.*[11] and Mathur *et al.*[12]

Meningeal enhancement was the most common CT scan finding in present study (60.0%). But according to Whiteman *et al.*[13] enhancing parenchymal lesion was the most common finding (44.0%). Incidence of hydrocephalus was seen in 20% of patients. In present study Generalized lymph node involvement was most common i.e in 53.84% of patients. Arora *et al.*[9]observed that cervical group of lymphnode was the commonest site involved.

ZN staining of FNAC lymphnode material showed AFB in 5/13 cases (38.64%). According to Shobhana *et al.* [14] it was 40.0%. In present study, 71(71%) were cured as compared to Agarwal *et al.* [5] (53%). The case fatality rate was (5%) which was comparable to that observed by Nissapatorn *et al.* 22(3.57%). No drug resistance tuberculosis cases were seen.

CONCLUSION

HIV infection most commonly affects the younger economically productive section of the society. It is more common in professionals practicing high risk sexual behavior. Tubercular coinfection is common in HIV infected. The salient features of our study were higher prevalence of pulmonary TB in HIV-infected patients unlike many other Indian studies. Commonest Extrapulmonary TB was Tubercular lymphadenitis. There is a definite role of FNAC in diagnosis of

tubercular lymphadenitis in HIV-positive patients. Early diagnosis of tuberculosis and prompt institution of ATT reduces mortality and morbidity significantly. In resource poor areas, the diagnosis can be established with cytological/biochemical analysis of fluid, histopathological examination and ZN staining of tissue coupled with radiological features and response to ATT. Therefore, adequate knowledge of the manifestations of tuberculosis in HIV-infected patients is absolutely necessary for optimal management and to reduce mortality and morbidity. .

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