

Clinical profile of tuberculosis cases among young adult and elderly people in a tertiary care hospital

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Abstract

Background: Tuberculosis continues to be the most important communicable disease in the world, with a major burden in developing countries like India. Tuberculosis should be considered as part of the differential diagnosis in both young and elderly subjects equally. The present study was an effort to find out whether clinical presentation of tuberculosis differ in young and elderly subjects. **Material and Methods:** The study subjects included 100 patients above 12 years of age without co-morbidities of newly diagnosed cases of pulmonary and extra pulmonary tuberculosis diagnosed. Data was collected pertaining to demographics and past history of contact with, or treatment for TB, Skin test results, bacteriologic studies, radiographic reports, and symptoms upon presentation were also assessed for each subject. **Results:** Of the 100 patients, 63 (63%) were under 40 years of age (range 12 to 39), whereas, 37 (37%) were more or equal to 40 years of age (range 40 to 78). Hemoptysis was present in very few elderly patients, whereas, breathlessness was significant presentation in elderly subjects. Age-related differences in radiographic presentation of disease included the more frequent occurrence of right lower lobe pneumonia in those patients 40 years of age and older. **Discussion:** Although, the presentation of pulmonary TB in young and elderly subjects is remarkably similar, age-associated physiologic change might also predict the manner in which pulmonary TB presents clinically and radiographically as evidenced by the study.


Keywords: Tuberculosis, young adults, elderly, clinical presentation.

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Received Date: 10/06/2016 Revised Date: 22/07/2016 Accepted Date: 16/08/2016

Access this article online	
Quick Response Code:	Website: www.medpulse.in
	DOI: 19 August 2016

INTRODUCTION

Tuberculosis (TB) continues to be the most important communicable disease in the world, with a major burden in developing countries like India. Globally one third of world's population is infected with *Mycobacterium tuberculosis* (MTB)¹ with an estimated 9.2 million new cases of TB in 2006 (139 per 100000 population), including 4.1 million new smear-positive cases (44% of

the total). Large number of tuberculosis cases are continuously being reported from India and other developing countries leading to high morbidity and mortality. In spite of many newer tests available for diagnosing a case of tuberculosis, smear microscopy of sputum is still the preferred test under programmatic conditions.² In India, 40% of the population is infected with TB, as against 1% with HIV. Every day, about 5,000 people develop the disease and around 1000 die. Every year, almost 1.8 million new cases occur in the country, of which almost half are infectious. Patients with infectious pulmonary TB (PTB) disease can infect 10–15 persons in a year. TB kills more adults in the most productive age group (15–54 years) in India than any other infectious disease.³ The incidence of EPTB is found to be less than pulmonary TB in Asian studies than Western literature. Its incidence is higher with HIV infection and tends to increase with advancing immune-suppression.^{4,5} The main presenting clinical features of pulmonary TB are cough, usually productive, for more

than three weeks, haemoptysis, pleuritic chest pain, breathlessness. Extra-pulmonary tuberculosis (EPTB) produce symptoms that are systemic in nature. Systemic features include tiredness, malaise, anorexia, weight loss. Fever, often low grade evening rise with night sweats, is seen in up to 80% of patients.⁶ EPTB has a wide spectrum of clinical manifestations, added to this are the relatively inaccessible sites and fewer bacillary load, making the diagnosis difficult. Despite major advances in the diagnosis and treatment, pulmonary tuberculosis (TB) remains a significant health threat not only to the young adults but elderly also.⁷ The percentage of patients with newly reported TB who were 65 years of age and older rising disproportionately. This trend persists despite declining case rates of TB for all age group. In the present study an attempt has been made to assess the clinical profile in newly sputum smear positive cases and to further delineate the differences in young adults and elderly patients.

MATERIAL AND METHODS

The study subjects included 100 patients of newly diagnosed cases of pulmonary and extra pulmonary tuberculosis diagnosed between October 2006 to October 2008 in the Medicine and Chest TB department of Mahatma Gandhi Mission’s Medical College, New Mumbai. Patients above 12 years of age without co-morbidities like diabetes mellitus, hypertension and malignancies were included in the study. Detailed clinical history and physical examination was done of all the enrolled patients. Pulmonary TB patients were diagnosed on the basis of positive sputum smears for acid fast bacilli (AFB), and /or radiographic reports, skin tests and positive culture reports. For extra pulmonary TB, detection of AFB in the samples, radio-imaging reports, skin tests and positive culture reports were taken into account. Data was collected pertaining to demographics and past history of contact with, or treatment for TB, Skin test results, bacteriologic studies, radiographic reports, and symptoms upon presentation were also assessed for each subject.

RESULTS

A total of 100 patients newly diagnosed as pulmonary and extra pulmonary TB were enrolled in this present study. Of the 100 patients, 63 (63%) were under 40 years of age (range 12 to 39), whereas, 37 (37%) were more or equal to 40 years of age (range 40 to 78). Mean age of young adults (below 40 years) was 32.71±3.7 years and elderly (more than or of 40 years) was 67.57±1.03 respectively. Positive sputum smears for acid-fast bacilli (AFB) occurred with equal frequency in both age groups for pulmonary TB. Of those patients with any combination of

constitutional symptoms on admission (i.e., fever, night sweats, weight loss, anorexia) 87% had positive sputum smears for AFB (P<.005). Likewise, 84% of patients with any type of pulmonary symptoms on admission (ie, cough, hemoptysis, dyspnea, chest pain) had positive sputum smears (P<.001).

Table 1: Symptom wise distribution of patients (n=100)

Symptoms	Age <40 yrs	Age ≥40 yrs
Cough +/- productive	67	71
Hemoptysis	21	2
Breathlessness	24	56
Pleuritic chest pain	12	17
Fever	33	18
Weight loss	62	51
Anorexia	32	44

Age-related differences in radiographic presentation of disease included the more frequent occurrence of right lower lobe pneumonia in those patients 40 years of age and older (33% against 9.6%; P <.02) and of cavitary lesions in the younger patients (48% against 17%; P <.02). Disease affecting both the pleura and lower lobe was distinctly unusual in patients under 40 years of age (1.9% against 22%; P <. 05).

DISCUSSION

Tuberculosis should be considered as part of the differential diagnosis in both young and elderly subjects equally. TB continues to pose significant risks to the elderly population that could be due to age-associated decrements in immune function, mucociliary clearance, and pulmonary function.⁸ The presumption, however, that age-associated physiologic change might also predict the manner in which pulmonary TB presents clinically is not well substantiated. Although numerous case reports and reviews suggest that pulmonary TB presents atypically in the elderly, there is little, if any, documentation in the literature. The number of risk factors predisposing to TB infection were equally distributed between the young and old despite more chronic disease in the elderly. Tobacco smoking / chewing, alcohol excess found to be equally responsible risk factors in present study. With regard to symptomatology, the scarcity of hemoptysis in the elderly patients was notable. This is possibly a reflection of stage at diagnosis and or physiologic decrements in function, such as the inability to generate an effective cough. Young adults are more likely to have haemoptysis, fever, weight loss while breathlessness, pleuritic chest pain and anorexia were more common in elderly. In 10% of elderly patients with active PTB, apical scarring or pleural thickening are the only features on chest X-ray.⁹ In a study by Katz *et al* hemoptysis was absent in elderly patients.¹⁰ These atypical radiographic presentations may

contribute as a factor in late diagnosis of PTB in elderly patients. In the present study, the radiographic patterns did not differ remarkably between the young and elderly in the study group, with the majority of all patients demonstrating some form of upper lung field involvement. The high percentage of right lower lobe infiltrates in the elderly subjects noted previously may have reflected primary infection although reactivation of endo-bronchial lesions could not be ruled out. Likewise, the paucity of cavitory lesions in the elder subjects may have reflected stage of disease at presentation and/or underlying immune dysfunction. Despite differences in presentation as described above, in-hospital mortality secondary to TB did not differ between the two age groups studied. In conclusion, TB remains a significant health threat to the elderly population and as such deserves thorough investigation at the time of initial evaluation. The presentation of pulmonary TB in young and elderly subjects is remarkably similar. An accurate history and the prompt use of skin testing may go far in expediting diagnosis and subsequent treatment. Radiographic manifestations of TB in the elderly may be varied and should not deter one from consideration of active disease.

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Source of Support: None Declared
Conflict of Interest: None Declared