

EFFECTS OF AGE DIFFERENCE ON PRESENTATION OF SPUTUM SMEAR POSITIVE PULMONARY TUBERCULOSIS

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ABSTRACT:

OBJECTIVE: To study the difference in clinical presentation of sputum smear positive TB patients in young and elderly group.

DESIGN AND SETTING: A retrospective study conducted in Jinnah Medical and Dental College Hospital, Karachi from Jan 2004 to May 2009.

MATERIAL AND METHOD: All sputum smear positive pulmonary TB patients were divided into young (age <50yrs) and elderly group (age >50yrs). The difference in presentation of clinical findings was statistically analyzed using Chi – square test. The p<0.05 level of significance was adopted.

RESULTS: The young patients had more Night sweats (54% v/s 9.8 % p<0.001) and Fever (93.7% v/s 47.1% p<0.001) as compared to elderly group. The elderly showed more chest pain (64.7% v/s 19.04% p<0.001), dyspnea (43.1% v/s 8% p<0.001) and atypical symptoms (82.3% v/s 11.1% p<0.001) in comparison to young group.

CONCLUSION: The results of our study suggest that elderly people are more likely to present with Chest Pain, Dyspnea and Atypical symptoms.

KEYWORDS: Sputum smear positive TB, elderly, clinical presentation.

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INTRODUCTION:

Pulmonary Tuberculosis (TB) represents an important worldwide public health problem. Despite the World Health Organization (WHO) declaration that the spread of TB is a global emergency and despite implementation of strong TB control initiatives, this highly infectious disease continues to infect all vulnerable population¹. WHO estimates that 9.27 million new cases of TB occurred in 2007 (139 per 100,000 population), compared with 9.24 million new cases (140 per 100,000 population) in 2006. Of these 9.27 million new cases, an estimated 44% or 4.1 million (61 per 100,000 population) were new smear positive cases. The incidence of T.B. in Pakistan reported in 2007 was 1.63 million in which 44.7% were new smear positive T.B. Almost 181 / 100,000 people are infected per year in Pakistan². In developing countries (in particular located in sub Saharan Africa and Asia), TB is more common. The incidence in developing countries is increasing 30% to 300% more in elderly than younger group and despite the overall decline in worldwide Tuberculosis frequency, recent increases have been noticed in developing countries³.

It has always been emphasized there is some difference in presentation of tuberculosis with the progression of age. Tuberculosis diagnosis in elderly has always been challenging as the presentation of the disease differs with progression of age which has been reported in previous studies^{1,4-9}. Therefore, it should be given a different classification¹¹⁻¹². Dyspnea and chest pain were more common^{7,10,13}. Some have suggested that pulmonary T.B. in the elderly presents with some atypical symptoms like nausea, vomiting, headache, dizziness, hepatomegaly or abnormal liver functions^{4,10,13}. Many studies have reported that TB in the young adult and elderly patients shows similar clinical features¹⁰.

In our study we compared the difference of symptoms and co-morbidities within two broad groups of young and elderly in smear positive pulmonary T.B.

DESIGN AND SETTINGS:

This is a retrospective study conducted in the department of medicine of a tertiary care centre, Jinnah Medical and Dental College Hospital, situated in industrialized area of Karachi, from January 2004 to May 2009. All admitted patient's data was reviewed and only sputum smear positive pulmonary T.B. patients were included. All other forms of T.B. as well as patients on anti tuberculosis therapy were excluded. Their demographic data, symptoms, associated illness and ESR were noted. These were compared in two broad groups, young (<50 yrs) and elderly (> 50 yrs). The results were analysed on SPSS 11.5.

RESULTS:

A total of 458 patients were admitted in medicine department with symptoms of pulmonary T.B. with age ranging from 14 yrs to 90 yrs. Out of these only 114 (24.9%) were smear positive T.B. The age in smear positive T.B. was ranging from 15 yrs to 90 yrs with a mean age of 40.83 yrs. Male were 37 (56.1%) and 29 (43.9%) were female. The younger group (age below 50yrs) comprised of 63 (55.3%) patients while remaining 51 (44.7%) were included in the elderly group (age above 50yrs). The demographic data is listed in Table 1.

The patients of younger age group were having night sweats in 53.9% and fever in 93.6% cases as compared with elderly group showing 9.8% and 47.1% respectively with $p < 0.001$ and $p < 0.001$ respectively. However the elderly group had chest pain (43.1%), dyspnea (64.7%), and atypical symptoms (82.3%) more frequently as compared with younger group showing, 7.9% ($p < 0.001$), 19.04% ($p < 0.001$), 11.1% ($p < 0.001$)

Respectively. The common atypical symptoms were vomiting, epigastric pain, headache and generalized weakness. The symptoms of cough, weight loss and hemoptysis were not significantly different between the two groups. The presenting symptoms are listed in Table 2.

The co-morbidities noticed in the patients were Diabetes Mellitus, Acid peptic disease, Chronic obstructive pulmonary disease and Hepatitis C. Acid peptic disease and Hepatitis C were the commonest associated illnesses in young group (11.1%) each, while elderly group had Diabetes Mellitus (11.8%) as a common co-morbidity as shown in Table 3.

The Erythrocyte Sedimentation Rate (ESR) mean value was 75.81 ± 21.23 with minimum range of 35mm to maximum of 120mm in 1st hour. No significant difference was noticed in both groups.

DISCUSSION:

Despite extensive tuberculosis control efforts in the past by WHO and local health departments, the tuberculosis epidemic continues to ravage the developing world; affecting all susceptible individuals including aging adult¹⁴. Although demographic aging does not remain restricted to industrialized countries, the medical challenge arising from the aging population will be distinct in developing world.¹⁵ Several factors such as increase in the elderly population, immune compromised states (patients on steroids, anticancer drugs, immunosuppressive drugs), re-activation of dormant infection, poor nutrition, socioeconomic impact and drug resistance have contributed to this increasing proportion of tuberculosis.¹⁵⁻¹⁷

In our study the male predominance was found overall in both groups which supports the work done in past in the subcontinent and abroad.^{14,18-21} The possible explanation is that they are much involved in social activities and exposed, thus favoring transmission of the disease.

In the past work it was noticed that atypical symptoms vary between 62% to 86 % in elderly people¹⁶⁻¹⁷ while in this study it was 82.3%. Whanq⁸, Rocha²¹ and colleagues showed that fever was 27.9% in elderly as compared to the other studies in the past which was greater than 50%.^{7,14,18,20} Our data supports the work of Whanq, Rocha and colleagues. This could be due to reduced immunity of the host as a result of increasing age.¹⁵⁻¹⁶ Apyrexia reported in previous studies between 50% to 78%^{8,19-21} but in our study it was 72.1%. Apyrexia could be one of the factor in delaying the diagnosis of tuberculosis in elderly people.^{8,20} The diagnosis of tuberculosis in elderly is therefore initially missed, treatment is delayed and mortality is significantly high¹³.

In elderly, dyspnea was noticed between 60 to 75% in the past work^{7,20} while in this study it was 64.7%. The dyspnea could be because of senile emphysema that may result decrease in pulmonary functions and exacerbated further by infection. Chest pain has always been a hallmark of pulmonary infections due to involvement of pleura and parenchyma. In elderly with pulmonary tuberculosis, frequency of chest pain is usually less than 30 %^{14,20-21} but our study revealed higher 47.8% that could be due to less frequency of fever in elderly group probably due to decreased immunity leading this symptom to be dominant.

Night sweats have been more than 50% in young people^{14,20-21} similar to our study. Cough was present in both groups showing no significant difference. Thus cough is primary complain of the disease irrespective of the age.

No difference was noted in co-morbidities probably due to small sample size. ESR value was almost increased in all the patients showing no significant differences in both groups.

CONCLUSION:

In our study the symptomatology of elderly patients did not reflect the classical symptoms of pulmonary tuberculosis which supports all other studies conducted in past. Thus suggesting to keep a high suspicion index of TB in this vulnerable population with atypical symptoms as this may result in delaying the diagnosis, initiation of treatment and increasing the morbidity and mortality.

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Table 1. Demographic Data Of Patients With Smear Positive Tuberculosis

Patients Characteristics	Young (n=63)	Elderly (n=51)
Mean Age (yrs)	29.65 ± 11.82	67.5 ± 7.91
Range of Age (yrs)	15 – 50	51 - 90
Male	32 (50.8%)	41 (80.4%)
Female	31 (49.2%)	10 (19.6%)

Table 2. Presenting Symptoms of Patients with Pulmonary TB

Symptoms	Young (n=63)	Elderly (n=51)	p-value
Cough	53 (84.1%)	40 (78.4%)	P < 0.44
Fever	59 (93.7%)	24 (47.1%)	P < 0.001
Dyspnea	5 (8%)	22 (43.1%)	P < 0.001
Chest pain	12 (19.04%)	33 (64.7%)	P < 0.001
Weight loss	16 (25.3%)	22 (43.1%)	P < 0.06
Night sweats	34 (54%)	5 (9.8%)	P < 0.001
Hemoptysis	16 (25.3%)	8(15.7%)	P < 0.21
Atypical symptoms	7 (11.1)	42 (82.3%)	P < 0.001

Table 3. Associated Medical Problems In Patients With Pulmonary Tuberculosis

Medical problems	Young (n=63)	Elderly (n=51)	P value
Diabetes mellitus	2 (1.6%)	6 (11.8%)	P < 0.07
COPD	4 (6.3%)	3 (5.8%)	P < 0.91
Acid peptic disease	7 (11.1%)	4 (7.8%)	P < 0.56
Hepatitis C	7 (11.1%)	1 (1.9%)	P < 0.06