Research Article

Incidence of Elderly Tuberculosis in a Tertiary Care Indian Teaching Hospital

Rakhi Ludam*[1], Rabi Narayan Mania[1], Gunanidhi Sahoo[1], Mahesh Chandra sahu[2]
[1]Department of pulmonary medicine, IMS and SUM Hospital, Siksha O Anusandhan University, Bhubaneswar, Odisha, India.
[2]Central Research Laboratory, IMS and SUM Hospital, Siksha O Anusandhan University, Bhubaneswar, Odisha, India.
***Corresponding author's E-mail:** drrakhi01@gmail.com

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ABSTRACT

The aim of the study is to examine tuberculosis incidence rates among the elderly in a tertiary care hospital for a period of 2 years, in a tertiary care hospital of eastern Odisha. We analyzed all reported active tuberculosis cases in a 2-year period, especially among patients aged ≥65, according to the diagnosis Reports of IMS and SUM Hospital, Bhubaneswar. Among the 100 elder patients in OPD of pulmonary medicine department of IMS and SUM Hospital, 50 patients are diagnosed as TB. The incidence of tuberculosis was predominant in males (84%) in comparison to females (16%). Half of the total patients presented symptoms of breathlessness. Others presented with chest pain and haemoptysis, fever and generalized weakness. High incidence rates and increasing time trend of tuberculosis in the elderly is a serious problem, especially among those aged 70 years and over, who might present a target group for active case-finding of the disease.

Keywords: Pulmonary Tuberculosis, Young, Elderly.

INTRODUCTION

Today, tuberculosis (TB) remains one of the world's most lethal diseases. An estimated one-third of the world's population is infected with *Mycobacterium tuberculosis* and 7-8 million people develop TB each year[1]. India has more tuberculosis (TB) cases annually than any other country globally, with an estimated disease prevalence of 256/100,000 population, incidence of 185/100,000 and deaths of 26/100,000. Nationwide annual risk of TB infection (ARTI) surveys had estimated an ARTI of 1.5% (in 2000–2001) and 1.1% (in 2009–2010), with an average annual decline of 3.6%. The Revised National Tuberculosis Control Programme (RNTCP) provides free diagnosis and treatment to all TB patients in the public sector, and has successfully treated over 15 million patients in the past 10 years. Currently under RNTCP, any person presenting with a cough of more than two weeks is screened for pulmonary TB (PTB) by two sputum smear examinations, (one spot and one overnight sample) at designated microscopic centres. Treatment of TB patients is based on the internationally recommended directly observed treatment short course (DOTS) strategy. Newly diagnosed smear positive TB patients are treated with a 6-month thrice weekly regimen (Category I); 2 months isoniazid (H) rifampicin (R) pyrazinamide (Z) ethambutol (E) (HRZE)/4 months HR, and retreatment patients with a 8-months thrice weekly regimen (Category II); 2 months HRZES (S streptomycin)/1 month HRZE/5 months HRE[1].

In high TB endemic (>100/100,000 population) countries such as India, the World Health Organization (WHO) recommends periodic disease prevalence surveys to measure the effect of TB control measures[2]. Prevalence surveys help to evaluate the burden of disease in the community and accurately estimate the prevalence of smear and culture positive PTB, which is not feasible under routine programmatic conditions. Additionally, such surveys provide unique opportunities to explore the interactions between TB disease and its sociocultural and environmental determinants. Four previous prevalence surveys of PTB conducted by the National Institute for Research in Tuberculosis (NIRT) over a period of 10 year post–DOTS implementation under RNTCP in a peri–urban area close to the city of Chennai (in Tiruvallur district), south India showed an initial decreasing trend, followed by an increase in prevalence[3]. The survey reported here aimed to estimate the prevalence of pulmonary TB and study its determinants in the Chennai metropolitan area, to explore the distribution of Mycobacterium tuberculosis strain types, and to document the spatial distribution of TB cases detected by the survey.

Despite the steady decline in the rate of TB cases resulting from the overall implementation of effective TB control programs, directly observed treatment short course (DOTs), and efforts to control the human immunodeficiency virus / acquired immunodeficiency syndrome (HIV/AIDS) epidemics, preventive and control strategies among other high-risk populations (such as the elderly) remains a clinical and epidemiological challenge. Although infection with human immunodeficiency virus (HIV) is the greatest risk factor for development of TB, the elderly are particularly at risk for development of this disease[2]. The geriatric population represents the largest reservoir of TB infection particularly in developed countries[1].

Twenty-six percent of TB cases diagnosed were 65 years and older, but 60.3% of TB cases diagnosed at death were in this age group[3]. It has been suggested that TB in the

elderly may differ from TB presenting in younger patients, and that it should be classified as a separate entity[4,5]. These differences might account for delay in diagnosis, which in turn leads to morbidity and mortality in this age group[6,7]. Few publications have presented clinical and radiological characteristics of pulmonary TB in the elderly in our country[8,9]. We aimed to study the prevalence of elderly pulmonary TB diagnosed at the department of pulmonary medicine, IMS and SUM Hospital for two years.

MATERIALS AND METHODS

The present study was undertaken to study tuberculosis in the elderly by evaluating the clinical presentations, roentgenographic appeareance, bacteriological status, comorbid medical condition, and the difficulties in diagnosis and management. The study was carried out in the department of pulmonary medicine IMS and SUM Hospital for a period of 2 years. A total of 100 cases were taken for study and among them the prevalence of the elderly tuberculosis was carried out.

RESULTS

A total of 100 elderly patients were screened for tuberculosis in the pulmonary medicine department of the IMS and SUM Hospital. It revealed 50 patients suffered from tuberculosis. So the prevalence was elderly tuberculosis in this hospital was 50%. In the present study it was seen that the incidence of tuberculosis was predominant in males i.e., 42(84%) in comparison to females i.e., 8(16%) and the incidence was highest in the age group 60-69 years (70%) in both the sexes (male=66.6%, female=87.5%) followed by the age group 70-79 years for both the sexes (male= 19.4%, female=12.05%) (Table 1).

Majority of patients presented with symptoms of fever, cough and loss of appetite and weight loss (i.e., 80%, 78%, 70%, respectively). Half of the total cases i.e., 25(50%) presented with symptom of breathlessness. Only 08(16%) and 09(18%) of cases had the presenting symptoms of chest pain and haemoptysis respectively (Table 2). Duration of symptoms in the majority of patients i.e., 21(42%) was less than one month. In 15(30%) cases the duration was for >3 months and in 14(28%) cases the duration was 1-3 months (Table 3). Among the all patients, it is evident that 37(92.5%) elderly tuberculosis patients were smokers, 32(80%) cases were habituated to chewing tobacco and 08(20%) were alcoholics(Table 4). In the present study it was seen that out of all the total cases i.e., 50 pulmonary and extra-pulmonary cases were 34(68%) and 16(32%) respectively. 04(08%) cases had both pulmonary and extrapulmonary lesions (Table 5).

DISCUSSION

TB is still a major cause of morbidity and mortality worldwide. Recent studies have suggested that even in the developed world, its incidence in the elderly is increasing[10]. Prior to onset of HIV associated TB, the elderly, newly arrived immigrants and minority population, were the groups in the North America whose rate of disease continued to rise[10,11]. The elderly have documented very high rates of disease particularly in nursing homes[12].

From the public health point of view, unrecognized pulmonary TB specially among the elderly is of greater importance, because it often may lead to premature death as well as unrecognized transmission of infection in the community[3].

Twenty-six percent of cases diagnosed alive were among those of 65 years and older, but 60.3% of TB cases diagnosed at death were in this age group.

These data indicate that TB often remains unrecognized and to prevent continuing deaths due to this curable disease a high index of suspicion of TB remains important particularly among the elderly and those with extrapulmonary sites of disease[3].

Delay in diagnosis of TB causing avoidable morbidity and mortality has often been assumed (particularly in the elderly) to be associated with atypical clinical and radiological features[13]. One feature of TB among the elderly was the frequent association of other comorbid conditions such as malignancy, diabetes mellitus, ischemic heart disease and chronic obstructive pulmonary diseases[14,15]. In our patients, the elderly group had higher number of underlying diseases than the younger group (35% vs. 24%). Concurrent diagnosis of TB and malignancy was seen in 3 out of 40 elderly patients (7.5%). Two patients had bronchogenic carcinoma and one had gastric carcinoma who underwent gastrectomy. In Alvarez series, 3 out of 29 (10.3%) young patients and 11 out of 35 (31%) elderly patients had an underlying malignancy[14].

Chest radiograph in the elderly patients with TB had atypical appearance and these patients were less likely to have upper lobe infiltration and more commonly had extensive infiltration of both lung fields and lower lobes infiltration. Our data confirmed the previous reports that a relatively high proportion of patients with pulmonary TB in all elderly age groups had atypical radiological findings[16,17].

Table 1: Incidence of TB in different age group & sex.

Sex	60-69yrs		70-79yrs		>80yrs	
	No of cases	%	No of cases	%	No of cases	%
Male (42)	28	66.6	8	19.04	6	14.28
(84%)						
Female (8)	7	87.5	1	12.5	0	0
(16%)						
Total (50)	35	70	9	18	6	12

Table 2: Presenting complaints

S. No	Chief Complaint	No of Cases	%
1.	Cough	39	78
2.	Fever	40	80
3.	Chest pain	08	16
4.	Haemoptysis	09	18
5.	Breathlessness	25	50
6.	Loss of weight and appetite	35	70

Table 3: Duration of symptoms

Duration	No of Cases	%
<1 month	21	42
1-3 months	14	28
>3 months	15	30
Total	50	100

Table 4: Habits

Habits	No of Cases	%
Smoking	37	92.5
Alcoholic	08	20
Chewing Tobacco	32	80
All	10	20
Total	40	80

Table 5: Type of case

Site of Disease	No of Cases	%
Pulmonary	30	60
Extra-Pulmonary	16	32
Pulmonary + Extra Pulmonary	4	8
Total	50	100

CONCLUSION

The elderly population contribute substantially to the incidence of TB, though there is a generalized perception that TB is a disease more frequently seen in the younger age group. This misconception may have been due to the fact that clinical feature of TB in the elderly patient are less prominent posing diagnostic difficulties. More over co-morbidities being more frequently in the geriatric age group, there is further overlap of symptoms leading to late diagnosis.

REFERENCES

1. Rajagopalan S, Yoshikawa TT. Tuberculosis in the elderly, Z Gerontol Geriatr, 33(5), 2000, 374-80.
2. Central TB Division, Ministry of Health & Family Welfare, Government of India: Revised National TB Control Programme annual status report, March 2013, Central TB Division; 2013.
3. Glaziou P, van der Werf MJ, Onozaki I, Dye C, Borgdorff MW, Chiang CY, et al. Tuberculosis prevalence surveys: rationale and cost. Int J Tuberc Lung Dis. 12(9), 2008 Sep, 1003–8. PMID: 18713496.
4. Kolappan C, Subramani R, Radhakrishna S, Santha T, Wares F, Baskaran D, Trends in the prevalence of pulmonary tuberculosis over a period of seven and half years in a rural Morris CDW. Pulmonary tuberculosis in the elderly: a different disease? (Editorial), Thorax, 45, 1990, 912-13.
5. Stead WW, Dutt AK, Tuberculosis in the elderly, Semin Respir Infect, 4(3), 1989, 189-97.
6. Rieder HL, Cauthen GM, Comstock GW, Snider DE Jr, Epidemiology of tuberculosis in the United States, Epidemiol Rev, 11, 1989, 79-98.
7. Yekani F, Samar G, Amoli K. Tuberculosis presentation in young and elderly patients. Iranian journal of Infectious diseases & Tropical Medicine, 11(4), 1999, 57-60.
8. Aminzadeh Z, Gachkar L, Ghorbani G. Relationship of age to clinical and radiographic manifestations of tuberculosis, Pejouhandeh 15(4), 1999, 273-7.
9. Packham S. Tuberculosis in the elderly. Gerontology, 47(4), 2001, 175-9.
10. Korzeniewska-Kosela M, Krysl J, Müller N, Black W, Allen E, FitzGerald JM. Tuberculosis in young adults and the elderly. A prospective comparison study, Chest, 106(1), 1994, 28-32.
11. Stead WW, Lofgren JP, Warren E, Thomas C. Tuberculosis as an endemic and nosocomial infection among the elderly in nursing homes. N Engl J Med, 312(23), 1985, 1483-7.
12. Katz I, Rosenthal T, Michaeli D. Undiagnosed tuberculosis in hospitalized patients. *Chest,* 87(6), 1985, 770-4.
13. Kaplan MH, Armstrong D, Rosen P. Tuberculosis complicating neoplastic disease, A review of 201 cases, Cancer, 33(3), 1974, 850-8.
14. Rizvi N, Shah RH, Inayat N, Hussain N. Differences in clinical presentation of pulmonary tuberculosis in association with age, J Pak Med Assoc, 53(8), 2003, 321-4.
15. Zamarrón C, Salgueiro M, Alvarez JM, Otero Y, Rodríguez Súarez JR. The clinical characteristics of pulmonary tuberculosis in the elderly, An Med Interna, 14(4), 1997, 167-9.
16. Chan CH, Woo J, Or KK, Chan RC, Cheung W, The effect of age on the presentation of patients with tuberculosis, Tuber Lung Dis, 76(4), 1995, 290-4.
17. Kaltenbach G, Grunenberger F, Schlienger JL, Berthel M, Imler M, Kuntzmann F, Influence of age on presentation and prognosis of tuberculosis in internal medicine, Presse Med, 30(29), 2001, 1446-9.

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