Original Research Article

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Study of clinical profile of tuberculosis patients admitted in respiratory medicine ward at a tertiary care hospital in Marathwada

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ABSTRACT

Background: Tuberculosis is one of the most important cause of most of the respiratory diseases. It is estimated that about one-third of the world's population is infected with mycobacterium tuberculosis. It is important to know about the clinical profile of these patients. There are many studies which are done among OPD patients but fewer among indoor patients hence, the current study was planned.

Methods: Retrospective study of the patients admitted in the inpatient department of the study area were taken as the sample size from May 2016 to April 2017, who were diagnosed as TB patients.

Results: a retrospective study was conducted among admitted patients, which included data of one year. There was male predominance with male: female ratio of 2.89. major cause of admission was extrapulmonary causes. The HIV patients were more predisposed to extrapulmonary and diabetes than pulmonary tuberculosis.

Conclusions: There is male predominance for admission cases. There is also increased cases of extrapulmonary TB admitted than pulmonary cases.

Keywords: Extrapulmonary tuberculosis, Pleural effusion, Pulmonary tuberculosis, Tuberculosis

INTRODUCTION

Tuberculosis is chronic infectious disease cause by M. tuberculosis. it affects primarily lungs and causes pulmonary tuberculosis (85%). There could be affection of other organ systems called extrapulmonary tuberculosis.

Tuberculosis is one of the dreaded diseases which accounts for 9.6 million cases globally as per the WHO Global TB Report 2015. Among these cases India contributes to 2.2 million incidence cases. It has not only high morbidity but also the mortality is high with 0.22 million deaths in India in 2015.³

One third of the world population is currently infected with TB and 1.8 million new cases of TB arise annually in India alone.⁴⁻⁷ Tuberculosis is one of the most

important cause of most of the respiratory diseases. The prevalence of tuberculosis was estimated to be 10.5 million. In India alone 1.8 million new cases of TB arise annually.^{6,7} It is estimated that about 40% of the Indian population is infected with TB bacteria, the vast majority of whom have latent TB rather than TB disease.⁸ There are many factors which determine the conversion of latent TB to TB disease, one the most important factor which determines is host factors. The most important factors are immunity which is determined by age and genetic factors.⁹

India, home for around 2.5 million HIV/AIDS patients. As with HIV, there is an immuno-suppression in diabetes also due to impaired phagocytosis and cellular immunity. Some studies have reported that the proportion of TB that is EPTB is on the rise due to the HIV epidemic. 12,13

To reduce the incidence and prevalence, India has introduced National Tuberculosis Control Programme (NTP) in 1962, followed by Revised National Tuberculosis Control Programme (RNTCP) 1993 -1996 and with Directly Observed Treatment Short-Course chemotherapy (DOTS) strategy in 1997, WHO released Stop TB strategy in 2006 India adopted in 2007. There are continuous efforts made to decrease the incidence and also prevalence of tuberculosis, continuous change in the strategies under RNTCP which are made. Further there was adoption of Goals of NSP with a vision of TB Free India in 12th Five-year plan in (2012-17). The current adoption of end TB strategy has a vision of WORLD FREE OF TB. 14 And with the goal to END TB EPIDEMIC. So, it is important to know the reasons for admission and also the profile of TB patients who get admitted so that we prevent further incidence and for early diagnosis, so, the above study was undertaken.

TB affecting other sites-known as extra-pulmonary TB is rarely smear-positive; it is generally accepted that the contagious potential of this form is negligible and it has, therefore, never been a priority in the campaigns undertaken by national TB control programs. ^{15,16} Lymph nodes are the most common site of involvement followed by pleural effusion and virtually every site of the body can be affected. ¹⁷

There is limited knowledge about the host —related factors responsible for admissions of tuberculosis patients especially extra pulmonary TB cases. So, this study was planned to study in-depth about the distribution of host related factors such as age and sex among the admitted TB patients.

Objective of this study was to distribution of some of the host related factors (age and sex wise distribution) and also clinical profile of cases of tuberculosis admitted at respiratory medicine department at MGM Hospital.

METHODS

The study is a retrospective descriptive study conducted at MGM college Aurangabad after obtaining permission of the institutional ethical committee.

The study used data of 1 year from May 2016 to April 2017. The data is specifically only of indoor patient's admitted under the department of respiratory medicine.

The study subjects consisted of all the tuberculosis patients admitted under department of respiratory medicine. The patients on treated on OPD basis were excluded from the study. It was a record based study so consent of the patients for inclusion criteria was not taken in consideration.

The data consisted of patient profile and confirmed clinical diagnosis. The final diagnosis was taken into consideration as per records. The patients are categorized into pulmonary and extra-pulmonary tuberculosis on the basis of site of lesion.

Statistical analysis was done using Microsoft excel. Confidentiality of the patients was maintained.

RESULTS

There were 113 patients admitted, and all were included in the study. The study consisted of 29 females and 84 males. The mean age of the patients admitted was 41.17 years with a standard deviation of 16.66 years. The mean age of females was 40.44 with a standard deviation of 16.44. the mean age of males was 41.34 and standard deviation was 16.63. Though the ratio of males: females was 2.89 the mean age was found to be similar. Among the females their range of age group were 14 - 65 years. The range of age group among males were 18 - 87 years.

Table 1: Sex wise distribution of study subjects.

Sex	Mean age (in yrs)	Standard deviation (in yrs)	Range (in yrs)
Males	41.34	16.63	18 - 67
Females	40.44	16.44	14 - 65

Patient clinical profile

There were 34 (30.08%) cases of pulmonary tuberculosis and 79 (69.9%) cases of extra- pulmonary cases. Figure one shows percentage wise distribution of cases according to diagnosis. There were further subdivision of cases among extra pulmonary cases, Table 2 shows diagnosis wise distribution of extra-pulmonary cases.

Table 2: Distribution of extra pulmonary cases.

Diagnosis	Number of cases N (%)
Pleural effusion	73 (92.4)
Miliary tuberculosis	2 (2.53)
Tubercular lymphadenopathy	2 (2.53)
Tubercular empyema	2 (2.53)

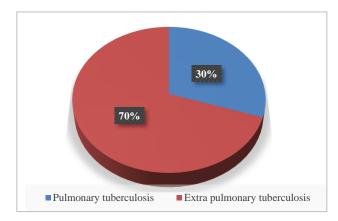


Figure 1: Percentage-wise distribution of patients according to diagnosis.

Profile of pulmonary tuberculosis patients

Among the total 34 pulmonary tuberculosis patients there were 13 (38.23%) females and 21(61.76) male patients. The mean age of pulmonary TB cases was 41.3 with standard deviation of 16.78. the figure 2 shows age wise distribution of pulmonary tuberculosis cases.

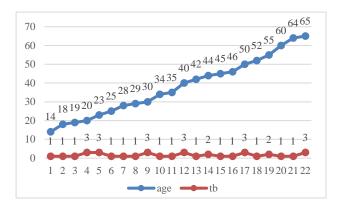


Figure 2: Age wise distribution of pulmonary tuberculosis patients.

There is no correlation between age group and number of pulmonary cases. There is no increase in admission rates with increase in age.

Profile of extra-pulmonary tuberculosis patients

There were more male patients than female. The male: female ratio was found to be 3.94. most of the patients were of pleural effusion. The mean age of admissions among extra pulmonary cases was found to be 41.7 with a standard deviation of 16.6 years. Figure 3 shows diagnosis wise distribution of patients of extra pulmonary tuberculosis.

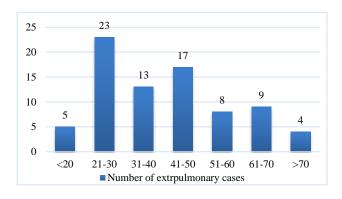


Figure 3: Age-wise distribution of extrapulmonary cases.

Distribution of study patients according to HIV serological profile

Among the 113 patients admitted, there were 3 (2.65%) who were serologically positive for HIV antibodies. Among these further there were 2 who were previously

diagnosed and on antiretroviral therapy and 1 who were newly diagnosed to be having HIV. The rest 110 (97.34%) were HIV negative. Among the 3 HIV positive patients there were 2 (66.6%) of extrapulmonary cases and 1 (33.3%) of pulmonary TB case.

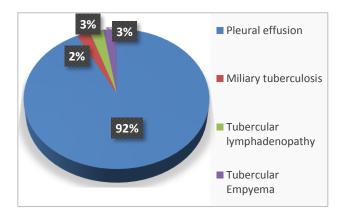


Figure 4: Distribution of extrapulmonary cases based on diagnosis.

Table 3: Distribution of patients according to HIV status.

HIV status	Number N	Percentage (%)
Positive	3	2.65
Negative	110	97.34
Total	113	100

Distribution of patients based on diabetic status

There were 24 (21.23%) patients who were know cases of diabetes admitted for tuberculosis. While there were 89 (78.76%) who were non diabetic cases. Among the diabetic cases there were 10 (41.66%) patients were cases of extra pulmonary TB and rest 14 (58.33%) were pulmonary tuberculosis.

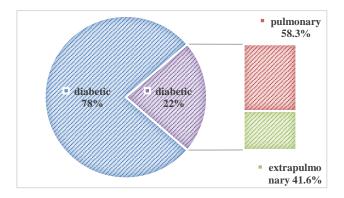


Figure 5: Distribution of patients based on diabetic status.

DISCUSSION

The current study included 113 patients who were included in the study. The study consisted of 29 (25.66%)

females and 84 (74.33%) males. The mean age of the patients admitted was 41.17 ± 16.66 years. The ratio of males: females was 2.89. Male predominance was seen in other studies too with ratios of males: females to be 3.6:1 and 3.1:1 in pulmonary and extrapulmonary cases respectively.¹⁷

Another study too showed male predominance with ratio 1.6. these findings could be due to the fact that the exposure to pollution and minute dust is more among men then women with cutting down of indoor air pollution. ^{18,19}

The mean years was found to be 41.3±16.78 in pulmonary TB cases and 41.7±16.6 in extrapulmonary cases with maximum number of patients in age group of 21- 30 years. Few studies had bimodal peak in pulmonary TB cases during 15-25 years and 60-70 years. The mean was found similar in other studies too around 41.11±15.7 yeas in pulmonary TB and 34.62±12.9 among extrapulmonary. Most commonly TB is seen to affect the productive age group this will lead to further deterioration of already susceptible lower socio economic condition. The same strapping to the production of already susceptible lower socio economic condition.

The most common type of extrapulmonary case was pleural effusion 73 (92.4 %) followed by Miliary tuberculosis 2 (2.53%), Tubercular lymphadenopathy2 (2.53%) and Tubercular Empyema 2 (2.53%). In most of the studies there were higher percentages of lymph node involvement and in few disseminated TB.¹⁸⁻²² Since, this is a respiratory medicine department the type of patients treated in the indoor department are pulmonary related hence pleural effusion patients are found to be more.

There were 3 (2.65%) of HIV positive patients and among them 2 (66.6%) were of extrapulmonary TB cases and among the 24 (21.23%) diabetic patients maximum were of 14 (58.33%) pulmonary TB. This correlation is seen in other studies too with diabetes significantly higher among pulmonary TB cases and HIV more commonly associated with extrapulmonary cases. 18,23-27

CONCLUSION

In the study we found more admissions among males in the productive age groups with higher incidence of extrapulmonary TB among 21-30 years of age group. The most common presentation among extrapulmonary tuberculosis was found to be pleural effusion.

The cases of HIV more predisposed to extrapulmonary and diabetes patients to be more predisposed to pulmonary tuberculosis.

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Ethical approval: The study was approved by the

institutional ethics committee

REFERENCES

- 1. Fundamental of tuberculosis. Global tuberculosis institute. Available from URL: globaltb.njms.rutgers.edu/downloads/products/Mant oux.../FundamentalsofTB.ppt.last accessed on 12/12/2017.
- Hospital unit. Indian institute of technology Delhi. Available from URL: http://hospital.iitd.ac.in/content/tuberculosis; last accessed on 13/12/2017
- 3. Tuberculosis facts sheet. India . 2014 -2015 . available from URL: http://www.tbfacts.org/tb-statistics-india/ Accessed on 9/6/2017.
- 4. Sudre P, Tendam G, Kochi A. Tuberculosis: a global overview of the situation today. Bull World Health Organ. 1992;70:149-59.
- 5. World Health Organization. Global Tuberculosis Report 2016.Geneva: WHO; 2016.
- 6. World Health Organization. Tuberculosis Fact Sheet. Fact Sheet No. 104. Available: http://www.who.int/mediacenter/factsheets/fs104/en/print.html; 2007[accessed 15.02.09].
- Steinbrook R. Tuberculosis and HIV in India. New Engl J Med. 2007;356:1198-9.
- 8. Global tuberculosis Control, Surveillance, Planning, Financing- WHO Report 2005: WHO/HTM/TB/2005. 49, WHO Geneva; 2005.
- Grippi MA. Fishman's Pulmonary diseases and disorders. 5th ed. United States. Mc Graw Hill education; 2015.
- Swaminathan S, Narendran G. HIV and tuberculosis in India J Biosci. 2008;33:527-37.
- 11. Ljubic S, Balachandran A, Pavlic-Renar I, Barada A, Metelko Z. Pulmonary infections in diabetes mellitus. Diabetologia Croatica. 2004;33:115-24.
- 12. Narain JP, Lo YR. Epidemiology of HIV-TB in Asia. Indian J Med Res. 2004;120:277-89.
- Reported tuberculosis in the United States 1999
 Division of Tuberculosis Elimination. National
 Centre for HIV, STD and TB prevention, Centre for
 Diseases Control
 [http://www.cdc.gov/nchhstp/tb/surv99].
- 14. Park K. Park's Textbook of Preventive and Social Medicine. 24th ed. Jabalpur: M/s Banarsidas Bhanot Publishers; 2017.
- 15. World Health Organization. Tuberculosis programme: Framework for effective tuberculosis control. Geneva, Switzerland: WHO; 1994. p. 179.
- 16. Sharma SK, Mohan A. Extrapulmonary tuberculosis. Indian J Med Res. 2004;120(4):31653.
- 17. Gupta S, Shenoya VP, Bairya I, et al. Diabetes mellitus and HIV as co-morbidities in tuberculosis patients of rural south India. Journal of Infection and Public Health. 2011;4:140-4.
- 18. Sreeramareddy CT, Panduru KV, Verma SC, Joshi HS, Bates MN. Comparison of pulmonary and extrapulmonary tuberculosis in Nepal- a hospital-based retrospective study. BMC Infectious Diseases. 2008:1-7.

- 19. Prakasha SR, Suresh G, D'sa IP, Shetty SS, Kumar SG. Mapping the Pattern and Trends of Extrapulmonary Tuberculosis. J Glob Infect Dis. 2013;5(2):54-9.
- Nissapatorn V, Kuppusamy I, Jamaiah I, Fong MY, Rohela M, Anuar AK. Tuberculosis in diabetic patients: a clinical perspective. Southeast Asian J Trop Med Public Health. 2005;36:213-20.
- 21. Devi SB, Naorem S, Singh TJ, Singh KB, Prasad L, Devi TS. HIV and TB coinfection. J Ind Acad Clin Med. 2005:6:220-3.
- 22. Barthwal MS, Rajan KE, Deoskar RB, Sharma SK. Extrapulmonary tuberculosis in human immunodeficiency virus infection. MJAFI. 2005;61:340-1.
- 23. Shetty N, Shemko M, Vaz M, D'Souza G: An epidemiological evaluation of risk factors for tuberculosis in South India: a matched case control study. Int J Tuberc Lung Dis. 2006;10:80-6.
- 24. Alisjahbana B, van Crevel R, Sahiratmadja E, den Heijer M, Maya A, Istriana E, et al. Diabetes

- mellitus is strongly associated with tuberculosis in Indonesia. Int J Tuberc Lung Dis. 2006;10:696-700.
- Yang Z, Kong Y, Wilson F, Foxman B, Fowler AH, Marrs CF, et al. Identification of risk factors for extra pulmonary tuberculosis. Clin Infect Dis. 2004;38:199-205.
- 26. Reported tuberculosis in the United States 1999 Division of Tuberculosis Elimination. National Centre for HIV, STD and TB prevention, Centre for Diseases Control Available from: http://www.cdc.gov/nchhstp/tb/surv99.
- Solomon SS, Kumarasamy N, Celentano DD, Yepthomi TH, ArvindVP, Solomon S: Trends in HIV-related morbidity among patients admitted to a South Indian tertiary hospital between 1997 and 2003. AIDS Care. 2006;18:366-70.

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