Original Research Article

Descriptive study of tuberculosis trend at a tertiary care centre in Marathwada region

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Abstract

Background: India accounts for the highest proportion of global burden of disease with around one-fifth (21%) of the global incidence of the disease contributed by India. It is supposed that the number of new tuberculosis cases detected by the positive sputum for acid-fast bacilli represent just more than fifty percent of the existing TB cases. There are reports from studies done in India which show a high percentage of sputum-negative pulmonary tuberculosis as well as extrapulmonary tuberculosis cases. The present study describes the tuberculosis trends in terms of sputum-positive and sputum-negative pulmonary tuberculosis and the proportion of extrapulmonary tuberculosis cases at a tertiary care centre in Aurangabad district of Maharashtra from the year 2010 to 2016. **Methods:** It is a retrospective study. Study duration was from 2010 to 2016. Patients were diagnosed as having tuberculosis with help of clinical examination, microbiological, radiological tests as per records and sputum was mentioned as positive or negative based on Ziehl Nelson staining for acid-fast bacilli. Records were analysed to describe the tuberculosis trends in terms of sputum-positive and sputum-negative pulmonary tuberculosis and the proportion of extra-pulmonary tuberculosis cases. Sites of extrapulmonary tuberculosis were described. **Results:** Total 6209 patients were analysed. Out of this, 3537 patients (56.97%) were having pulmonary TB and 2672 patients (43.03%) were having extrapulmonary TB. Pulmonary tuberculosis (3537 patients) was either sputum-positive (2435 patients, 68.84%) or sputum-negative (1102 patients, 31.16%) based on Ziehl -Nelson staining method. Extra pulmonary tuberculosis (2672 patients) was contributed by lymph node tuberculosis (766 patients, 28.67%), abdominal tuberculosis (570 patients, 21.33%), pleural effusion (687 patients, 25.71%), bone tuberculosis (139 patients, 5.20%), TB meningitis (248 patients, 9.28%), other rare sites of tuberculosis like breast, ophthalmological TB (262 patients, 9.81%). **Conclusions:** There was a high proportion of sputum-negative pulmonary TB as well as extrapulmonary TB cases.

Keywords: Extrapulmonary tuberculosis, sputum-negative pulmonary TB, Lymph Node TB.

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INTRODUCTION

Tuberculosis (TB) is a common infectious disease which is caused by the acid-fast bacilli Mycobacterium Tuberculosis. India accounts for the highest proportion of the global burden of disease with around one-fifth (21%) of the global incidence of the disease contributed by India. However, the prevalence of tuberculosis in India has been reported to have fallen from 568 per 1,00000 population in the year 1990 to a figure of 249 per 1,00000 population in the year 2010 as per the World Health Organization (WHO) Global Tuberculosis report, 2010. However, it is supposed that the number of new tuberculosis cases detected by the positive sputum for acid-fast bacilli represent just more than fifty percent of the existing TB cases [1,2] There are reports from studies done in India which show a high percentage of sputum-negative pulmonary tuberculosis as well as extrapulmonary tuberculosis cases. [2-4] The present study

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describes the tuberculosis trends in terms of sputum-positive and sputum-negative pulmonary tuberculosis and the proportion of extrapulmonary tuberculosis cases at a tertiary care centre in Aurangabad district of Maharashtra from the year 2010 to 2016.

MATERIAL AND METHODS

It is a retrospective study. The study was done at a tertiary care centre in Aurangabad district of Maharashtra, i.e. Government Medical College, Aurangabad which caters to the population across Marathwada region. Study duration was from 2010 to 2016. Patients were diagnosed as having tuberculosis with help of clinical examination, microbiological, radiological tests as per records and sputum was mentioned as positive or negative based on Ziehl Nelson staining for acid-fast bacilli. The records were analyzed to describe the tuberculosis trends in terms of sputum-positive and sputum-negative pulmonary tuberculosis and the proportion of extrapulmonary tuberculosis cases. Sites of extrapulmonary tuberculosis were described.

RESULTS

Table 1 to 3 describe the study results. Total 6209 patients were analysed. Out of this, 3537 patients (56.97%) were having pulmonary TB and 2672 patients (43.03%) were having extrapulmonary TB. Pulmonary tuberculosis (3537 patients) were either sputum-positive (2435 patients, 68.84%) or sputum-negative (1102 patients, 31.16%) based on Ziehl -Nelson staining method. Extrapulmonary tuberculosis cases (2672 patients) were contributed by lymph node tuberculosis (766 patients, 28.67%), abdominal tuberculosis (570 patients, 21.33%), pleural effusion (687 patients, 25.71%), bone tuberculosis (139 patients, 5.20%), TB meningitis (248 patients, 9.28%), other rare sites of tuberculosis like breast, ophthalmological TB (262 patients, 9.81%).

Table 1: Distribution of Pulmonary Tuberculosis and Extra-Pulmonary Tuberculosis Cases

Site	Number of patients	Percentage
Pulmonary	3537	56.97%
Extra Pulmonary	2672	43.03%
Total	**6209**	**100%**

Table 2: Distribution of Sputum Positive and Sputum Negative Pulmonary Tuberculosis Cases

Sputum	Number of patients	Percentage
Positive	2435	68.84
Negative	1102	31.16
Total	**3537**	**100**

Table 3: Distribution of Extra-Pulmonary Tuberculosis Cases

Site	Number of patients	Percentage
Lymph Node	766	28.67
Abdomen	570	21.33
Pleural Effusion	687	25.71
Bone	139	5.20
TB Meningitis	248	9.28
Other	262	9.81
Total	**2672**	**100**

DISCUSSION

In our study, 31.16% of the pulmonary tuberculosis cases were sputum-negative. Similar results have been reported from various studies from tertiary care centres in India. Prakasha *et al*. study from Mangalore, coastal Karnataka in South India also reported a high percentage of sputum-negative pulmonary TB cases, i.e. 35.6%. [2] Similarly, the study done by Chennaveerappa PK *et al*. at a district hospital at Hassan, Karnataka revealed a sputum-negative pulmonary tuberculosis percentage of 35%. [5] However, the study done by Ravikumar and Priyadarshini at a medical college in Tumakaru in Karnataka reported a low ratio of sputum-negative pulmonary tuberculosis, i.e. 10.4%. [6] Thus, chest X rays need to be assessed with a high degree of suspicion in possible cases of pulmonary TB with two or more sputum smears negative for acid-fast bacilli. In our study, 43.03% cases had extrapulmonary TB which is a high ratio of extrapulmonary TB. Prakasha *et al*. study also reported a high percentage of extrapulmonary TB cases, i.e. 41.3%. [2] Tahir M *et al*. study done at AIIMS, New Delhi reported a still high percentage of extrapulmonary TB cases, i.e. 48%. [3] The study done by Chennaveerappa PK *et al*. mentioned the percentage of extrapulmonary TB cases to be 35.9% whereas Ravikumar and Priyadarshini study reported extrapulmonary TB cases as 30.5% of the total cases. [5,6] A study done in neighbouring Nepal at a tertiary care centre also reported a very high proportion of extrapulmonary TB, i.e. 48.5%. The researchers attributed the high proportion to the site of the study mentioning that extrapulmonary TB cases are more likely to be diagnosed at tertiary care centres due to availability of resources and also pulmonary TB is often diagnosed and treated at primary health centres. [7] Rajneesh Gupta and Arora have speculated that the higher rates of extrapulmonary TB cases may be due to better cure rates of infectious tuberculosis disease. [8] However, it has often been highlighted that India should take more steps for the control of extrapulmonary TB with the Advocacy to Control TB Internationally stating that the national programmes are not being successful in detecting the cases of extrapulmonary TB. Also, it has been noted that extrapulmonary TB continues to remain a threat even with the DOTS and more is needed to be done. Medical

colleges and tertiary care centres have been suggested to be better equipped to deal with it and have even been found to be contributing a great deal in handling this problem. [9, 10]

CONCLUSIONS

There was a high proportion of sputum negative pulmonary TB as well as extra-pulmonary TB cases.

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