

Original Research Article

Clinical profile and treatment outcome of tuberculosis patients under programmatic management in a tuberculosis unit at a tertiary care center

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ABSTRACT

Background: Tuberculosis (TB) is currently one of the greatest health hazards in the world, more so in India. So this study was conducted to study the clinical profile and treatment outcome of TB patients in a tuberculosis unit attached to a tertiary care centre.

Methods: A retrospective study was conducted among the tuberculosis patients attending the tuberculosis unit attached to Government Medical College, Aurangabad, Maharashtra. In which patient's clinico-demographic profile and treatment outcome was recorded.

Results: A total of 2414 patients were included in this study of which 1377 (57.04%) were males and 1037 (42.96%) were females. The average age of patients was 33.4 years. 1811 (75.02%) patients had pulmonary, while 603 (24.98%) patients had extra pulmonary involvement. Maximum patients were newly diagnosed type (77.51%), while rest included defaulters, ATT (anti-tuberculous therapy) failure cases and relapse cases. 1795 patients (74.36%) belonged to category I ATT, 543 (22.49%) belonged to cat II ATT, and 76 (3.15%) belonged to category III ATT. Out of 2414 patients, 1088 (45.07%) were cured, while 834 (34.55%) successfully completed treatment. There were 232 defaulters (9.61%), 45 failures (1.86%) and 134 deaths (5.55%).

Conclusions: Though this study showed a greater predominance of pulmonary TB. It also observe high percentage extra pulmonary TB. A high positive treatment outcome noted may be attributed to the availability of specialist doctors and diagnostic facilities in the tertiary care centre.

Keywords: Tuberculosis, Clinical profile, Treatment outcome

INTRODUCTION

Tuberculosis (TB) is a global health concern; nearly one third of the global population is infected with *Mycobacterium tuberculosis* and at risk of developing the disease.¹ More than 90% of global TB cases and deaths occur in the developing world, where 75% of cases are in the most economically productive age group.² Even though the treatment success rate has tripled from 25% to

87% and death rate has declined from 29% to 5%, it is still a major cause of morbidity and mortality in India. India ranks first among the world's high burden tuberculosis (TB) countries.³ 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 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.⁴ The program aims to achieve universal access to TB services with a treatment success rate of atleast 90%. To achieve this, it is important to examine specific clinical and demographic subgroups who might be at high risk of poor treatment outcomes and to provide special attention to them if needed.⁵

As there were very few studies conducted in past to know the clinical profile and treatment outcome in Marathwada region. Hence the study was planned to find out clinico-demographic profile of TB patients attending TU of tertiary care centre and magnitude of various types of tuberculosis and treatment outcome of TB patients.

METHODS

The study was conducted at tuberculosis unit (TU) attached to Government Medical College Aurangabad, Maharashtra a tertiary care centre in Marathwada, where patients get referred from all the districts of Marathwada and adjacent districts of Maharashtra.

The study was a retrospective study where data was collected from year 2010 to 2014 from tuberculosis register maintained in TU personal particles sputum and radiological imaging results diagnoses under RNTCP treatment given under RNTCP, treatment compliance, categorization under RNTCP outcome status at the end of treatment etc. was noted. Patients with drug resistant tuberculosis were not taken into consideration for present study. Standard definitions used in RNTCP were used for diagnosis treatment and categorisation and treatment outcome in this study.

Operational definitions

1. *Pulmonary TB*- Bacteriologically confirmed or clinically diagnosed case of TB involving lung parenchyma or tracheobronchial tree.
2. *Extrapulmonary TB*- bacteriologically confirmed or clinically diagnosed case of TB involving organs other than lung.
3. *New case*- has never been treated for TB or has taken anti TB therapy less than 1 month.
4. *Previously treated patients*- received anti TB treatment in the past for more than 1 month.

Outcome definitions

1. *Cured*- a pulmonary tuberculosis patient with bacteriologically confirmed TB at the start of treatment who becomes smear or culture negative in the last month of treatment and in one previous occasion.
2. *Treatment completed*-one who has completed treatment with no evidence of failure, but who have no proof that sputum smear or culture is negative at the end of treatment and in one previous occasion as the tests were not done or results were unavailable.

3. *Treatment failure*- a TB patient whose sputum smear or culture is positive at month five or later during treatment.
4. *Died*- a TB patient who died before starting or during the course of treatment due to any reason.
5. *Lost to follow up*- a patient who did not start treatment or whose treatment was interrupted for two consecutive months or more.
6. *Treatment success*- the sum of cured and treatment completed.
7. *Not evaluated* – includes transferred out patients and those whose treatment outcome is unknown to the reporting unit.²¹

RESULTS

A total of 2414 patients were included in this study. The mean age of patients was 33.4 years. A majority of these patients belonged to the age group 20-30 years, constituting 825 patients (34.18%). A total of 2414 patients were included in this study of which 1377 (57.04%) were males and 1037 (42.96%) were females (as shown in Table 1).

Table 1: Age and sex wise distribution of TB patients.

Age groups	Number	Percentage (%)
0-10 yrs	68	2.82
11-20 yrs	383	15.87
21-30 yrs	825	34.18
31-40 yrs	497	20.59
41-50 yrs	320	13.26
51-60 yrs	170	7.04
61-70 yrs	122	5.05
71-80 yrs	27	1.12
>80 yrs	2	0.08
Sex	Number	Percentage (%)
Male	1377	57.04
Female	1037	42.96
Total	2414	100

There were also 125 pediatric TB cases aged between 0-14 years (5.18%). 1811 (75.02%) of these patients had pulmonary involvement and 603 (24.98%) had extra pulmonary involvement (as shown in Table 2A).

Table 2A: Distribution of patients according to types of TB.

Type of TB	Number	Percentage (%)
Pulmonary	1811	75.02
Extra pulmonary	603	24.98
Total	2414	100

Among the pulmonary cases 1525 (84.21%) patients were sputum positive while 286 (15.79%) were sputum negative (as shown in Table 2B).

Table 2B: Distribution of patients according to pulmonary TB.

Type of pulmonary TB	Number	Percentage (%)
Positive	1525	84.21
Negative	286	15.79
Total	1811	100

Table 2C: Distribution of patients according to extra pulmonary TB.

Type of extra-pulmonary TB	Number	Percentage (%)
Lyphadenopathy	232	38.47
Abdomen	78	12.94
Pleural effusion	129	21.39
Central nervous system	31	5.14
Skeletal	79	13.10
Genito urinary	24	3.98
Others (eye, skin, breast, peri-cardium etc.)	30	4.98
Total	603	100

Extra pulmonary TB patients were 603 (24.98%) in number of which major share belonged to lymph node tuberculosis (232 patients, 38.47%), pleural effusion (129 patients, 21.39%), skeletal TB (79 patients, 13.1%), abdominal TB (78 patients, 12.94%) and central nervous system TB (31 patients (5.14%). Genitourinary TB constituted 24 patients (3.98%). 30 patients had involvement of other less commonly involved sites. These included rare site like cutaneous TB (2), pericardial TB (3), renal TB (2), ophthalmic TB (1), breast TB (1), maxillary sinus TB (1) and military TB (8) (as shown in Table 2C).

There were 1871 newly diagnosed cases (77.51%) while lost to follow up cases (77,3.19%), treatment failure cases (33,1.37%), relapse cases (227, 9.4%) constituted the rest (as shown in Table 3).

Table 3: Distribution of patients according to classification of TB cases.

Classification of TB cases	Number	Percentage (%)
New cases	1871	77.51
Relapse cases	227	9.40
Failure cases	33	1.37
Treatment after default cases	77	3.19
Other cases	206	8.53
Total	2414	100

A total 1795 patients (74.36%) were treated with category 1 ATT (antituberculous therapy), 543 (22.49%) with cat 2 ATT, and 76 (3.15%) with category 3 ATT (as shown in Table 4).

Table 4: Distribution of patients according to treatment given.

Category of treatment	Number	Percentage (%)
Cat I	1795	74.36
Cat II	543	22.49
Cat III	76	3.15
Total	2414	100

Out of 2414 patients, 1088 (45.07%) were cured, while 834 (34.55%) successfully completed treatment. There were 232 defaulters (9.61%), 45 failures (1.86%) and 134 deaths (5.55%) (as shown in Table 5).

Table 5: Distribution of patients according to treatment outcome.

Treatment outcome	Number	Percentage (%)
Cure	1088	45.07
Treatment completed	834	34.55
Defaulter	232	9.61
Failure	45	1.86
Died	134	5.55
Transfer in/transfer out	81	3.36
Total	2414	100

DISCUSSION

The present study conducted among the TB patients attending the tuberculosis unit attached to a tertiary care centre, showed a male predominance 1377 (57.04%). This finding was comparable with study conducted by Lanjewar et al in Pune where 62% were males and 38% were females.⁶ Bilagi et al also showed in their studies that male dominance in TB patients.⁴ The mean age of patients was 33.4 years noted in present study was slightly lower than the mean age 41.17 yrs of the patients observed by Bilagi et al.⁴ Majority (34.18%) of the patients belonged to the age group of 20-30 years. Similar findings were also noted in the study conducted by Bilagi et al and Ahmed et al.^{4,7} In the present study, 1811 (75.02%) of the patients had pulmonary involvement while 603 (24.98 %) patients had extra pulmonary involvement. Similarly study by Karir et al at Kolkata observed 33 (41.3%) cases had pulmonary TB, 41 (51.2%) cases had extra-pulmonary TB and 6 (7.5%) had both pulmonary and extra-pulmonary TB.⁸

Of the patients with pulmonary involvement, 1525 patients (84.21%) were sputum positive while the rest, 286 patients (15.79%) were sputum negative. Karir et al in their study at Kolkata quoted 32 patients who underwent sputum examination of these; sputum results

were negative in 8 (25%) patients, rest 24 (75%) patients showed sputum positive.⁸ India has the largest number of tuberculosis (TB) cases in the world. India shoulders about 14 million cases of TB and it is estimated that about 1.8 million incident cases of TB occur in India every year of which 0.82 million are highly infectious smear positive cases.⁹ The ratio between pulmonary and extra pulmonary cases was 3:1 compared to the RNTCP norm. This higher incidence of extra pulmonary cases may be attributed to the availability of specialty doctors and diagnostic facilities in the tertiary care centre. Even though lymph node tuberculosis and TB pleural effusion constituted most of the cases, tuberculosis of less commonly involved sites and even rare sites like eye, skin, breast, sinuses, pericardium etc. were diagnosed from this TB unit. A similar distribution of pulmonary and extrapulmonary TB cases was found in a study done Brahmapurkar et al.¹⁰

There were 1871 (77.51%) newly diagnosed cases, while the rest 543 (22.49%) were previously treated cases. Previously treated cases comprised of 227 (9.4%) relapse cases, 77 (3.19%) lost to follow-up cases and 33 treatment failure cases (1.37%). 1795 patients (74.36%) were treated with category 1 (antituberculous therapy), 543 (22.49%) with category 2, and 76 (3.15%) with category 3. Patients were started on category 3 treatments till the notification pertaining its discontinuation reached our institution. Similar findings were found in a study done by Brahmapurkar et al.¹⁰ Of the total 1922 patients had positive treatment outcome, 1088 (45.07%) patients were cured and 834 (34.55%) successfully completed treatment. There were 232 defaulters (9.61%), 45 failures (1.86%) and 134 deaths (5.55%). Comparable treatment outcome was seen in a study conducted by Motghare et al in Goa.¹¹ High percentage of positive treatment outcomes with fewer relapses and failures was observed in this study. This might be attributed to properly supervised treatment provided at the tertiary care centre.

CONCLUSION

Present study showed higher percentage of males and greater predominance of pulmonary TB. It is also observed high percentage extrapulmonary TB. A high positive treatment outcome noted may be attributed to the availability of specialist doctors and diagnostic facilities in the tertiary care centre. High percentage of positive treatment outcomes with fewer relapses and failures was observed in this study. This might be attributed to properly supervised treatment provided at the tertiary care centre.

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