A record based analysis of treatment outcome in Tuberculosis patients registered under Tuberculosis unit, Umbraj, District Satara of Western Maharashtra

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Abstract
Introduction: India has the highest number of tuberculosis in the world, accounting for nearly one fifth of the world's burden. Despite the national anti-tuberculosis program, tuberculosis remains the cause of death in India. The study, therefore, was designed to evaluate the RNTCP programme, which was revised by the evaluation and treatment of patients enrolled under the tuberculosis program in Umbraj, Maharashtra.

Materials and Methods: The present study was conducted at Tuberculosis Centre, Umbraj for the year 2014 which was record based study and information was collected by accessing the records maintained at the level of tuberculosis unit. All this information was collected for the year 2014.

Result: In the present, the success rate for PTB was 87.7% and EPTB was 98.2%. Among the pulmonary tuberculosis cases, cure rate was 54.4% while treatment completion rate was 33.3%. Among the EPTB cases, treatment completion rate was 98.2% with death rate 1.8%. The default rate of 2.0%, transferred out rate of 1.0% and 2.6 % failure rate were reported in year 2014.

Conclusion: Tuberculosis suspect rate is consistently low at unit. Though microscopic activity and DOTS activity are appropriate there is deficiency in trained personnel and lacking in achievement of treatment outcome as per the guidelines.

Keywords: Revised national tuberculosis control programme, Tuberculosis unit, PTB, EPTB.

Introduction
Tuberculosis is an epidemic of infectious diseases caused by mycobacterium tuberculosis bacilli, which often affects the lungs that lead to tuberculosis. It can affect organs or any other system in the body, such as bones, lymph nodes leading to extra pulmonary tuberculosis. Age-related disorders are not only a public health problem, but also a social and economic problem for humankind.[1]

National Tuberculosis Control Program in India was started in 1962 with the aim to detect cases at the earliest and treatment. The program was implemented in the district through District Tuberculosis Centre (DTC) and the Primary Health Care Institutions with support from state level organizations for coordination and supervision of the program.

Approximately 2.2 million people have tuberculosis every year and more than 0.5 million die every year from the disease.[2] The total number of people suffering from infection diseases in India is 14 million of which 3 to 3.5 million are positive for sputum. Every year about one million sputum positive cases have been added.[3]

With this in 1992, the India government, together with WHO and SIDA (Swedish International Development Agency) has revised the national program and found that treatment rate had ended only 30%. Therefore, it has launched a revised National Tuberculosis Control Programme (RNTCP) with the goal of achieving at least 85% cure rate through DOTS and 70% of expected.[3]

India has the largest number of tuberculosis cases in the world, accounting for nearly one fifth of the global burden[4]. Tuberculosis is responsible for 5% of all death worldwide and 9.6% of adult deaths in the 15-59 years old economic productive age groups[5]. The case fatality rate of tuberculosis is high, approximately 50% of untreated cases die of the disease. One out of every three HIV/AIDS patients has tuberculosis. The key of this strategy is to cure tuberculosis through Directly Observed Treatment at a time and place convenient to the patient[6]. Case finding is passive detection by means of a patient friendly and clinically efficient services based primarily on smear microscopy. Still the transmission is higher and mortality and morbidity related to tuberculosis is higher may be due to co-infection with HIV/AIDS, Malnutrition and emergence of MDR-TB. Therefore, the current study is an attempt to evaluate the Revised National Tuberculosis Control Programme (RNTCP) through assessment and treatment of patients with tuberculosis registers in Tuberculosis unit of Umbraj, Maharashtra.

Objectives
To determine the treatment outcome of TB patients registered under Tuberculosis unit, Umbraj.

Materials and Methods
Type of Study
Record based observational cross-sectional study.

Place of Study
The present study was carried out at Tuberculosis Centre, Umbraj.

Study Duration
One year

Data Collection

Information on the activity, diagnosis, treatment activities and treatment results were received. All this information was collected for 2014 by accessing the archives maintained at the TB unit. Investigator visited TB unit and collected information through the laboratory lists, registers, and treatment registers.

Ethical clearance was obtained prior to the commencement of the study. As per the guidelines of Revised National Tuberculosis Programme, Operational definitions were considered in the present study.[7,8]

Statistical Analysis

Data was entered in Excel and various performance indicators were calculated. Descriptive statistics such as mean, SD and percentage was used to present the data.

Results

Table 1: TB case detection activities

Activities	No. of cases	Percentage
Chest symptomatic	1780	3.0
Ref for Sp exam	1780	100.0
Sp +ve	114	6.40
Repeat Sp Exam	70	3.9
NSP	114	6.40

Table 2: Total TB case detection activities

Activities	No. of cases	Percentage
NSP	114	44.2
NSN	47	18.2
EPTB	56	21.7
New TB	217	84.1
Old sp +ve	41	15.9
Only PTB	202	78.3

Table 3: Age wise distribution of PTB & EPTB

Age	PTB	EPTB
0-14	6(9.8)	5(23.8)
15-24	39(11.2)	11(14.3)
25-34	52(10.1)	10(7.6)
35-44	43(7.2)	7(6.4)
45-54	35(9.9)	7(6.1)
55-64	12(5.4)	3(4.6)
>65	8(5.4)	2(6.1)

Table 4: Treatment activities

Activities	PTB
On treatment	195
Cat – I	154
Cat – II	41
Sp con Cat I	95.5
Sp con Cat II	64

Table 5: Outcome of treatment of PTB & EPTB

Outcome	PTB *	EPTB **
On treatment	195 (77.7)	56 (22.3)
Cure	106 (54.4)	-
Treatment complete	65 (33.3)	55 (98.2)
Death	13 (6.7)	1 (1.8)
Failure	5 (2.6)	0
Transferred out	2 (1.0)	0
Default	4 (2.0)	0

*Success Rate: 87.7%, **Success Rate: 98.2%

Discussion

Case Detection Activities

For the year 2014, almost 18.2% of population were visited Out Patients Department (OPD) under at Umbraj Tuberculosis Units. Among chest pain symptoms were only 3.0% and of all 100% symptoms were targeted for sputum microscopy and 6.4% were found sputum smear positive for tuberculosis. Similar finding regarding sputum positivity was reported by N.M Kaore et al (7.11%),[9] while Ajaykumar et al[10] (26.4%) showed a high sputum positivity compared to the present study.

In the current study, all new cases of tuberculosis, 78.3% were cases of Pulmonary tuberculosis and 25.8% were Extra-pulmonary tuberculosis cases respectively which was slightly higher than S Bisoi[11] detected 67% new cases of pulmonary tuberculosis and 33% of cases of extra-pulmonary tuberculosis in new detected tuberculosis cases, whereas Abhijit Mukherjee et al[12] reported 77.8% new pulmonary tuberculosis cases and 23.2% extra-pulmonary tuberculosis cases. Among all newly detected tuberculosis cases they found 50% were new sputum positive and 50% were sputum negative pulmonary tuberculosis cases. A.L DaCosta et al[13] also found 67.47% of pulmonary tuberculosis cases and 32.52% were cases of extra-pulmonary tuberculosis. In comparison with these studies the finding of present study seen higher. This difference may be due to study considered the reports after year 2012 and the comparison study were carried out before 2006 except A.L DaCosta et al who studied for a prolonged period of 9 years and also the present study considered all the Tuberculosis Units under District Tuberculosis Centre.

It was observed that in the present study most common affected age group was 15-34 years of age followed by 45-54 years of age. This is suggestive of physical and economically active group was affected predominately, which may lead to increase in dependency, loss of income, poverty has the main earning people have got affected by the pulmonary tuberculosis. Similarly extra-pulmonary tuberculosis was also found higher among same age groups. Similar findings was reported by Bawri.S et al.[14]

Treatment Activities

Many studies have reported high proportion of pulmonary tuberculosis cases on Cat-I similar to the present study from 81% to 95.5%. A Mishra et al[15]; S L.Chandha et al[16] and Abhijit M et al.[12] A L.DaCosta et al [13] have reported the patients on DOT, non DOT category though the non DOT category is phased out. This non DOT category was not

found in present study area nor reported by the reference studies.

Almost similar sputum rate conversion by three months in case of pulmonary tuberculosis Cat-I was reported by Bawri S et al;[14] and Gurpreet K et al.[17] Simmi Tiwari et al[18] reported the achieved below average (84%) and S Bisoi, et al[11] also foundpoor conversion rate (74%) among new sputum positive cases.

The three month recovery of Sputum conversion rate of re-treatment cases was found to be lowest for 64% among Cat-II patients in contrast to sputum conversion rate among Cat-I (95.5%). A Mishra et la [15] reported 56% of sputum conversion rate and Abhijit M et al[12], Md Shamim Akhtar et al[19] have reported very low level of sputum conversion rate, in contrast to these studies Gurpreet K et al [17] have reported highest sputum conversion rate among Cat-II patients.

Treatment Outcome

In the present study the cure rate among pulmonary tuberculosis cases were found more 54.4% as compared to study done by Mahesh C et al[20] (43.3%), however, studies conducted by A. Mishra et al[15] (85.04%) and S L Chadha et al[16] (90%) had high cure rates among pulmonary tuberculosis cases. In the present study, treatment completion rate was found 33.3%. The success rate was observed 87.7% for PTB and 98.2% got EPTB. Similar findings of average cure rate was given by A Mishra et al,[15] S L.Chandha et al[16], Puwar B et al[21], Abhijit M et al,[12] Md Shamim Akhtar et al[19] and Simmi Tiwari et al.[18]

In this study, the degree of success rate was established 87.7%, similar findings were identified by R Prasad et al[22] of 89.4%. The level of default rate was achieved below 5% in the current study as per RNTCP guidelines[7,8] and was low as compared to 32.5% in a study by Mahesh C et al[20] and 3.79% by R Prasad et al.[22] In the present study, high death rate (6.7%%) was observed as compared to SL Chadha et al[16] (0.93%). Among pulmonary TB cases, the failure rate was found 2.6% in the current present which was slightly higher in study by SL Chadha et al[16] (1.5%) and R Prasad et al[22] (1.25%). Transferred out cases (1.0%) were very less as compared to AL Da Costa et al[13] (16.09%).

Among extrapulmonary TB patients, the treatment completion rate (98.2) in the present study was high in comparison to AL DaCosta et al[13] (85.05%) and present study have achieved the targets of Revised National Tuberculosis Control Programme (RNTCP) guidelines [7,8] (≥90%). but the death rate in their study was less (2.29%), whereas both transferred out (16.09%) and default rates (12.65%) were very high compared to the present study.

Among the treatment outcome extra-pulmonary tuberculosis cases, the death, default, failure and transferred out cases were within the limit of given targets by Revised National Tuberculosis Control Programme (RNTCP) guidelines.[7,8]

Conclusion

The overall success rate and treatment completion rate for pulmonary tuberculosis and extra-pulmonary tuberculosis is found coincidently with the national targets given by the Revised National Tuberculosis Control Programme. At tuberculosis unit, patients are satisfied with the services availing under Revised National Tuberculosis Control Programme. Though microscopic activity and DOTS activity are appropriate there is deficiency in trained personnel and lacking in achievement of treatment outcome as per the guidelines of Revised National Tuberculosis Control Programme.

Conflict of Interest: None.

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