

Original Research Article

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Treatment Outcome of Pulmonary and Extra Pulmonary Tuberculosis Patients in TB and Chest Disease Hospital DOT Centre, Goa, India

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ABSTRACT

Keywords

Revised National Tuberculosis Control Programme, Directly Observed Treatment Short- course, New Sputum Positive, Retreatment.

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In India, Directly Observed Treatment Short-course (DOTS) is used to treat patients of tuberculosis as per Revised National Tuberculosis Control Programme (RNTCP) guidelines. This study was conducted at the DOT centre of TB and Chest Diseases Hospital, Goa Medical College, Goa which is a tertiary care hospital. To evaluate the treatment outcome of patients on DOTS. The study population comprised of 369 patients of pulmonary and extra-pulmonary tuberculosis. This was a retrospective study over a period of nine years. The cure rate in New Sputum Positive (NSP) cases was 68.18% and treatment success rate 76.13%. In retreatment (RT) cases treatment success rate was 68.33%. Default rate in NSP cases was 12.5% and in RT cases 16.66%. Overall treatment success rate was 77.95% and default rate 12.94%. Treatment success rate at the DOT centre was seen to be lower than expected, due to high default rate.

Introduction

Tuberculosis (TB) remains a major public health problem worldwide. According to World Health Organization, incidence of 8.6 million new cases and 1.3 million deaths were reported globally in the year 2012. (WHO, 2013)

In India, on the recommendations of an expert committee, Revised National Tuberculosis Control Programme (RNTCP) was pilot tested in 1993 and launched in 1997. It was gradually expanded to cover the whole country by March 2006. Under RNTCP Directly Observed Short-course (DOTS) strategy is used to treat TB patients.

Main objectives of RNTCP are to achieve and maintain a cure rate of 85% among new sputum positive cases and to achieve and maintain case detection of 70% (Managing the Revised National Tuberculosis Control Programme, 2005). Since the inception of RNTCP in India, the programme has initiated over 13.8 million patients on treatment, thus saving more than 2.8 million additional lives. (TB India, 2011)

In our hospital which is a tertiary care centre for patients of TB and chest diseases, RNTCP was implemented from September 2004. This is a retrospective study of

patients registered for treatment at the DOT centre of our hospital. Aim of this study was to evaluate the implementation of RNTCP at the DOT centre with special emphasis on the treatment outcome of patients on DOTS.

Materials and Methods

This is a retrospective study of patients of TB who were registered as per RNTCP guidelines, for treatment at the DOT centre of TB and chest diseases hospital, Goa Medical College, St. Inez, Goa over a period of nine years i.e from September 2004 till August 2013. The data was obtained from the records and registers maintained at the DOT centre.

Study Population

The study population comprised of those patients who were diagnosed as having pulmonary TB (PTB) as well as extra-pulmonary TB (EPTB) and registered at DOT centre for treatment as per RNTCP guidelines. Patients received either CAT I or CAT 2 regimens. Some patients also received CAT 3 regimen till it was discontinued from the programme.

Results and Discussion

369 patients were registered at the DOT centre over a period of nine years. There were 249 (67.47%) PTB cases and 120 (32.52%) EPTB cases. There were 244 (66.12%) males and 125 (33.87%) females.

Out of a total of 369 cases of TB registered at the DOT centre, 298 were New and 71 Retreatment cases. Among these 298 new cases of TB, 193 (64.76%) were PTB and 105 (35.23%) EPTB. Out of 193 PTB cases, 100 (51.81%) were sputum smear positive for AFB and 93(48.18%) were sputum smear negative for AFB. Out of 369 cases 35 were transferred out during course of treatment and 21 were on treatment at the

time of study. These cases were excluded while determining treatment outcome.

Total of 221 cases were put on Category one, 71 on Category two and 73 on Category three DOTS. Only four patients were put on non-DOTS treatment (Table no.1).

Out of 88 NSP PTB cases in the study population 60 were declared cured giving a NSP cure rate of 68.18%.and 7 were declared treatment completed as they did not have sputum AFB smear report at the end of treatment. So overall treatment success rate in NSP patients was 76.13%.NSN success rate was 79.48% and New EPTB success rate was 85.05%. (Table no.2)

Treatment success rate of NSN and NEPTB cases together was 82.42%. Failure rate and default rate in NSP cases was 6.81% and 12.5% respectively. Failure rate and default rate in NSN cases was 3.84% and 10.25% respectively. Failure rate and default rate in NEW EPTB cases was 0% and 12.64% respectively.

Treatment success rate in retreatment cases was 68.33%. Failure rate and default rate in retreatment cases was 10% and 16.66% respectively which was more than in new cases. Among the defaulters maximum i.e 46.15% were treatment after default (TAD) at the time of starting treatment. 95.23% of relapses were treated successfully. In case of failure and TAD cases, treatment success rate was only 11.11% and 23.07% respectively. All 17 cases which were classified as others were treated successfully (Table no.3). At the DOT centre highest success rate of 84.15% was achieved in EPTB cases followed by 77.27% in sputum negative PTB cases and 73.38% in sputum positive PTB cases. (Table no.4). Overall treatment success rate at the DOT centre was 77.95%, default rate 12.94 %, failure rate 4.79% and death rate 4.53%.

Out of a total of 40 defaulters there were 17 migrants who left their place of residence without intimating. Five were chronic alcoholics who even with motivation and counselling and retrieval did not resume treatment. Three patients discontinued treatment on their own due to drug induced hepatotoxicity, severe gastritis and hypersensitivity reaction to antiTB drugs respectively. Four patients were retrieved and started on CAT 2 treatment and three were later declared cured while one patient expired on CAT 2 treatment.. Two patients defaulted in mid-CP due to improvement in symptoms. Exact cause of default in remaining nine patients was not established.

Tuberculosis is one of the leading causes of mortality in India killing two patients every three minutes². However with the implementation of RNTCP, the scenario is beginning to change. It is seen in three rounds of survey conducted in Thiruvellur district of Tamil Nadu by TRC(NITR) Chennai that since inception of RNTCP there was a 12% annual decline in prevalence of TB as compared to previous decade.⁴Today globally RNTCP is the fastest expanding and the largest programme considering the number of patients started on treatment.⁵

369 patients were included in this study. Number of male patients was almost twice the number of females at this centre. Most number of TB cases are known to occur among men although the burden of TB disease is also high among women. (WHO, 2013). In our study, New Sputum Positive (NSP) cure rate was 68.18%.and treatment success rate in NSP patients was 76.13%. Death rate, failure rate and default rate in NSP cases was 4.5%, 6.81% and 12.5% respectively. In a study by Tahir *et al.*, treatment success rate in NSP patients was 92%. (Babu and Jyothi, 2012) According to Global TB report 2013 of WHO, in the year

2011 under RNTCP, treatment success rate in NSP patients was 88%, NSP cure rate was 85% death rate, failure rate, defaulter rate in NSP patients were 4%, 2% and 5% respectively. (Tahir, 2006) Low success rate in NSP patients In our study could be explained by a high default rate in our DOTS centre. Our findings were similar to the findings of a study by Ajay Kumar Varma *et al.*, where NSP cure rate was low ie 67.6% with overall high default rate of 16.73%. (Varma, 2013) Treatment success rate of 82.42% was seen among New sputum negative (NSN) and New EPTB patients in our study which was low as compared to RNTCP rate of 90% in 2011. In our study cure rate in retreated cases was 33.8% and treatment success rate was 68.33% comparable to a study by Ajay Kumar Varma *et al.*, where cure rate was 34.04% and treatment success rate was 72.33%. Under RNTCP, the treatment success rate among retreated cases in 2011 was 75% which is more than in our study

Among the retreated cases maximum number of relapses ie 95.23% were treated successfully. But we had maximum number of TAD cases ie 46.15% defaulting again and maximum number of failures, failing to treatment again with treatment success rate of only 11.11%. All patients who were started as Others on cat 2 treatment successfully completed their treatment.

The overall treatment success rate in sputum smear positive PTB, sputum smear negative PTB and EPTB cases were 73.38%, 77.27% and 84.15% respectively. In a study by Acharya *et al.*, the treatment success rates were 85.8%, 98.5% and 96.5% in sputum smear positive PTB, sputum smear negative PTB and EPTB cases respectively and overall treatment success rate was 92.67% with defaulter rate of 1.4% and failure rate of 2.8%. (Acharya *et al.*, 2012).

Table.1 Showing Classification and Treatment of Cases According to RNTCP Guidelines. Also includes Cases Transferred out and Still on Treatment

	NO. OF PATIENTS	TRANSFD' OUT	STILL ON TREATMNT	ON CAT 1 DOTS	ON CAT 2 DOTS	ON CAT 3 DOTS	ON NONDOTS
NSP PTB	100	5	7	100	0	0	0
NSN PTB	93	9	6	59	0	33	1
NEPTB	105	14	4	62	0	40	3
RT SP+PTB	43	3	4	0	43	0	0
RT SP-PTB	13	3	0	0	13	0	0
RT EPTB	15	1	0	0	15	0	0
TOTAL	369	35	21	221	71	73	4

RT SP+ PTB-Retreatment sputum positive PTB, RT SP- PTB-Retreatment sputum negative PTB, RT EPTB-Retreatment EPTB

Table.2 Showing Treatment Outcome and Success Rate in New Cases

	NSP PTB	NSN PTB	NEW EPTB
Cured	60	0	0
Treatment completed	7	62	74
Died	4	5	2
Failure	6	3	0
Defaulted	11	8	11
Transferred out	5	9	14
Total	93	87	101
Treatment success rate	76.13%	79.48%	85.05%

Table.3 Showing Treatment Outcome and Success Rate in Retreated Cases

	Relapse	Failure	TAD	Others
Cured	20	1	3	0
Treatment completed	0	0	0	17
Died	0	2	1	0
Failure	0	3	3	0
Defaulted	1	3	6	0
Transferred out	1	1	3	2
Total	22	10	16	19
Treatment success	95.23%	11.11%	23.07%	100%

Table.4 Showing Overall Treatment Outcome and Success at the DOT Centre

	Cured	Tr. Compltd*	Died	Defaulted	Failure	Tr success
sp+ PTB	84	7	4	17	12	73.38%
sp- PTB	0	68	6	11	3	77.27%
EPTB	0	85	4	12	0	84.15%

*Tr. Compltd- Treatment Completed

In the study of Tahir *et al.*, the overall treatment success rate in sputum smear positive cases was 88%, in sputum smear

negative cases 75% and in EPTB cases was 91%. In our study overall treatment success rate at the DOT centre was 77.95%,

defaulter rate 12.94%, failure rate 4.79%.

To conclude this study provided us an insight into the functioning of our DOT centre since its inception. The main shortfall of our DOT centre was found to be a high defaulter rate. Majority of defaulters were migrant labourers working in the construction activity. Alcoholics were another group of patients who defaulted. Improving counselling activity and targeted intervention to involve the employers of migrant workers and enhancing psychosocial support to alcoholics on DOTS will improve treatment success. Implementation of PMDT in the centre since 2012 is also expected to improve treatment success by reducing failures by diagnosing and treating drug resistant TB early.

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