



## A SHORT STUDY TO ASSESS TREATMENT OUTCOME AMONG TUBERCULOSIS PATIENTS UNDER RNTCP IN A HEALTH POST OF AN URBAN SLUM

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RNTCP, Treatment, Outcome, Urban, Health post.

### ABSTRACT

**Background:** This study is intended to give more insight into the various problems faced by patients on Category 2 treatment in order to assist the program managers devise better methods for management of default, retreatment and failure cases. General objectives of this study was to assess treatment outcome among tuberculosis patients under RNTCP in a health post of an urban slum. Specific objectives of the study are 1) To know the treatment outcome among tuberculosis patients placed under RNTCP in a health post of an urban slum, 2) To study the sociodemographic profile and 3) The association between above factors with treatment outcome.

**Methods:** This study is based on retrospective collection of data from the tuberculosis register of a health post from 1<sup>st</sup> January 2014 to 31<sup>st</sup> January 2014. Data was collected using pre-structured proforma.

**Results:** Out of 50 patients registered under RNTCP in the month of January 2014 62% were female 38% male, 86% had pulmonary TB 14% extra pulmonary, 62% category 1 38% category 2, 6% sputum positive and 92% sputum negative. At the end of the treatment 52% completed treatment, 10% were cured 30% defaulted, 4% were MDR confirmed, 4% died during the treatment

**Conclusion:** 30% patient defaulted and only 52% completed the treatment, RNTCP programme should be strengthened to increase the treatment completion percent and decrease the default percent by making the program flexible and patient friendly by providing drugs according to patients convenience. There should be a inbuilt evaluation system to find out reasons for default and should recommend solution to overcome it.

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### INTRODUCTION

Tuberculosis (TB) treatment has saved the lives of more than 22 million people. However, the gains achieved in tuberculosis care and control are at risk as long as two major challenges are not addressed:

- Around 3 million people are currently being 'missed' by health systems.
- The response to test and treat all those affected by multidrug-resistant TB (MDR-TB) is inadequate<sup>1</sup>.

Isoniazid (INH)-resistant tuberculosis, is being identified as a common problem in re-treatment tuberculosis<sup>2</sup>. The causes of re-treatment include relapse of the disease after successful completion of treatment, treatment failure and default in treatment. Given the high cost of treatment for each patient under the Revised National Tuberculosis Control Programme (RNTCP) and the potential for spread of disease from these patients, it is crucial for the success of the program and the control of the disease in the country to find out more reasons behind this phenomenon<sup>3</sup>.

2,01,941 were the number of re-treatment cases notified in India under RNTCP in the year 2011. Statistics from the state wise outcome of smear-positive retreatment cases from fourth quarter 2011 show 32% as deaths, failure or defaulters among the re-treatment cases, and the re-treatment success at 67%. With the statistics giving an overall retreatment success rate of only 67% there would seem to be considerable scope for improving the drug regimes that are provided for the retreatment of TB. In the year 2011, there were 4,619 patients on re-treatment following relapse, 1,132 on re-treatment for failure of category 1 treatment and 3,823 were defaulters in Karnataka<sup>4</sup>. This study is intended to give more insight into the various problems faced by patients on Category 2 treatment in order to assist the program managers devise better methods for management of default, retreatment and failure cases.

### METHODS

**Study Area:** Health post of an urban slum that is a field practice area of Department of Community medicine of T.N.M.C & B.Y.L Nair Hospital, Maharashtra, India.

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**Duration of study:** 3 weeks (1 October 2014 to 21 October 2014)

**Study type:** A Retrospective study.

**Study duration:** 3 weeks

**Study population:** Patients registered under RNTCP for treatment from 1<sup>st</sup> January 2014 to 31<sup>st</sup> January 2014.

Sampling methods: Period sampling.

**Sample size:** Using Period sampling method, data was collected from the tuberculosis register of the health post. All patients registered under DOTS for treatment during 1<sup>st</sup> January to 31<sup>st</sup> January 2014 at the health post were included in the study.

## METHODOLOGY

Permission for collection of data from the RNTCP register was taken from the health post incharge. Data was collected from the register using a pre structured questionnaire.

Parameters used for assessment of study objectives:

1. Age
2. Weight
3. Sex
4. Type / class
5. Category
6. Sputum smear at start and end of treatment
7. Treatment outcome
8. Co HIV infection

### Definitions

Category: 1/2/4

Class: Pulmonary / Extra pulmonary

Type: New / Relapse / Other / Defaulter

Treatment Outcomes

1. Cured: Initially smear-positive patient who has completed treatment and had negative sputum smears, on at least two occasions, one of which was at completion of treatment.
2. Treatment completed: Sputum smear-positive case who has completed treatment, with negative smears at the end of the initial phase but none at the end of treatment. Or: Sputum smear-negative TB patient who has received a full course of treatment and has not become smear-positive during or at the end of treatment. Or: Extra-pulmonary TB patient who has received a full course of treatment and has not become smear-positive during or at the end of treatment.
3. Died: Patient who died during treatment, regardless of cause.
4. Failure: Smear-positive case who is smear-positive at 5 months or more after starting treatment. Also, a patient who was initially smear-negative but who became smear-positive during treatment.
5. Defaulted: A patient who, at any time after registration, has not taken anti-TB drugs for 2 months or more consecutively.
6. Transferred out: A patient who has been transferred to another Tuberculosis Unit/District and his/her treatment results are not known.
7. Relapse: A TB patient who was declared cured or treatment completed by a physician and who reports back to the health facility and is now found to be sputum smear positive.
8. MDR-TB is defined as tuberculosis disease where the bacilli are resistant to isoniazid (H) and rifampicin (R),

with or without resistance to other drugs. (Extensively Drug Resistant TB (XDR-TB) is a subset of MDR-TB where the bacilli, in addition to being resistant to R and H, are also resistant to fluoroquinolones and any one of the second-line injectable drugs (namely Kanamycin, Capreomycin or Amikacin) • Totally Drug-Resistant Tuberculosis (TDR-TB) TB strains that showed in-vitro resistance to all first and second line drugs tested (isoniazid, rifampicin, streptomycin, ethambutol, pyrazinamide, ethionamide, para-aminosalicylic acid, cycloserine, ofloxacin).

## RESULTS

### Observations

1. During the month of January 2014 total 50 patients were registered under RNTCP for treatment of tuberculosis. Out of this 50 patients 19 (38%) were male and 31 (62%) were female. This shows that during that month more females were registered under RNTCP.
2. Out of the 50 patients, 43 (86%) were suffering from pulmonary tuberculosis and 7 (14%) were suffering from extra pulmonary tuberculosis. This shows more number of pulmonary cases were registered under RNTCP.
3. Out of the 50 patients, 13(26%) were sputum positive, 37 (74%) were sputum negative at the time of diagnosis.
4. Out of the 50 patients, 31 (62%) were treated under category 1, 19 (38%) were treated under category 2 and no patient was registered under category 4 at the time of diagnosis.
5. Only 26 (52%) out of 50 patients completed the treatment, 5 (10%) were declared cured, 15 (30%) patients defaulted, 2 (4%) were declared treatment failure and 2 (4%) patients died during the treatment.

### Sex and TB registrations (n = 50)

Sex	Frequency	percentage	Chi square value =
Male	19	38	df=
Female	31	62	P =

### Type of TB

Type	No.of patients	Percentage	Chi square value =
Pulmonary	43	86	df=
Extra-pulmonary	7	14	P =

### Sputum positivity

Sputum	No. of patients	Percentage
Positive	13	26
Negative	37	74

### Categories

Categories	No. of patients	Percentage
Cat 1	31	62
Cat 2	19	38
Cat 4	0	0

### Outcome

Outcome	No. of patients	Percentage
Treatment completed	26	52
Cured	5	10
Defaulted	15	30
Failure/MDR	2	4
Died	2	4

**Association Cat and outcome**

Cat	Cured	Defaulter	Tc	Total
Cat 1	3	6	21	31
Cat 2	2	9	5	19
	5	15	26	50

Test	Value	Df	P
Pearson Chi-Square	10.36	4	0.035
Likelihood ratio	11.257	4	0.024
N (no. of cases)	50		

**Sex and TB registartions (n = 50)**

Sex	Frequency	Cured/Tc	Chi square value = 0.05195
Male	19	11	df= 1
Female	31	20	P = 0.8208

**Type of TB**

Type	No.of patients	Cured/Tc	Chi square value = 0.4072
Pulmonary	43	25	df= 1
Extra-pulmonary	7	6	P = 0.5234

1. There is no statistical association between gender and treatment outcome
2. No statistical association between type of tuberculosis and treatment out come
3. Treatment outcome is statistically associated with category of tuberculosis (outcome is better with cat 1 tuberculosis)

**Associations**

Using Chi square test following association was tested and results obtained

1. There is no statistical association between gender and treatment outcome (P = 0.8208).
2. No statistical association between type of tuberculosis (pulmonary & extra pulmonary) and treatment outcome (P = 0.5234).
3. Treatment outcome is statistically associated with category of tuberculosis (outcome is better with cat 1 tuberculosis) (P = 0.035)

**DISCUSSION**

- Out of the total registered patients, 62% were female and 38% were male. This shows prevalence of disease could be higher in females in the study area and also awareness about the treatment in this area would be good as higher number of females have registered for the treatment ( to confirm this finding further detailed evaluation study is required)
- Percentage of patients suffering from pulmonary tuberculosis is high i.e 86%. This means high percentage is infectious to others in the community so awareness and quality of treatment should be good to control the disease
- This study has shown that the risk of defaulting from tuberculosis treatment was 30%. Similar results were obtained in a study where 29% patients were defaulters.<sup>5</sup> In another study the default percent was 21.6%.<sup>6</sup>
- In this study there is no statistical association between gender and treatment outcome( P = 0.8208 but a study showed that male gender is statistically associated with higher chances of default.<sup>8</sup> This difference in the

outcome of the studies could be because of difference in area/geographical pattern of the population, their cultural perspective and less awareness among the population.

- This study shows that there is no statistical association between type of tuberculosis (pulmonary & extra pulmonary) and treatment outcome (P = 0.5234). This means treatment outcome does not depend on the type of tuberculosis the patient is suffering from
- Treatment outcome is statistically associated with category of tuberculosis (outcome is better with cat 1 tuberculosis) (P = 0.035) This means treatment outcome depends on the category (newly diagnosed patients have better outcome).

**Recommendations**

- Health workers and medical personnel should educate the patients about the importance of regular and complete treatment and good outcome that could be achieved through proper compliance.
- Flexible drug distribution/delivery system (not on fixed days), Pre counselling done or not done should be included in the records.
- Weight monitoring of the patients throughout the treatment should be done and recorded.

**Declaration**

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Conflict of interest: None

Ethical approval: Not needed

**Limitations of the study**

This was a retrospective study based only on data available in clinic records. We did not interview the patients nor could we collect additional data.

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