

Long-term outcome of tuberculosis treatment among patients registered at a tuberculosis unit in Bangalore.

Anwith Huluvadi Shivalingaiah¹, Chethana Ramegowda², Kaushik Sreeram³

Affiliation: 1Assistant Professor, 2 Professor, 3MBBS Student, Dept. of Community Medicine, Kempegowda Institute of Medical Sciences, Bangalore.

Date of Submission : 16-07-2018

Date of online Publication : 15-10-2018

Date of Acceptance : 29-08-2018

Date of Print Publication : 31-12-2018

***Author for correspondence:** Dr. Anwith H S,#28, NELE, 29th main, BTM 2nd stage, Bangalore-76.

Email: anwith2006@gmail.com

ABSTRACT

Introduction: Tuberculosis remains one of the world's deadliest communicable diseases and a major public health problem. There are very limited studies to evaluate the long term treatment outcome after the completion of treatment hence this study was undertaken with following objectives. **Objectives:** To assess the treatment outcome after 2 years of treatment completion under DOTS. **Methods:** This was a prospective study done between March 2014 and November 2017. A total of 80 Tuberculosis patients registered for treatment at the Tuberculosis unit in the urban field practice area of medical college between March 2014 to June 2014 meeting the inclusion & exclusion criteria formed the study subjects. Treatment Outcome was assessed at the end of the treatment completion & after 2 years by telephone calls and house visits based on feasibility. The assessment of effectiveness of DOTS therapy in curing the disease, preventing spread of disease among family members & preventing the relapses was done. **Results:** Of the 80 subjects who enrolled to the study 69(86.25%) subjects had treatment success. Of the 69 subjects 30(43.47%) subjects couldn't be traced. 36(52.17%) patients were successfully contacted & 3(4.35%) subjects had died after having treatment success. Only 1(1.44%) of the study subject had relapse of Tuberculosis & currently was on treatment. None of the family members of the study subjects had suffered from Tuberculosis till date after the treatment initiation. **Conclusion:** Anti Tubercular therapy under DOTS is effective in curing disease, preventing the spread of the disease & Preventing relapse of the disease.

Key-words: Tuberculosis, Follow up, Treatment outcome, DOTS

INTRODUCTION

Tuberculosis (TB) has existed for millennia and remains a major global health problem. It causes ill-health for approximately 10 million people each year and is one of the top ten causes of death worldwide. For the past 5 years, it has been the leading cause of death from a single infectious agent, ranking above HIV/AIDS. This is despite the fact that, with a timely diagnosis and correct treatment, most people who develop TB disease can be cured.¹

TB is the ninth leading cause of death worldwide and the leading cause from a single infectious agent, ranking above HIV/AIDS. In 2016, there were an estimated 1.3 million TB deaths among HIV-negative people (down from 1.7 million in 2000) and an additional 3,74,000 deaths among HIV-positive people.¹

The situation in India is no better as India accounts for one fourth of the global TB burden. India has highest burden of both TB and MDR TB. An estimated 1.3 lakh incident multi-drug resistant TB patients emerge annually in India which includes 79,000 MDR-TB Patient estimates among notified pulmonary cases. India bears second highest number of estimated HIV associated TB in the world. An estimated 1.1 lakh HIV associated TB

occurred in 2015 and 37,000 estimated number of patients died among them.²

The Revised National Tuberculosis Control Program (RNTCP), based on the internationally recommended directly observed treatment short-course (DOTS) strategy was launched in 1997 expanded across the country in a phased manner showed remarkable progress with the entire country being covered under the RNTCP. Despite encouraging results and high cure rates achieved in RNTCP, queries are often raised by clinicians regarding effectiveness of RNTCP regimens, particularly the dosage recommended and the intermittent drug administration. These concerns could be convincingly addressed through an assessment of treatment outcome. The health status of TB patients years after course of DOTS treatment was unknown.³

Subsequently in the year March 2016 RNTCP revised its technical & operational guidelines with one of the recommendation as long term follow up of Tuberculosis patients up to two years post treatment completion.⁴

Also very few studies exist till date which have done the assessment of efficacy of DOTS after two years of completion of therapy. Hence in this regard this study was

taken up to know the patient status after two years of treatment completion.

MATERIAL & METHODS

This was a part of prospective study done between March 2014 to November 2017. A total of 80 Tuberculosis patients registered for treatment at the study site between March 2014 and June 2014 meeting the inclusion criteria were included.

The inclusion criteria i.e subjects aged more than 18 years, subjects receiving DOTS regimen, subjects who consented the study were included as study subjects. Exclusion criteria included subjects suffering/detected subsequently with drug resistant tuberculosis and subjects under treatment with local DOTS providers were excluded from the study. The subjects included patients suffering from either pulmonary & extra pulmonary Tuberculosis and taking either Category I & Category II DOTS therapy. This study was conducted at a Tuberculosis unit in the urban field practice area of our medical college which largely houses people from lower socioeconomic status. Outcome of the treatment was assessed at the end of the treatment completion which happened to be June 2015 when the last subject completed the treatment based on the latest WHO outcome definitions published in the year 2013. The same was published in the year 2017.^{5,6}

Now after a span of 2 years i.e. in December 2017 we tried to follow up these patients with an objective to assess treatment outcome after 2 years of treatment completion under DOTS by telephonic calls & house visits which ever was feasible to assess the effectiveness of DOTS therapy in curing the disease & preventing the relapses. The respondent whoever was available during the phone call or the adult respondent present at the time of household visit was asked for the history of suffering TB in any of the household members after the subject suffering from tuberculosis had treatment success. The same respondent was also asked if the subject having treatment success had subsequently developed tuberculosis after the treatment success. The entire data collection was purely based on the history & no examination was done.

The subjects who were successfully traced were assessed for the current status as currently alive, having relapse of Tuberculosis, died and whether any of the subjects had developed drug resistant Tuberculosis.

Data was entered in Microsoft excel & analysed using SPSS (STATISTICAL PACKAGE FOR SOCIAL SCIENCES) version 16. Descriptive statistics such as mean, standard deviation, percentages were used.

RESULTS

The present study included 80 subjects with 51(63.75%) males and 29(36.25%) females. The mean age & standard deviation of the study subjects was 37.8 + 14.2 years. Majority of the study subjects 27(33.75%) were employed in unskilled type of occupation. The socio-economic status of most of the subjects was upper lower class

according to Modified Kuppaswamy classification with updated income ranges for the year 2013. In the present, 70 of the study subjects had taken category I DOTS therapy; among them 40(57.14%) were cases of pulmonary tuberculosis and 30(42.86%) were extra pulmonary tuberculosis. Similarly, 10 subjects were on category II therapy, among whom, 9(90%) were cases of pulmonary tuberculosis and rest 1(10%) were extra pulmonary tuberculosis.

Table 1: Distribution of the study subjects based on Treatment outcome assessed at treatment completion.

Treatment outcome	Category I (n = 70)	Category II (n = 10)	Total (n = 80)
Cured*	29(41.43)	5(50)	34(42.50%)
Treatment completed**	33(47.14)	2(20)	35(43.75%)
Treatment Failed	1(1.43)	1(10) †	2(2.50%)
Lost to follow up	2(2.86)	-	2(2.50%)
Died	3(4.29)	2(20)	5(6.25%)
Not evaluated	2(2.86)	-	2(2.50%)

*Applicable only for Pulmonary smear positive Tuberculosis

‡ Figures in parenthesis indicate percentage

† Subject turned out to be suffering from MDR-TB

**Applicable for extra pulmonary tuberculosis & smear negative pulmonary tuberculosis

Table 2: Distribution of study subjects based on the comorbidities they are suffering.

COMORBIDITIES *	NUMBER (n = 38)
DIABETES	13(16.25)
HYPERTENSION	04(05.00)
COPD	18(22.50)
ANEMIA	45(56.25)
OTHERS**	09(11.25)
HIV STATUS	06 (7.50)

* Total people suffering co morbidities are less than the individual co morbidities suffered, as few patients suffered multiple co morbidities.

**Others included Gout 1, Thyroid disorders 5 & Coronary Artery Disease 1, Epilepsy 1, & Carcinoma 1.

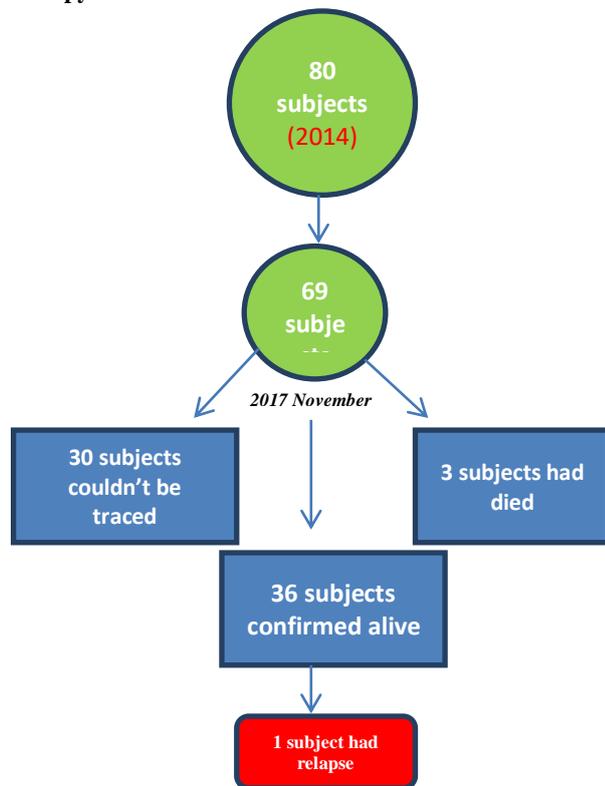
‡ Figures in in parenthesis indicate percentage

The present study showed that, 38 (47.50%) of the study subjects had one or the other comorbidities with chronic obstructive pulmonary disease being the most common comorbidity followed by Diabetes 13(16.25%).(Table 2) Of the 80 subjects 5(6.25%) subjects expired by November 2015, 2(2.5%) subjects were lost for follow up & 2(2.5%) subjects were not evaluated. Also 2(2.5%) of the subjects had failure of treatment and subsequently 1 patient was found to be suffering from Multi Drug Resistant Tuberculosis. So only 69(86.25%) subjects had treatment success. (Table 1)

Of the 69 subjects 30(43.47%) subjects couldn't be traced either because they had moved out of their address which they had registered at the time of treatment initiation or change in the telephone number. Thus only 36(52.17%) patients were successfully contacted & 3(4.35%) subjects had died after having treatment success the cause of death based on verbal autopsy was due to Tuberculosis in

subject as they had relapse of the disease but they couldn't produce any documentary evidence that the cause of Death was due to Tuberculosis & rest of the two subjects the cause of death couldn't be ascertained. Only 1(1.44%) of the study subject had relapse of Tuberculosis & currently was on Anti Tubercular Therapy. (Figure 1)

Figure 1: Summary of long term outcome of Tubercular therapy.



None of the family members of the Tuberculosis had suffered from Tuberculosis till date after the study subjects were initiated on Anti Tubercular Therapy (ATT).

To conclude Anti Tubercular therapy administered under DOTS is effective in curing disease, preventing the spread of the disease & preventing relapse of the disease. Long term follow up should be recommended to all the patients on Anti-tubercular therapy.

DISCUSSION

The present study was carried out to assess the status of Tuberculosis patients two years after the treatment completion. 30(43.47%) of the study subjects couldn't be traced which may be due to migration or change in telephone number which was much higher compared to a studies done at Lucknow(36.4%), Delhi (25.8%) & Mumbai(10.7%).^{7,8,9} Of the 36 subjects who were traced 35(97.2%) of the subjects had no symptoms of TB in contrary the study done at Lucknow stated 91.3% of study subjects were symptom free.⁷ Mortality rate at the end of two years in the present study was 3(7.7%) which was more or less the same as seen in the study conducted at Lucknow where it was 6.3%.⁷ Only 1(2.6%) subject had relapse of Tuberculosis which is similar to the observation made in a study conducted at Lucknow.⁷

In conclusion, RNTCP is effective as revealed by the two year of follow-up results. However, multicentric studies

in larger samples are required for a national evaluation of the programme.

References

1. WHO. Global Tuberculosis report 2017. Available from: <http://apps.who.int/iris/bitstream/handle/10665/259366/9789241565516-eng.pdf;jsessionid=DE5D13E034C2F8503070274F90BA91A8?sequence>. Accessed on 16 July 2018.
2. Central TB Division. TB India 2017 Annual status report 2016. Available from <http://www.tbcindia.nic.in/showfile.php?lid=3141> Accessed on 16 July 2018.
3. Karanjekar V, Lokare P, Gaikwad A, Doibale M, Gujrathi V, Kulkarni A. Treatment Outcome and Follow-up of Tuberculosis Patients Put on Directly Observed Treatment Short-course Under Rural Health Training Center, Paithan, Aurangabad in India. *Annals of Medical and Health Sciences Research*. 2014; 4(2):222-226.
4. Central TB Division. Technical and Operational Guidelines for TB Control in India 2016. Available from: <https://www.tbcindia.gov.in/index1.php?page=1&ipp=50&lang=1&level=2&sublinkid=4573&lid=3177>. Accessed on 16 July 2018.
5. WHO. Definitions and reporting framework for tuberculosis - 2013 revision; Available from: www.who.int/iris/bitstream/10665/79199/1/9789241505345_eng.pdf Accessed on 16 July 2018.
6. Shivalingaiah AH, Ramegowda C, Masthi NRR. A study on co-morbidities and treatment outcome based on updated definitions among tuberculosis patients registered at a tuberculosis unit, Bangalore. *Int J Community Med Public Health* 2017; 4:1071-4.
7. Verma SK, Sanjay Kumar Verma, Surya Kant, Santosh Kumar, R Prasad. A Five-Year Follow-up Study of Revised National Tuberculosis Control Programme of India at Lucknow. *Indian J Chest Dis Allied Sci* 2008;50: 195-7.
8. Dhingra VK, Rajpal S, Aggarwal N, Aggarwal JK. Treatment of tuberculous pleural effusion and their satisfaction with DOTS: a one and a half year follow-up. *Indian J Tub* 2004; 51:209-12.
9. Yatin D, Danani U, Desai C. Relapse following directly observed therapy short course (DOTS): a follow-up study. *Indian J Tub* 2000; 47: 233-6.

Conflict of Interest: None

Source of funding support: Nil

How to cite this article: Anwith Huluvadi Shivalingaiah, Chethana Ramegowda, Kaushik Sreeram. Long-term outcome of tuberculosis treatment among patients registered at a tuberculosis unit in Bangalore. *Nat J Res Community Med* 2018;7(4): 246-248.

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