



REASONS FOR NON-COMPLIANCE AND PROFILE OF TUBERCULOSIS PATIENTS IN URBAN AREA OF INDORE

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ABSTRACT

Background: India has nearly 30% of global tuberculosis burden with 280,000 deaths due to TB each year. Objective of the present study was to see the reasons for non-compliance and profile of tuberculosis patients in urban area of Indore.

Methods: Four Tuberculosis Units from the Indore urban area were included in the study. 150 patients were enrolled in the study. The profile and reasons for non-compliance of the patients was recorded using semi-structured questionnaire.

Results: There were 39.33% patients between 25-44 years and 51.33% patients were above 45 years. Ratio of males to females was (0.97:1). Reasons for missed doses 26.66% work related travel, 15% DOTS timing coinciding with working hours, 18.33% forgot to come, 8.33% illness or death in their family, 18.75% out of station, 12.5% onset of agricultural season.

Conclusions: Reasons for non-compliance are preventable. The DOTS provider must re-enforce implications of irregular or incomplete treatment at every appropriate encounter with patient.

Keywords: RNTCP, DOTS, Non-compliance

INTRODUCTION

Tuberculosis is one of the most ancient diseases. It has been referred to in the Vedas and the Ayurvedic Samhithas. Tuberculosis has claimed more lives than any other scourges of the past. It still remains a major public health problem worldwide. It continues to elude the brightest minds and to challenge human and economic resources of the countries around world.¹

As many as 38,287 suspected cases were examined till the end of 2011 according to TB India 2012 the annual status report of the revised national TB control programme (RNTCP) brought out by the health ministry.²

The government of India, the IMA project has in 2009 been expanded to cover 15 states and 1 union territory covering 850 million people. The IMA has also taken the lead in bringing together other relevant professional medical associations coalition against TB (IMPACT) which is an important forum for the RNTCP to engage with the professional medical associations.³

In RNTCP patients are most important components of the programme. Patient solely doesn't bear the responsibility of adhering to treatment. Health care workers, public health officials, government and communities all share the responsibility and provide a range of support services he needs to continue and finish treatment.⁴

METHODS

Indore district is divided into six Tuberculosis Unit out of which four Tuberculosis Unit from the Indore urban area were included in the study. The study was conducted from October 2011 to October 2012. There were 150 patients enrolled in the study. There were 4 patients who were lost to follow up (2 died and 2 transferred out).

All patients diagnosed as suffering from Tuberculosis and enrolled under RNTCP, who were referred to the four Urban Tuberculosis Unit DOTS centre for treatment, were included. Enrollment period-into the present study was determined according to the category of treatment regimen prescribed by the treating physician. Category I patients were enrolled for 6 months and Category II patients were selected for the 1st four months and they were enrolled in the study for the entire course of treatment which is 8 months and 1 extra month was reserved so as to compensate for the treatment exceeded due to non-conversion of sputum positive to sputum negative. This particular arrangement was adopted so as to follow each and every patient enrolled in the study, over complete scheduled duration for different treatment regime.

The profile of the patients enrolled under the study was taken with the help of semi-structured questionnaire by interview method.

RESULTS

Out of 150 patients enrolled in the study 106 (70.66%) patients were diagnosed as pulmonary tuberculosis and 44 (29.33%) patients were diagnosed as extrapulmonary. Patients were subjected to sputum smear examination before confirmation of diagnosis. Therefore, RNTCP guideline of reliance on sputum microscopy for diagnosis of tuberculosis was meticulously observed in the present study. In the present study maximum people belonged to (30.82%) belong to class III of Prasad's Socioeconomic status classification. It was seen that 6% of patients were below 24 years of age, 39.33% of patients were between 25-44 years and 51.33% patients were above 45 years. Overall ratio of males to females was 74:76 (0.97:1), which is similar to that of the world i.e. 1:0.7.

Reasons for non-compliance: Reasons for isolated missed doses in intensive phase-There were 32 (21.33%) of total 150 patients who missed 60

doses on isolated occasions during intensive phase.

Out of the 60 doses 16 (26.66%) were missed because of work related travel, 9 (15%) missed doses were attributed to DOTS timing coinciding with working hours, 11 (18.33) episodes were because patient forgot to come on the scheduled day and 5 (8.33%) episodes each were because of illness or death in the family of patients.

Reasons for doses missed in sequence: There were 11 patients who missed two or more doses in sequence. There were 16 such episodes doses missed in sequence during intensive phase. 3 (18.75%) of these 16 episodes, were attributed to patient being out of station. There were 12.5% episodes each because of timing of DOTS centre coinciding with the working hours of patient and because of onset of agricultural season. Also a very small proportion of 6.25% were because of one patient's drug used for other. Illiterate patients were more likely to interrupt treatment compared to literate patients. The illiterate patients were more often involved in manual work with DOTS timing usually coincided with their working hours.

Out of the 150 patients 11 (7.33%) became treatment defaulters.

Following was the summary of reasons identified-

- patients went back to native place
- patients were unhappy with health workers
- patients were alcoholic
- patients were apprehensive about the large number of drugs
- patient was misinformed by a doctor against having the illness
- patient was psychologically disturbed

Table 1: Age and Sex wise distribution of patients

Age Group (in Years)	Male (n=74)	Female (n=76)	Total (n=150) (%)
0-15	0	02	02 (1.33)
16-24	5	7	12 (4.66)
25-34	12	14	26 (9.33)
35-44	18	15	33 (22.00)
45-54	16	20	36 (25.33)
55-64	17	15	32 (21.34)
>64	6	3	9 (6.00)

Table 2-Distribution of patients according to literacy status and their socio-economic status

Characteristics	n=146 (%)
Literacy status	
Illiterate	37 (25.34%)
Primary	26 (17.80%)
Middle	37 (25.34%)
High school	11 (7.53%)
High secondary	32 (21.91%)
Graduate	9 (6.29%)
Post graduate	5 (3.4%)
Socio-economic status.⁵	
I	5 (3.42%)
II	24 (16.43%)
III	45 (30.82%)
IV	39 (26.71%)
V	33 (22.60%)

Table -3 Reasons for non-compliance

Reasons	Episodes of missed or delayed doses, n=150 (%)
Forgot	38 (25.33)
Out station trip	29 (19.33)
DOT timing coinciding with working hours	15 (10)
Work related travel	23 (15.33)
Patient not feeling well or side effect of drugs	23 (15.33)
Illness or death in family	11 (7.33)
Patient tired of long duration treatment	8 (5.33)
Agricultural work	3 (2)
Feared being scolded by health worker	1 (0.66)
DOT provider used a patient drugs for other patient	1 (0.66)
Father collected weekly strips	2 (1.33)
Got late	1 (0.66)
Change Address	1 (0.66)
Psychologically disturbed Patients	4 (2.66)
Family functions	8 (5.33)

DISCUSSION-

Age distribution: A study conducted in urban area of Delhi by Bhat S. et al found that 82% of patients were between 16-44 years of age. In another study of tuberculosis patients attending city tuberculosis centre in Bangalore.⁶ Nagpaul et al found that majority of patients attending tuberculosis centre were between 20 and 30 years of age and were usually the wage earners in the family.⁷ As it is observed from table 2 that 14 patients out of 150 were under 25 years of age, this meagre contribution of less than 14 years of age group is also reported from other studies from India. The study at New Delhi quoted above reported a rate of 3.7% from those below 14 years.

Another study conducted at National TB Institute (NTI) Bangalore found that about 2.32% of all bacteriologically positive patients were below 14 years of age. Thus age distribution of patients enrolled in present study was similar to that observed elsewhere in India.^{8,9}

Sex-wise distribution: It is also observed from table 2 that overall ratio of males to females enrolled in present study was 74:76 = 0.97:1. It is known that ratio of tuberculosis notification in male and females is 1:0.5 in South East Asia and 1:0.7 worlds over. A similar proportion of males and females were enrolled in the present study.^{8,9}

A higher defaulter rate among illiterate patients also reflects a lack of awareness among them about seriousness of the disease and importance of regular treatment. This finding is in concordance with study from Indore by Sharma et al and the study from Saudi Arabia but most other studies disagree with association of education and treatment compliance. In a study done by A Mishra et al in Gwalior in 2006 found that 15.07% were illiterate, 14.7% were educated upto 5th class, 21.7% were educated upto 8th class, 12.17% educated upto 10th class, 12.5% educated upto 12th class, and 12.5% were graduate and 10.57% were post graduates.¹⁰ In another study by Md. Salahuddin Ansari et al in 2007 found that according to the education level 50% of non-compliant had finished primary school, 37.5% had finished high school, 5% had finished intermediate/post high school and 2.5% were graduated.¹¹ In another study done by Paudel DP, in 2013 found -10% of the compliant were illiterate, 10% were literate, 36% had primary education, 24% had secondary education, 20% had higher education.¹² In another study done by K. Jaggara-jamma et al in Tiruvallur district South India in 2007 found that 16% of the literate and 20% of the illiterate were defaulters in his study.¹³

In the present study socio-economic class was not found to be associated with treatment defaulting. This may be because of inaccurate information given by the patient for the fear of being charged more if correct economic status was revealed, but the information on owing a household was forthcoming. Owing a house may be considered an indicator of socio-economic class since those living in rented houses more often belonged to lower socio-economic class. Socio-economic class was found to be associated with compliance in the study conducted at Indore, but some studies also gave contradictory findings. In a study done by A. Mishra et al in 2006 it was

found that the majority of cases belonged to lower socio-economic class-IV (27.3%) followed by class V (24.3%).¹⁰ Mansthi NRR et al in their study of effectiveness of DOTS on TB patients treated under RNTCP also reported similar findings. This can be attributed to the fact that the persons of lower socio-economic status live in overcrowded and ill-ventilated houses and localities.¹⁴

In a study done by Paudel DP, in 2013 observed that the income ratio of total patients range from Rs. 300 to Rs.1,00,000 per month. Most of the compliance on tuberculosis was found from the middle level income capacity (< 6000 Rupees).¹² In another study by Nepali RB in 2013 concluded that with the exception of nil income categories, there was directly proportional relationship between the patient's monthly income and compliance rates i.e. increase in monthly income increased the total compliance rate. Of those who had monthly income <500 two-third were compliant, while about 9 out of every 10 participants with income more than 1000 per month were compliant to DOTS therapy.¹⁵

In another study done by Md. Salahuddin Ansari in 2011 found that 45% had family income between 2041 and 6100, 6% had family income between <2040, 35% had family income between 6101 and 10160, 2% had family income between 10,161 and 15,280. No patient had family income more than 15,280. It was thus noted that 72.5% of non-compliances were in the upper-lower class, 22.5% of non-compliances in the lower-middle class and 10% of the non-compliances in the lower class. No patient was in the upper middle or upper class of the family. The socio-economic status was thus found to be a major contributing factor for non-compliance of TB treatment.¹¹

Following is the summary of important reasons identified for irregularity with DOTS both during intensive and continuation phase combined (percentages shown in parenthesis are calculated from the total number of delay, isolated or episode of doses missed in sequence for said reason. A study done by K. Jaggarajamma et.al, in Tiruvallur district, South India in 2007 found out the reasons for default by patients were- drug related problems like nausea, vomiting, giddiness (42%), migration (29%), relief from symptoms (20%), work related problems (15%), consumption of alcohol (15%), treatment from other private or public health facility (13%), domestic problems (8%), stigma (2%), too ill to attend (4%). Old age, other illnesses, inconvenient DOT

and dissatisfaction with treatment centre and DOT provider were included as other reasons given by (16%) patients. Majority of patients gave multiple reasons for default.¹³

CONCLUSIONS

In the present study it was seen that maximum number of patients enrolled were above 45 years. Overall ratio of males to females was 74:76 (0.97:1), which is similar to that of the world i.e. 1:0.7. Several doses were missed due to reasons like work related travel, DOTS timing coinciding with working hours, patient forgot to come on the scheduled day, illness or death in the family of patient, patient being out of station, onset of agricultural season all which lead to non-compliance.

RECOMMENDATIONS

Supervisory staff must ensure that DOTs providers identify irregular patients at the earliest and start defaulter retrieval actions promptly. The DOTS provider must re-enforce implications of irregular or incomplete treatment at every appropriate encounter with patient.

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