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Study on default among tuberculosis patients treated under directly observed treatment short course

Veeramani G.* and Madhusudhan S.

Department of Pharmacy, Annamalai University, Annamalai Nagar, Tamil Nadu, India

ABSTRACT

Defaulting from tuberculosis (TB) treatment has been one of the major obstacles to treatment management and an important challenge for TB control. Understanding of various factors accounting for treatment default could help to achieve better compliance from patients. Thus the aim of the study is to estimate number of defaulters and the reasons for default out of total TB patients registered under five DOTS centers from January to December 2014 in Cuddalore district, Tamil Nadu. A prospective observational study was done by interviewing 27 defaulters using pre-tested semi-structured questionnaire to elicit reasons for default. Data was analyzed using standard statistical methods to find statistical significance among the variables. Of the total 27 defaulters among 282 patients registered, default rate in our study was 9.5%. Majority of patients (70%) had defaulted during intensive phase of the treatment. A higher default rate associated with age group of 35–64 years, males and employed groups. The main reasons for default was due to drug toxicity (40.7%), alcoholism (29.6%), migration (22.2%) and private treatment (7.4%), which includes family problems, timing inconvenient, and carelessness. Risk factors associated were male, age, alcoholism and migration. The majority of patients have defaulted in intensive phase of treatment. All efforts should be made to retrieve these patients and return them to treatment to achieve the expected goal of Revised National Tuberculosis Control Programme (RNTCP).

Keywords: Default, DOTS centers, factors associated, tuberculosis

INTRODUCTION

India has the highest burden of TB in the world, an estimated 2 million cases annually. This accounts for approximately one fifth of the global incidence of TB. It is estimated that about 40% of the Indian population is infected with TB bacteria. The vast majority of infected people have latent TB rather than active TB disease. It is also estimated by the World Health Organisation (WHO) that 300,000 people die from TB each year in India^[2]. Directly Observed Therapy Short Course (DOTS) is internationally recommended strategy to ensure cure of tuberculosis. A key component of DOTS strategy is directly observed treatment (DOT); which aims to improve patient adherence to treatment and thus prevents the development of drug resistance^[7]. Over the years, there has been increasing emphasis on Directly Observed Treatment short course (DOTS) strategy for TB control in India. Revised National TB control program (RNTCP) adopted DOTS strategy for TB control in India. This has increased success rate of the coverage as well as cure rate. One area of problem is reducing the efficiency of DOTS strategy is default rate. A strict adherence to Directly Observed Treatment is likely to minimize defaults and is therefore essential for the desired treatment success^[13].

Objectives

To estimate the number of defaulters out of total TB patients registered under five DOTS centers.

To study the reasons of default in these patients using a semi structured questionnaire.

MATERIALS AND METHODS

Subjects

This is prospective observational study, which had been carried out in Cuddalore district of Tamil Nadu during January – December 2014. The district has been divided into six TB Units. All the 282 patients registered at five DOTS centers from one TB Unit were followed up during their course of treatment to assess treatment outcome. Primary data from each patient included sputum smear report, type of tuberculosis, category of treatment regimen and outcome. Secondary data were collected from various registers maintained under RNTCP and treatment cards of patients. Twenty seven defaulters among 282 TB patients registered in all four quarters of 2014 were included in the study, that is, 100% sampling. The case definition used was as per RNTCP guidelines: Default is defined as “a patient who at any time after registration has not taken anti-TB drugs for 2 months or more consecutively.”

The patients were interviewed at their home. In case of patients who had migrated or died their family members or neighbors were interviewed. The pre-tested questionnaire was administered in obtaining information about the patients' socioeconomic and demographic profile, literacy status, drinking habits, problems in taking drugs regularly, and various other reasons for default.

Data analysis was done with the help of statistical tools such as percentage by using Epi-info-(3.5.1). Chi-square test was used to evaluate significant difference between proportions, $P < 0.05$ was considered as statistically significant.

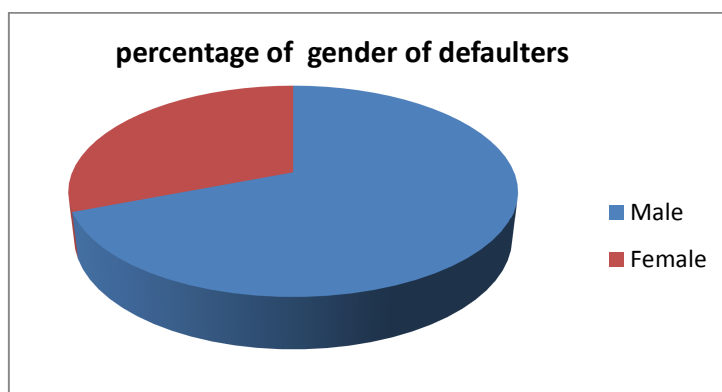
The interview was conducted after obtaining verbal consent from the patients. The ethical clearance for the study was obtained from ethical committee of institution of Rajah Muthiah Medical College Hospital.

RESULTS

Table: 1 Genderwise distribution of defaulters

Gender	Total no. of TB patients	No. of defaulters	Percentage of defaulters	P-value
Male	203	23	11.33	0.13
Female	79	4	5.06	
Total	282	27	9.57	

Figure.1



Out of 282 TB patients registered under five DOTS centers from single TB Unit of all the four quarters of 2014, 203 (71.9%) were male TB patients and 79 (28%) female TB patients. From the same cohort, all 27 patients who defaulted from treatment were interviewed (male 23, female 4). The overall default rate is 9.5%. The male patients (11.3%) show higher proportion of default as compared with female patients (5%) and was not statistically significant.

Table: 2 Age wise distributions of defaulters

Age group	Total no. of TB patients	No. of defaulters	Percentage of defaulters	P-value
0-14	37	3	8.10	0.19
15-24	28	0	0	
25-34	37	2	5.40	
35-44	55	7	12.72	
45-54	50	7	14	
55-64	40	7	17.5	
64<	35	1	2.85	
Total	282	27	9.57	

Figure.2

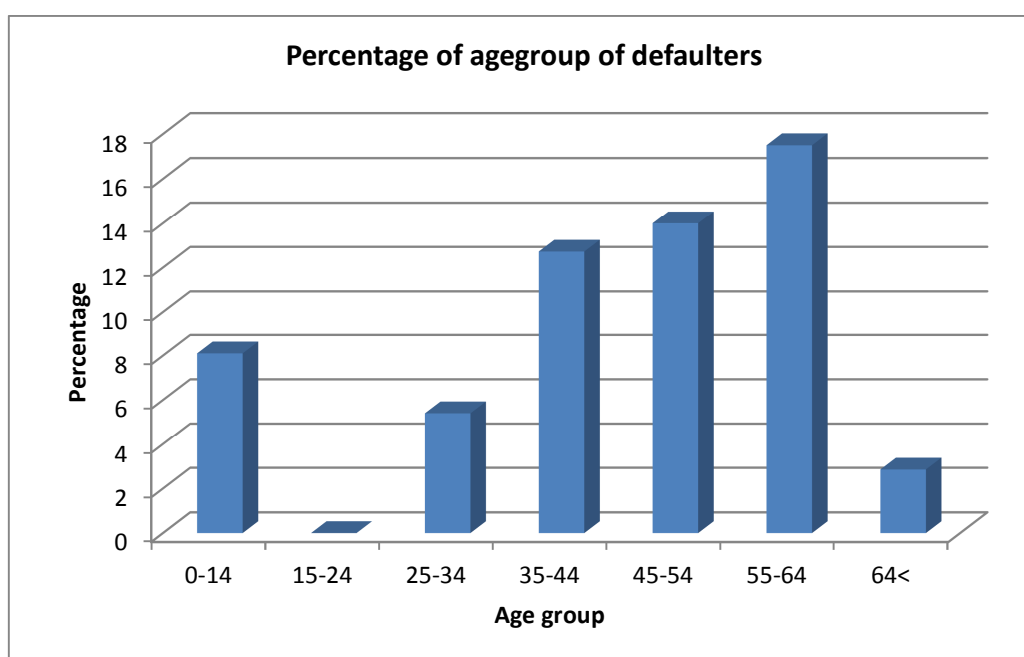
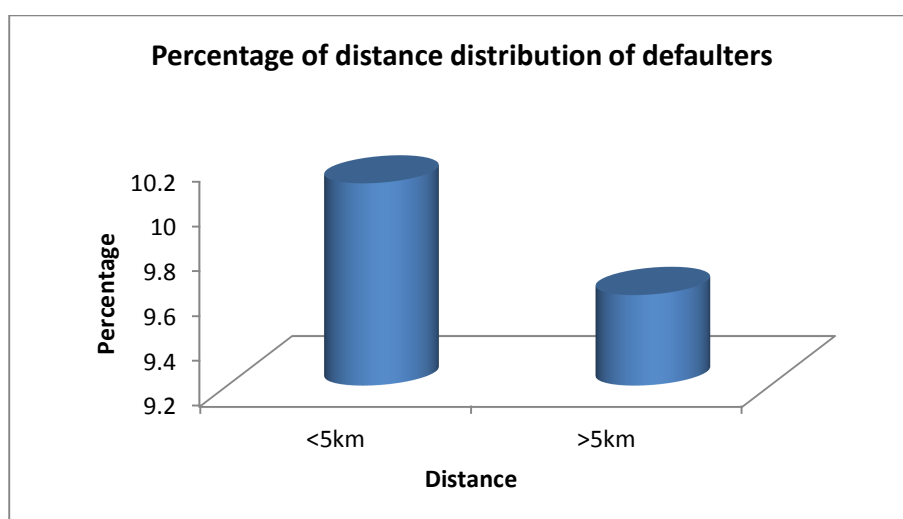


Figure.3



In the age group of 35–64 years (14.5%), the default rate was higher followed by 0–34 years of age group (4.9%) as

shown in [Table 2]. The defaulter rate was higher in employed group (10.4%), which consists of farmers and laborers as compared with unemployed group (7.5%).

Table: 3 Distance wise distribution of defaulters

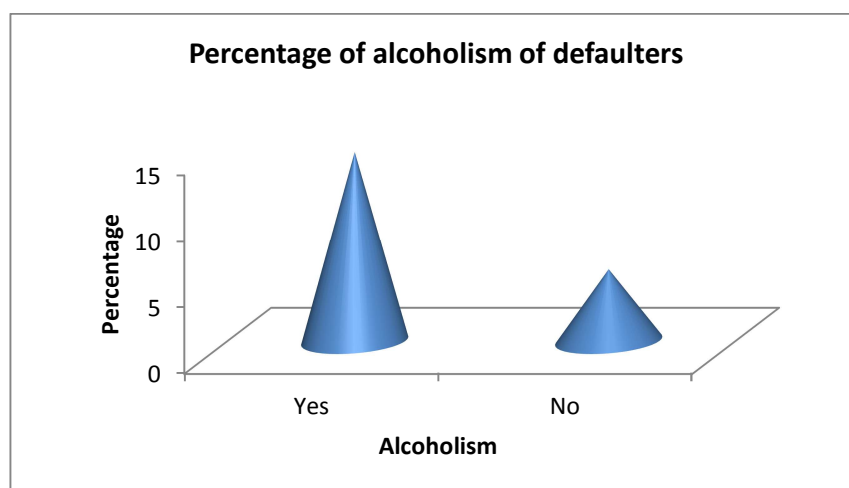
Distance	Total no. of TB patients	No. of defaulters	Percentage of defaulters	P-value
<5km	199	20	10.1	0.92
>5km	83	08	9.6	
Total	282	28	9.9	

There were a higher proportion of defaulters in areas where treatment centers were less than 5 km (10.1%) compared with places where it was more than 5 km (9.6%) distance and was statistically not significant.

Table: 4 Alcoholism distribution of defaulters

Alcoholism	Total no. of TB patients	No. of defaulters	percentage of defaulters	P-value
Yes	133	19	14.3	0.02
No	149	08	5.4	
Total	282	27	100	

Figure.4



Majority of defaulters were in intensive phase 19 (70%) as compared with continuation phase 8 (30%). Alcohol users show a higher default rate (14.3%) compared with nonusers (5.4%) and was statistically significant.

Table 5: Distribution of defaulters reason

Reason for default	No. of defaulters	Percentage of defaulters
Toxicity of drugs	11	40.74
Alcoholism	8	29.62
Migration	6	22.22
Private treatment	2	7.40
Total	27	100

Figure.5

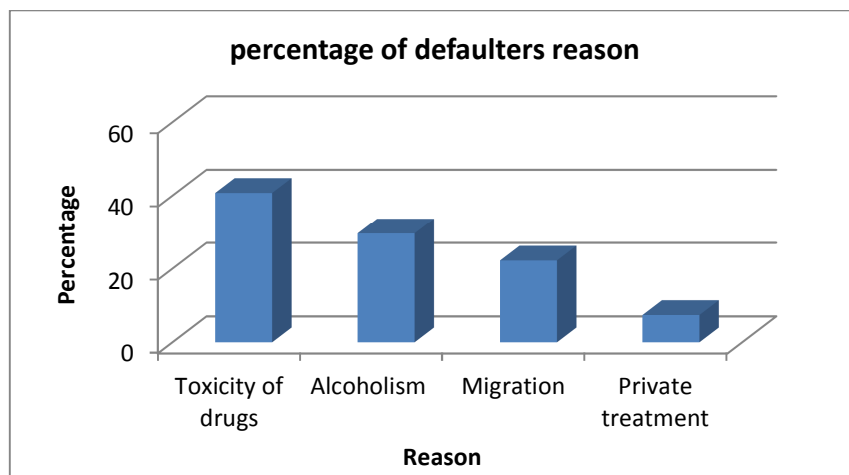


Table 5 shows various reasons given by the patients for defaulting from treatment. 40.7% patients defaulted due to drugs toxicity that is, vomiting, head reeling and itching, joint pain etc. followed by 29.6% due to alcoholism, 22.2% due to migration and 7.4% due to taking treatment in the private hospital.

DISCUSSION

The present study highlights the problem of default during intensive phase and the potential reasons associated with default among the defaulters. The overall default rate of 9.6% was observed in our study [Table 1].

In this study males (11.3%) showed a high percentage of defaulting as compared with females (5.0%). A similar finding was highlighted by Sudipta Basa *et al.* in their study conducted in Mayurbhanj district of Odisha^[7] and Chandrasekharan *et al.* in their study conducted in Tiruvallur district of Tamil Nadu.^[8] Age distribution pattern in the present study was similar to the study done by Sudipta Basa *et al.*, which have shown that the highest level of defaulting are in the age group of 40-60 years. In our study there was a high percentage of defaulters in the age group 45-64 years (15.5%) and the same has been reported by Chatterjee *et al.* in their study in a private hospital of Jamshedpur.^[9] Most of the defaulters were from poor socio-economic group who were illiterate, and therefore lack of knowledge about the disease have resulted in poor outcome in our study. A similar finding was reported by Pandit *et al.* in their study conducted in Gujarat.^[10]

This study brings into focus that the defaulter rate was higher in employed group (10.4%), which consists of farmers and laborers as compared with unemployed group (7.5%). The main reason behind defaulting in employed group is that they have to migrate somewhere long for earning, Chandrasekharan *et al.* and Sudipta Basa *et al.*, have reported similar reasons.^[8,7]

Majority of the patients were defaulted during Intensive Phase (70%) compared with Continuation Phase (30%) in our study. During this phase, symptoms usually subside and patients are likely to default. They do not realize the need to take the entire course of treatment because of lack of knowledge about the disease. The findings are similar to a study done by Chandrasekharan *et al.*, which highlights 71% defaulted in Intensive Phase, illiteracy, and loss of wages were the additional factors present in the study.^[8] Risk factors for default are male, economically productive age group, alcoholism, and migration are associated and are similar to the findings of various studies conducted in India.^[7,8]

This study has brought out the toxicity of drugs as an important factor for treatment default (40.7%) as shown in Table 5, which is similar to the findings reported by Chandrasekharan *et al.* and Sukumaran *et al.* in their study.^[8,13] another important factor for defaulting in our study was alcohol addiction (29.62%) which leads to high rate of default in current situation, similar finding has been reported by Sudipta Basa *et al.* in their study conducted in Mayurbhanj district of Odisha^[7].

Migration (7.4%) is another important factor, which contributes to defaulting. Jaggarajamma *et al.* has reported a similar finding.^[11] Migration is mainly due to occupational reasons. Irregular and incomplete treatment on account of migration is likely to increase the burden of TB in the community.

In our study three deaths among the defaulters were reported, which was similarly reported in study conducted by Chandrasekharan *et al.*^[8]

Extra efforts such as counseling, supervision, home visits, and motivation to retrieve patients likely to default during the intensive phase and return them to treatment would have ensured a favorable treatment outcome. Patients need to be educated properly to overcome problems during the treatment, reported by Sudipta Basa *et al.*^[7]

CONCLUSION

From our study we conclude that the male, economically productive age group, drug toxicity, alcoholism and migration for earning are the risk factors for defaulting. Apart from all these efforts by the dots provider to decrease the default rate, special care for the management of drug toxicity, alcohol rehabilitation process and strong financial support by the government to the patients who are all adherent to the treatment are required which can decrease the default rate rapidly.

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