FACTORS ASSOCIATED WITH TREATMENT DEFAULTER AMONG TUBERCULOSIS PATIENTS REGISTERED UNDER RNTCP IN SURAT CITY, GUJARAT

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ABSTRACT

Introduction: Defaulting from treatment has been one of the major drawbacks to treatment management and represents an important challenge for TB control program. This study was conducted to assess factors associated with treatment defaulter among TB patients in Surat city.

Method: All TB patients registered RNTCP in Surat city from July to August 2016 were include in study. This study was comparing previously treatment defaulter and newly diagnosed TB patients.

Result: In this study observed that male gender, age more than 30 years, migrant status, illiteracy unskilled labour word, lower socioeconomic class, tobacco consumption, alcohol habite were significantly associated (P<0.05) with previous treatment defaulter compare to newly diagnosed cases associated factors with defaulter in Surat city.

Conclusion: We conclude that previous treatment defaults are more in cases with more than 30 years, male, migrant, from low socioeconomic strata, illiterate, engaged in daily unskilled labour work, having habit of tobacco & alcohol, and exposed to passive smoking.

Keywords: Tuberculosis, previously treatment defaulter, Surat, new case of TB

INTRODUCTION

Tuberculosis (TB) continues to be one of the most devastating and widespread infections in the World including India. The World Health Organization (WHO) statistics for 2015 give an estimated incidence figure of 2.2 million cases of TB for India out of a global incidence of 9.6 million.[1]

Defaulting from treatment has been one of the major drawbacks to treatment management and represents an important challenge for TB control program. Mycobacterium tuberculosis has shown a susceptibility to mutate toward drug resistance, and defaulting patients have delayed sputum conversion and often with a drug resistant strain.[2] Inability to complete the approved regimen and which is quite common in self administered treatment and poor patient adherence to the treatment regimen are major causes of treatment failure and of the emergence of drug resistance, prolonged infectiousness and death.[3,4]

Retreatment requires extra costly drugs producing a greater financial burden on either the patient or public health delivery system. Also defaulting patients remain infectious and constitute a danger to their families and the community, a situation that is exacerbated by the organism being resistant to first line drugs.[5] An effective reporting system enables a determination of the overall usefulness of tuberculosis control programme at the local, na-

tional and global levels; resource needs, the true supply and dynamics of the disease within the population as a whole not just the population served by the government tuberculosis control programme.

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. However even though free medication may be obtain, many patients may not be successfully treated.[6-8] Main reasons for non-adherence to treatment are death while on treatment or before start of treatment and loss to follow-up. however, well motivated health providers can improve the compliance rate of certain patients to treatment by focusing upon patient satisfaction and by increasing the degree of supervision and patient support throughout the duration of treatment, together with health education, counseling from a specially trained nurse and patients education booklets.[9-11]

Studies in India and other developing countries have focused on various causes and risk factors for default. Gender, alcoholism, treatment after default, poor knowledge of tuberculosis, irregular treatment and socioeconomic status are some of the factors which have been found to be associated with higher default rates.[12-15] Other factors related to the disease, patients and service providers have also been identified as reasons for non adherence of TB treatment.[16-20] However, these factors varies widely based on the local situation. So, this study was designed to find out socio demographic and clinical factors associated with tuberculosis treatment defaulter.

METHODOLOGY

This study was conducted in TB units of Surat city of South Gujarat during 1st July 2016 to 1st August 2016 study period. Surat city is divided into 9 TB units which provide tuberculosis treatment according to the Revised National Tuberculosis Control Programme (RNTCP). In these units, monthly on an average around 500 Tuberculosis patients visit for treatment. Out of these 9 TB unit, half (5) were selected randomly by using random number table. All registered cases during the study period in these five TB units were noted.

All newly diagnosed cases were included in the study. Among the retreatment cases only past treatment defaulters were included in the study. Retreatment due to previous treatment failure or retreatment due to relapse were excluded from the study. All eligible patients were contacted telephonically and an appointment was fixed with them at their respective DOT providing centre or at

their residence for the detailed interview. If the patients could not be traced telephonically after three attempts, home visit was made to contact them. The patients not contacted during home visit were excluded from the study.

A written informed consent was obtained from all cases. The desired information was collected by personal interview using pre-tested semi-structured questionnaire. The questionnaire was consist of patients' socioeconomic and demographic profile, literacy status, drinking and tobacco consumption habits, previous history of TB, outcome on completion of treatment, HIV status, etc. Patient treatment records and register will also be used for data collection.

Statistical methods: Data was entered using Microsoft excel software. Data analysis was done with the help of SPSS version 20. Chi-square test and Odds Ratios were used to evaluate significant difference between proportions. P value less than 0.05 was considered as statistically significant.

RESULT

Total 275 TB cases were registered in the selected 5 TB units. Out of 275 study subjects, 34 relapse cases and 5 treatment failure cases were excluded. Among the remaining 236 eligible cases, 3 were not traceable even after repeated attempts, so finally, 233 cases were included in the study. Among these, 40 were previous treatment defaulters and 193 were new cases.

Bi-variate analysis of social demographic and socioeconomic factors with defaulter and new case revealed that male gender, age more than 30 years, migrant status, illiteracy unskilled labour word, lower socio-economic class are significantly associated (P<0.05) with previous treatment defaulter compare to newly diagnosed cases (Table 1).

Bi-variate analysis of various clinical profile with previous treatment defaulter and new cases were shown in table 2. Diagnosis of pulmonary tuberculosis and MDR tuberculosis in the present treatment were significantly more (p<0.05) in previous treatment defaulters compared to new treatment cases. However presence of HIV infection, other co-morbidities or history of tuberculosis in family is not associated with previous treatment defaulters. Habit of tobacco consumption (smoking and / or chewing) and alcohol consumption was also significantly more (p<0.05) in previous treatment defaulters compared to new treatment cases. Even a history of exposure to passive smoking was also associated with previous treatment defaulters. Adherence to present tuberculosis treatment was found good in previous treatment defaulters compared to new treatment cases.

Table 1: Socio-demographic profile in defaulter and new case of TB

Socio-demographic variable	Previous Treatment Defaulter (n=40)	New case (n=193)	Total (n=233)	OR	95% CI	P- value
Gender						
Male	27(67.5)	93(48.2)	120	2.23	1.09-4.58	0.026
Female	13 (32.5)	100(51.8)	113	1		
Age						
>30 yrs	23(57.5)	64(33.2)	87	2.73	1.36-5.46	0.004
≤30 yrs	17(42.5)	129(66.8)	146	1		
Community						
Migrate	21(52.5)	60(31.1)	81	2.45	1.23-4.84	0.010
Non- migrate	19(47.5)	133(68.9)	152	1		
Religion						
Hindu	28(70.0)	130(67.4)	158	1.13	0.54-2.37	0.745
Muslim	12(30.0)	63(32.6)	75	1		
Education						
Illiterate	27(67.5)	95(49.2)	122	2.14	1.04-4.40	0.035
Literate	13(32.5)	98(50.8)	111	1		
Marital status						
Married	26(65.0)	121(62.7)	147	1.10	0.54-2.25	0.783
unmarried	14(35.0)	72(37.3)	86	1		
Occupation						
Unskilled Labour	22(55.0)	60(31.1)	82	2.71	1.35-5.42	0.004
Other	18(45.0)	133(68.9)	151	1		
Socio-economic status						
Lower class	28(70.0)	101(52.3)	129	2.12	1.02-4.42	0.040
upper class	12(30.0)	92(47.7)	104	1		

OR=Odds Ration, CI=Confidence Interval

Table 2: Clinical profile in treatment in defaulter and new case of TB

Clinical profile	Previous Treatment Defaulter (n=40)	New case (n=193)	Total (n=233)	OR	95% CI	P- value
Pulmonary TB	34(85.0)	127(65.8)	161	2.94	1.18-7.37	0.017
MDR tuberculosis	23(57.5)	13(6.7)	36	18.7	8.07-43.45	<0.001
Co- morbidities	3(7.5)	11(5.7)	14	1.34	0.36-5.04	0.663
HIV Positive	2(5.0)	9(4.7)	11	1.08	0.22-5.18	0.750
History of TB in family	13(32.5)	73(37.8)	86	0.79	0.38-1.63	0.525
Tobacco consumption	14(35)	27(15)	41	3.31	1.54-7.12	0.001
Exposure of passive smoking	21(52.5)	61(31.6)	82	2.45	1.23-4.89	0.001
Alcohol consumption	20(50)	38(19.7)	58	4.08	2.00-8.33	<0.001
Good Adherence to TB treatment	8(20.0)	10(5.2)	18	4.57	1.68-12.47	0.001

DISCUSSION

The present study observed that males were significantly more in previous treatment defaulters compare to new cases. Similar findings were obtained by other researcher. [21-26] Our study also found that older age group (>30years) was significantly more in previous treatment defaulters. Similar findings were also observed in Addis Ababa and Kenya study.[21,22,26]

In our study observed that low socioeconomic class were associated with previous treatment defaulter in TB patients. A similar finding was found many other studies.[21,26] Illiteracy was significantly associated with previous treatment default in this study. A similar finding was found many other studies.[21,22,26].

In our study observed that use of alcohol was significantly associated with previous treatment default. A similar finding was found many other studies.[21,26,29-31] In our study observed that tobacco habited was significantly associated with previous treatment default. A similar finding was found in one study.[21]

This study brings into focus that the defaulter rate was higher in daily unskilled labour. A similar finding was found many other studies.[26, 27]. Unskilled labourer mostly need to search for livelihood daily and due to that treatment may lose priority. Along with this, migration may be one of the contributory factor which is very common in unskilled labourer. This was also depicted from the observations of the preset study where migrant were significantly more in previous treatment defaulter compared to new cases. Similar findings

were also observed in other studies.[21,31] This is important finding as migrants are already at socially and economically compromised state and addition of irregular and incomplete treatment for TB into that greatly hamper prevention and control of tuberculosis in the community.

In the present study it was observed that previous treatment defaulter not associated with HIV co-infection or other co morbidities. This observation was similar to a study y Daniel *et al.*, 2006 who was found that HIV co-infection was not a significant factor for default in Nigeria.[23] However certain other studies observed that HIV co-infection among TB treatment defaulters was significantly associated with it.[21]Apperently co-morbidities contribute to default due to increases pill burden. However in our study we had taken previous treatment default. So it may be possible that at the time of default they might have certain co-morbidities.

Adherence to present tuberculosis treatment was found good in previous treatment defaulters compared to new treatment cases. This may be due to personnel experience and suffering of themselves due to treatment default in patient

CONCLUSION

From our study we conclude that previous treatment defaults are more in cases with more than 30 years, male, migrant, from low socioeconomic strata, illiterate, engaged in daily unskilled labour work, having habit of tobacco & alcohol, and exposed to passive smoking.

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