Original Article

Factors attributed to non-adherence of treatment among Tuberculosis patients registered in Jamnagar district, Gujarat

Viral R.Shah[1], Pradeep Pithadia[1], Dipesh V. Parmar[1], Bharat Chavda[2]

[1]Department of Community Medicine, Shri M.P. Shah Govt. Medical College, Jamnagar, Gujarat, India
[2]Department of Physiology, P. D. U Medical College, Rajkot, Gujarat, India

ABSTRACT

Background: Non-adherence to any anti-microbial drug results in to resistance of that particular drug and Anti Koch's Treatment (AKT) not escaped out of it that leads to serious harm on outcome of Tuberculosis patients.

Aims & Objectives: Present study aimed to identify various factors associated with non-adherence of tuberculosis treatment

Methods & Material: Total 426 tuberculosis patients had been selected from tuberculosis register of four Tuberculosis Units (TU) of Jamnagar district by Systemic Random Sampling method. DOTS centers were evaluated physically in context of infrastructure and RNTCP (Revised National Tuberculosis control Programme) activity. Personal information and information regarding various factors associated with poor/non compliance of tuberculosis patients had been recorded in pre-structured proforma.

Results: About half of the patients (52.16%) in reproductive age. Mean age of men is 36 years and that of women is 30 years. Ratio of male:female patient was 2.1:1. Total 297 (69.71) sputum smear positive. Total (81.14%) children received INH prophylaxis for their children.

Keywords: tuberculosis, non-compliance, DOTS strategy, Tuberculosis Units

INTRODUCTION

One of the threats in Tuberculosis control programme throughout the word is drug resistance [1].

Poor treatment compliance for treatment of tuberculosis poses a serious threat to the development of multi-drug resistance tuberculosis and persistent infectiousness. MDR-TB is not only associated with 2 to 4 times increase in period of treatment but also it leads to various psychological problems, economic wastage, poor treatment adherence and consequently treatment failure, Hence problem is vice-versa [2,3,4].

. There are many factors which lead to non-compliance of treatment. To overcome it, DOTS strategy is being implemented under RNTCP in India [1]. This strategy has been beneficial and successful in reducing death rates and increasing favorable treatment outcome [2]. Present study is an attempt to identify various factors associated with non-compliance of tuberculosis treatment. Factors such as poor adherence to treatment, inadequate Treatment, compromised drug quality,

treatment failure, prior treatment, cavity pulmonary TB, HIV infection and diabetes accounted for the development of drug resistance in TB [5,6]

Materials and Methods

Systemic random sampling was carried out and every 3rd patient registered in TB register of all four Tuberculosis Units (TUs) namely Jamnagar, Dhrol, Lalpur and Khambhaliya was selected from first quarter (1st Jan to 31st March) and second quarter (1st April to 30th June) of 2009. If the selected patient from the TB register didn't fulfill the eligibility criteria; the very next patient was selected from the TB Register of the concerned TU.

Urban Area: Jamnagar city is divided into six regions by District TB Centre and each Senior Treatment Supervisor (STS) is responsible for the TB control activities in his own area of jurisdiction. Therefore, all DOTS centers are scattered across these six regions in urban areas.

Rural Area: Each TU is visited; the TB register of each TU is reviewed to carry out systemic random sampling to include every 3rd patient in each. There

are 516 patients in TU-1, 377 in TU-2, 254 in TU-3, while 209 in TU-4, thus total 1356 patients registered in both quarters in all four TUs. Thus, total 426 TB patients were selected in study.

DOTS centers were first visited explained the purpose of the study and evaluated their activity and infrastructure. Personal details of the patients were verified. i.e Name, Age, Sex, Occupation, number of under six years age children in the home and past tuberculosis treatment history in a pre-structured Performa.

After that, the patient was evaluated at DOT centre or his/her home, checked the compliance of the treatment, using pre-structured Performa. In case, when the patient is a minor, the guardian of the child is interviewed. If the patient is not at his/her home or the house is locked, then he/she is contacted and interviewed telephonically.

Data analysis

Data were entered and analyzed in Epi info version 3.5.1.

RESULTS

Age break-up indicated about half of the patients (52.16%) in reproductive age groups i.e. between 21 and 40 years. About 5.39% patients belonged to each of the extreme age groups (<10 years and more than 60 years). Mean age of men is 36 years and that of women is 30 years. Ratio of male:female patient was 2.1:1

Table 1: Age of patient and non-adherence of treatment among TB patients

Factors	Total (n=426)	Irregular patients (n=102)		P value
		No.	%	
Age (years)				
<=40	303	70	21.12	>0.05
>40	113	32	33.63	

Table 2: Gender of patient and non-adherence of treatment among TB patients

Factors	Total (n=426)	Irregular patients (n=102)		P value
		No.	%	
Gender				
Male	290	79	27.24	<0.01
Female	136	23	16.91	

Table 3: Association between phases of DOTS therapy and non-adherence of treatment among TB patients

Factors	Total (n=426)	Irregular patients (n=102)		P value
		No.	%	
Patient during interview				
IP	178	38	21.35	>0.05
CP	248	64	25.81	

Table 4: Association between category of the patient and non-compliance of treatment among TB patients

Factors	Total (n=426)	Irregular patients (n=102)		P value
		No.	%	
Category				
I	281	53	18.86	<0.01
II	118	43	36.44	
III	27	6	22.22	

Table: 5: Association between type of TB disease and and non-compliance of treatment

Factors	Total (n=426)	Irregular patients (n=102)		P value
		No.	%	
Type of TB disease				
P	346	97	28.03	<0.01
EP	80	5	6.25	

Out of total Tb patients,.297 sputum smear positive TB patients had children below 6 years in their homes, of which 241 patients (81.14%) received INH prophylaxis for their children.

DISCUSSION

This study is an attempt to identify factors responsible and associated with poor adherence of treatment among pulmonary and extra-pulmonary TB patients. Age, gender, literacy status, occupation, types and category of TB disease do affect compliance of therapy. Pill burden is another one of the important reasons for interrupted treatment.

Many times, DOT providers as well as Senior Treatment Supervisors (STS) are also not aware about the consequences of default status, which may be an important reason for development of MDR TB.

As TB is a disease of reproductive age, we tried to find out association between age of patients and non-adharance of treatment. We observed no any significant association between age of patients and their non-compliance status. In study by

Wondemagegn Mulu, Daniel Mekonnen, Mulat Yimer, Aschalew Admassu & Bayeh Abera of Risk factors for multidrug resistant tuberculosis patients in Amhara National Regional State in 2015 [7] observed highest non adherence in reproductive age group (26-45 yrs) i.e 54.9% and significant association shown by crude odds ratio. Mean (SD) of age was 47.2 (16.65) [8].

We observed an association between gender of patients and their non-compliance status, which was found statistically significant. Non-compliance was observed more among males as compared to females, may be because of more outdoor activity they are engaged in. In a study conducted by Wondemagegn Mulu and his colleagues observed high percentage of non compliance among male, and difference was statistically significant [7]. About 70% (342 out of 487) of the TB patients were males [8].

The study revealed that a quarter of patients were non-compliant in both intensive and continuation phase of TB treatment, and we observed no statistically significant association between phases of treatment and non-compliance status of patients In study by Akilew Awoke Adane, Kefyalew Addis Alene, Digsu Negese Koye, Berihun Megabiaw Zeleke [9] for Non-Adherence to Anti-Tuberculosis Treatment and Determinant Factors among Patients with Tuberculosis in Northwest Ethiopia in 2013 observed higher non-adherence during continuation phase of chemotherapy (AOR: 6.95). Study by PY Kulkarni, SV Akarte, RM Mankeshwar, JS Bhawalkar, A Banerjee, AD Kulkarn [10] in 2013 had opposite finding of higher percentage of non-adherence during or completion of Intensive phase in their study of Non-Adherence of New Pulmonary Tuberculosis Patients to Anti-Tuberculosis Treatment.

Association between category of TB patients and non-compliance of treatment among TB patients was found statistically significant.

Category-II patients were observed to be more non-adherant than other category of TB patients. This may be due to pill burden, long duration of treatment and injection streptomycin. A study by Chhaya Mittal & S G gupta in his study of Noncompliance to DOTS: How it can be decreased? Found non adherence of 26.4% in category II patients

CONCLUSION

From the above findings, it was concluded that non-compliance was observed more among male TB patients in comparision to female patients, Category –II patients in comparision to other categories, and TB patients with pulmonary involvement as compared to extra-pulmonary involvement.

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Corresponding Author:

Dr.Viral Shah
Assistant Professor
Department of Community Medicine
Shri M.P.Shah Govt. Medical Collge
Jamnagar
Gujarat, India