Original Research Paper

Volume-7 | Issue-10 | October-2017 | ISSN - 2249-555X | IF : 4.894 | IC Value : 79.96

Community Medicine

EXTENT, PATTERN AND REASONS OF DEFAULTS IN SMEAR POSITIVE TUBERCULOSIS CASES- AN AMBISPECTIVE STUDY

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ABSTRACT Tuberculosis remains major health problem in India despite best available strategy of DOTS and robust regimens under RNTCP. HIV infections and sustained increase in Diabetes pose major challenge in making T.B. free India. Defaults in treatment period have been the major cause of emergence of resistance causing Multi Drug Resistant, Extensive Multi Drug Resistant T.B. This study focuses on extent, pattern of defaults and reasons of drop outs and discusses the possible solutions to address them. Only 74/390 (19%) study subjects completed the treatment without any default. 316 defaulters defaulted 589 times with mean default 1.86 times. It was notable finding that first timer defaulters had high propensity to drop out. 56.9% first timers were lost during intensive phase. The reasons of default were Migration (25.2%), Felt better (22%), Social reasons (20%), Economic reasons (14.8%), Carelessness (6.5%), side effects of drugs (4.5%), Loss of faith (4.5%) while 7.7% subjects could not specify any reason of default.

KEYWORDS :

Introduction:-

Tuberculosis continues to be the major health problem in India. India bears the highest burden of T.B. in the world. According to WHO, in 2015 it was estimated that every year 2.2 million people develop TB in India and an estimated 220,000 die from the disease 1. Tuberculosis primarily affects individuals at their most economically productive years of life. T.B. is covered under Revised National Tuberculosis Program since 1997 in phased manner. It is a fact that the best available treatment regimens have low success rate as long as treatment services are not focussed on the cooperation of patients through effective organizational framework. Non conforming behaviour of the patients remains a major impediment in the implementation of RNTCP. Defaults in treatment have serious implications viz. clinical deterioration, treatment failure, relapse and Multi Drug Resistance (MDR) and XDR tuberculosis which contribute to high mortality.

Aim: To study the extent, pattern of defaults and premature drop -outs in smear positive Tuberculosis cases.

Objective:- To explore the reasons of default.

Material & methods:- This was an Ambispective cohort study undertaken at State Tuberculosis Control & Training centre (STCTC), Nagpur.

Study period-1.5.1995-31.8.1996

Data collection:-Two phases i) Analysis of treatment cards ii) Home visits

- **Analysis of treatment cards:** Data collection was made from treatment cards of newly diagnosed Sputum positive cases within the cohort period 1.7.1994 to 31.3.95 at STCTC, Nagpur w.e.f. 1.5.1995 to 30.6.1995.
- **Home visits:** Actual data collection was made from study cohort in the field by contacting the study subjects at their residential address w.e.f. 1.7.1995 to 31.8.1996.

Criteria of Case selection:-I) Newly diagnosed Sputum smear positive Pulmonary T.B. cases. ii) Age:- 15 years and above iii) Cases accepted to be treated by self administered domiciliary Short Course Chemotherapy (2EHRZ/6TH or 6 HE) at STCTC, Nagpur.

Default in treatment-Failure to make drug collection on the evening of the due date. A T. B. patient was considered a defaulter till he collected/ received drugs or is lost from treatment.

Lost: - When a T.B. patient did not attend to receive the drugs for more than one month from the due date, he was considered lost from the treatment.

RESULTS AND DISCUSSION:-

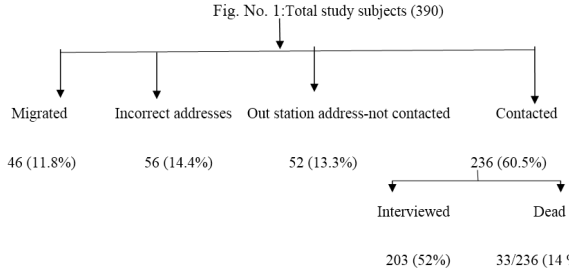
Table No. 1: Age and sex-wise distribution of study subjects

Age group	Male		Female		Total	
	No.	%	No.	%	No.	%
15-24	107	38.6	63	55.8	170	43.6
25-34	84	30.3	30	26.5	114	29.2
35-45	39	14.1	13	11.5	52	13.3
> 45	47	17.0	07	6.2	54	13.9
Total	277	100	113	100	390	100

This table outlined the age and sex-wise composition of study subjects. The male: female ratio was 2.45:1, that was commonly observed finding reported by Baily [2].Mean age of males was 32.45 years and that of females was 27.73 years. In other words females were 5 years younger than males. Majority of the study subjects i.e. 86.1% belonged to age group 15-45 which is the economically most productive age group.

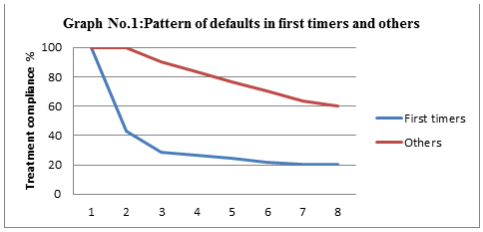
Analysis of treatment cards:-There were 692 newly diagnosed smear positive T.B. patients registered during the cohort period; out of them 300 patients were transferred out to various nearest Peripheral Health Institutions as per convenience of the patients. Two patients were excluded-one X ray positive patient was wrongly diagnosed as smear positive and other was a reregistered case. Thus 390 subjects were analysed as mentioned in the figure below:

Fig. No. 1:Total study subjects (390)



Thus 203 subjects were interviewed face to face using predesigned and pretested questionnaire.

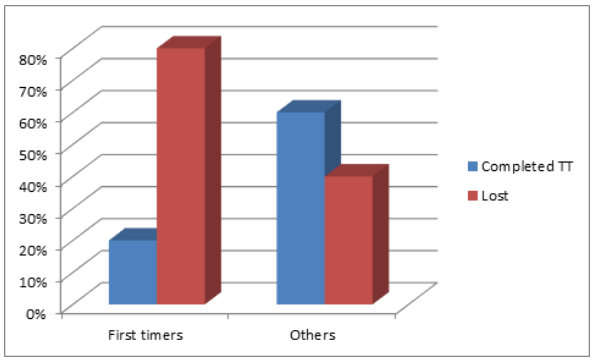
Graph No.1:Pattern of defaults in first timers and others



This graph shows that treatment compliance was very poor in First timers and only 20% first timers could complete the treatment. In case of others who defaulted later, 60% could complete the treatment. Poor retrieval of first timers reflected that study subjects were not properly motivated. In the personal interview it was revealed that only 21.7% study subjects were aware of the correct duration of treatment. It denoted that study subjects were neither properly instructed nor sincerely motivated.

Seetha MA (1988) reported that when doctors and staff are least bothered, 79.5% patient defaulted [3]. In the present study it was similarly observed that 81% study subjects defaulted. STCTC being the most equipped treatment centre in Nagpur, large number of T.B. patients were coming to the centre every day. Therefore there were limitations of the limited staff & doctors to give adequate time to each and every patient to counsel and motivate. This was probably the reason of such a high proportion of defaults in STCTC.

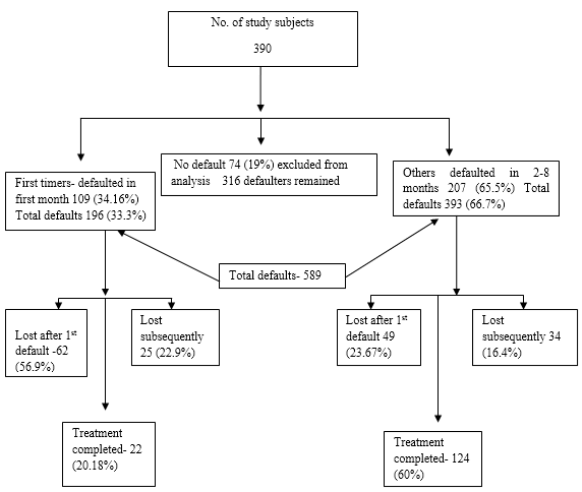
Graph No. 2:Treatment completion in First timers and Others



Above graph entails the fate of defaulter study subjects in terms of completed treatment or lost to treatment. It is observed that out of 109 first timers, only 22 (20.2%) could complete the desired treatment level of ≥80% while 87 (79.8%) first timers were lost to treatment. It showed that **first timers had higher propensity to drop out.**

Others (207/316) who defaulted first time during 2-8 months were nearly 2/3rd of total defaulters. Only 49/207 (23.67%) were lost after first default while 34/207 (16.42%) were lost subsequently. Thus nearly 60% of 'Others' could complete the treatment. If we combine first time defaulters in first timers & others, 136/316 (43%), were lost to treatment, giving the message that sizeable patients were lost who defaulted for the first time and did not return again.

Fig. No.2: Flow diagram of study subjects and their defaults and treatment compliance



This figure outlines pattern of defaulter behaviour in 1st timers and others. Only 74 (19%) study subjects completed the treatment without any default, leaving 316 (81%) defaulters. There were 109 (34.16%) defaulters who defaulted in the 1st month of treatment that contributed more than one third of total defaulters. These 109 defaulters defaulted 196 times (mean-1.8 times) and the proportion of default was 33.33% of total -589 defaults. The noteworthy point is that out of these 109 defaulters 62 (56.9 %) were lost to treatment during first month and 25/109 (22.9 %) were lost in subsequent months. Thus majority of first timers did not return after 1st default and 87/107 (79.82%) were lost with the result that only 20.18% could complete the treatment. Jagota P et al (1996) reported 68% defaults in first timers by the end of 3 months.[4]

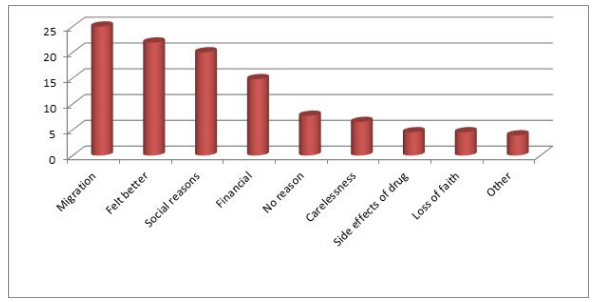
Others who defaulted first time during 2-8 months were 207/316 (2/3rd of the total defaulters). It is worth mentioning that only 49/207 (23.6%) were lost after first default while 34 (16.4%) were lost subsequently. Thus nearly 60% other defaulters could complete the treatment.

Table No.2: Number of defaults in study subjects

No. of defaults	Number	Percentage
Nil	74	19
1	172	44.1
2	79	20.3
3	29	7.4
4	23	5.9
>5	13	3.3
Total	390	100

This table and the graph show number of defaults amongst study subjects. There were only 19% study subjects who completed the treatment without any default. Thus there were 81% study subjects who exhibited one or more defaults. The numbers of defaults were minimum 1 to maximum 12. Majority of study subjects (64%) exhibited 1or 2 defaults. Mean default per subject was 1.86. Jagota P et al (1989) also reported comparable findings of mean 2.2 defaults [5].

Graph no. 3: Reasons of defaults in proportion of defaulter T.B. subjects



Reasons of defaults:-This graph shows reasons of defaults. Few study subjects ascribed more than one reason. The most common reason of default was migration (25.2%), Relief of symptoms (21.9%), social/ family reasons (20%), financial reasons (14.8%) , carelessness (6.5%), side effects of drugs (4.5%), Loss of faith (4.5%) while 7.7% could not give any reason. K. Jaggarajamma,et al reported that **migration** was the cause of default in 24% of T.B. patients[6] . Jagota P (1989) [5], Onozaki I (1995) [7],from Nepal (Kathmandu) also reported similar observations. In the present study the cause of default due to migration was attributed by over 25% study subjects. Nagpur is a big city. Many patients come here for better treatment facilities from nearby villages and even from M.P. They stay here for some time with their relatives/ friends. Once the symptoms abate, and in view of economic/ social reasons they are obliged to go back to their original place of residence. It is therefore advocated that if patients has to leave the area due to economic /social or any other reasons, patient has to be made aware that treatment is available everywhere and therefore he is to be motivated to approach the treatment centre so that he could be transferred to the nearest treatment centre as per his convenience so that continuity of treatment is ensured. These measures will go a long way in reducing default occurring due to migration and achieve the desired outcome in RNTCP.

In the present study **Felt better** was the next reason of default found in 21.9% of study subjects. It is known that when symptoms abate and patient start feeling well again, he firmly believes that he does not need any treatment. Juvekar SK attributed 27% defaults on account of relief

of symptoms [8]. It is of paramount importance that patient should be properly motivated to continue the treatment even if symptoms were abated. This is a task that is challenging and therefore it is the duty of treatment providers as well as family members to repeatedly motivate the patient till he completes the treatment.

In the present study 20% defaults were ascribed to social reasons and family problems. Births, marriages, illnesses and death in the family were the social reasons attributed to defaults. It was comparable to study reported by Shrivastav VK et al in which social reason was the cause of defaults in 22.7% patients [9].

Financial reasons were described by 14.8% of study subjects, in the present study. It was consistent with the study reported by Gangadharan PRJ (1994)[10] and Juvekar SK et al (1995)[8].

In the present study 4.5% study subjects attributed default to side effects of drugs. Jaundice, Skin rash, severe vomiting were some of the major side effects that made them to default. These findings were consistent with study reported by Shrivastav VK et al (1981) i.e 5.8% [9] and Juvekar SK et al (1995) i.e. 10% [8].

In the present study 4.5% study subjects had no symptomatic relief from the treatment received and they lost faith in the treatment providers. Some of the defaulters complained that the treating physician did not pay any attention to their complaints. Some of them preferred to take treatment from private doctors. This reason though minor in percentage, could not be ignored. We must understand that patient lies in the centre of the program and he has to be paid due attention by the treating physician. There can -not be any justification of this type of negligence.

In the present study 7.7% subjects could not specify any reason of default. It was possible that the interview of study subjects was carried out with some time gap and they could not recollect the specific reason of the default.

Under RNTCP, default is defined as patients not taking anti-TB drugs for two months or more, consecutively after starting treatment. When this study was undertaken there was different connotation of default. However there has been no change in pattern of defaults, reasons of defaults and its relevance to outcome of treatment during last 2 decades.

Geeta Pardeshi[11] observed that amongst the smear-positive patients, total default occurred in the intensive phase of treatment were to the tune of 64%. Bernard N Muture et al reported that 43.1% patients abandoned treatment within the first and second months of treatment [12]. V Chandrasekaran et al reported 72% smear positive cases defaulted by the extended intensive phase [13]. Abha Pandit reported that half of the defaults occurred in Intensive phase [14]. In the present study it was observed that 40% defaults occurred during intensive phase. This aspect is very important because outcome of treatment is directly dependant on defaults in intensive phase. Smear conversion is defined as 2 consecutive negative samples. At the end of intensive phase sputum conversion is expected to be 90% in CAT I subjects under RNTCP. If defaults occur in intensive phase, there are more likely chances that the case may land in to Treatment failure, Multi Drug Resistance (MDR/XDR) or succumb to death.

RNTCP aims to achieve 85% cure rate among newly detected smear positive cases. The main reason for a programme not performing optimally is because of non adherent behaviour of patients to treatment rather than due to inadequacy of regimen 12. Therefore keeping respect to the human behaviour and operational factors, treatment providers, relatives, friends and the patient himself are to be fully involved for effective implementation of RNTCP.

Conclusions:-

1. Only 74 (19%) study subjects completed the treatment without any default, while 316 (81%) study subjects defaulted 589 times. The mean default per subject was 1.86.
2. First timers had higher propensity to drop out. Treatment completion rate was only 20% among first timers.
3. Treatment completion rate was better in Others who defaulted in later months and that was 60%.
4. The common reasons of defaults were migration, symptomatic relief, social and economic reasons, carelessness, side effects of drugs, loss of faith, etc.
5. This study gives an important message that first default is to be taken very seriously. It may be his first and final default and the patient may be lost. It will be prudent to retrieve the first timer at the earliest, making all out efforts.

Note:-The perceptions of study subjects regarding knowledge of the disease, health seeking behaviour, attitude of family members and friends, practices while coughing/sneezing, disposal of sputum could not be discussed here due to limitations. That will be discussed in separate paper.

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