Care Seeking Behaviour and Treatment Outcome of Patients Registered in a Tuberculosis Unit of Burdwan District in West Bengal

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Abstract: *Tuberculosis is one of the most globally serious public health problems, despite its causative organism was discovered more than 100 years and highly effective drugs and vaccines are available making tuberculosis a preventable and curable disease. A clinic based, descriptive, cross sectional study was conducted in a rural block of Burdwan district among 180 adult new pulmonary TB patients for duration of 10 months with the objectives- 1) To assess the care seeking behaviour of patients receiving Directly Observed Treatment Short Course Chemotherapy Bhatar TU -2) To look for the treatment outcome of those patients and the association among them if any. Complete enumeration method was used. Study results revealed that majority of the patients (64.4%) preferred Govt. health care provider and 6.2% preferred traditional healers as place of first care seeking. Among study people, most of patients 130 (72.2 %) themselves were the decision makers of seeking health care for their symptoms ; 96(53.3 %) patients sought health care within 7 days from the onset of first symptoms; Busy with work 96(53.3%) and thought to be subsided 76 (42.3%) were the cause of delay in seeking care. Majority of the patients (67.3 %) were diagnosed as TB within 7 days after first care seeking. DOTS was initiated within 7 days after diagnosis of TB in majority (91.6%) of the patients. Among 180 patients, 68 (37.8%) were cured, 77 (42.8%) completed their treatment, 3 (1.2%) were reported as treatment failure, 27 (15.0%) were defaulted and 5 (2.7%) died during treatment period. No patient was transferred out during the study period.*
Key words: *tuberculosis, treatment outcome, Directly Observed Treatment Short Course Chemotherapy, new pulmonary tuberculosis patients, availability of DOTS.*

I. Introduction

Tuberculosis (TB) is a world wide, chronic communicable bacterial disease. It is very strange disease because of its varied clinical presentation, host response, chemotherapeutic response, etiology and social implications. [1]Tuberculosis is also a disease of great antiquity. Even almost certainly tuberculosis lesions have been found in the vertebrae of Neolithic man in Europe and an Egyptian mummies dating possibly as early as 3700 BC.[2]

Still it remains one of the most globally serious public health problems, despite its causative organism was discovered more than 100 years and highly effective drugs and vaccines are available making tuberculosis a preventable and curable disease.[2]

Tuberculosis as a disease of both medical and social dimensions having close relation to poor socio-economic conditions, create multiple burdens for patients, including the necessity to deal with pain, suffering, reduced quality of life, premature mortality. TB affects and kills more adults in the productive age group than any other disease thus ultimately society must bear the negative impact of the social consequences created by the combined effects of the disease on patients and their families. [3,4]

Tuberculosis has been reported as one of the most important public health problems by all regions of WHO. Using surveillance and survey data to update estimates world wide approximately 9 million new cases of

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all form of TB occurring annually and 3 million people die from it each year. On an average 217 per 1 lakh TB case occurred of which 60 per lakh were smear positives, out of this 24 per lakh reported to be died in 2005.[5]

Tuberculosis remains the leading infectious cause of death in India. 1.9 million cases occur annually, 0.8 million have sputum positive pulmonary TB accounting for 21% of the world TB cases and two-thirds of the cases in the South East Asian Region. This makes India the highest TB burden country in the world. Everyday about 20,000 people become infected; more than 5000 develop TB and more than 1000 die due to the disease. Every smear- positive person, if left untreated, has the potential to infect 10-15 persons per year. In other words, two persons become sputum-positive for TB and one person is dies every minute due to the disease (WHO 2007).[1,5] In West Bengal, in the year 2003, cure rate was 83%, new cases were 1,50,000 per year , 1000 people die due to TB disease and 8 million productive work days are lost due to TB. In Burdwan district, new case detection rate 74% (3rd Qtr2010), cure rate 86%.[6] The National Tuberculosis Control Programme (NTCP) was launched in 1962 but could not produce the desired results. So some revisions of the NTCP were needed. As a result, in 1992 the programme was revised jointly by WHO and Govt. of India. The Revised National Tuberculosis Control Programme (RNTCP) has been implemented in phases since 1993, guided by WHO and supported by World Bank. RNTCP continues to be integrated with general health services.

RNTCP uses Directly Observed Treatment, Short Course Chemotherapy (DOTS) strategy, DOT implies that an observer watches the patient swallow the medicine with the aim of improving patient compliance, which is considered most serious problem in TB control.[4] Treatment success under RNTCP has increased, studies shown during the year 2007 - new sputum positive case detection rate of 70% and treatment success rate of 86% was achieved. [5,]

Despite this achievements, access to tuberculosis diagnosis and treatment services still remain a major concern for tuberculosis control program of India. The vast majority of patients with active tuberculosis seek treatment for their disease, they spend a great deal of time and money "shopping for health" before they begin treatment, and all too often, they do not receive either accurate diagnosis or effective treatment, despite spending considerable resources. Studies have shown that despite eight encounters with one or more health care provider system and expenditure of around 1600 rupees only one third of patients with symptoms of tuberculosis undergo sputum examination for tuberculosis and even for patients who eventually diagnosed, successful treatment of tuberculosis is the exception rather than the norm in both public and private sector.[7] Various factors such as quality of communication between patients and health workers, health culture, and stigmata attached to disease, especially in rural India further complicate the problem.[6,7]

Moreover thorough search of literature, very few studies were done in this matter in Burdwan district of West Bengal. Under these circumstances the present study was an attempt to assess the availability of DOTS services and its affect on treatment outcome of patients receiving DOTS in a Tuberculosis Unit (TU) of Burdwan District in West Bengal.

II. Materials and Methods

A clinic based observational study with a cross-sectional design was carried out for a total period of 10 months i.e. from 1st January 2014 to 31st October 2014 at Bhatar Tuberculosis Unit (TU), situated at Chittaranjan Rural Hospital in Bhatar Block of Burdwan district, West Bengal, is the rural training centre of Burdwan Medical College. Bhatar TU having 5.753 lakh population (census 2011) [8] consists of two BPHCs (Bhatar and Monteswar). There are 38 Subcentres in Bhatar Block and 32 in Monteswar Block. These 70 SCs act as DOTS centres. Before starting of data collection, planning for study like preparation of interview schedule and pretesting of proforma was done. Then all data was collected by interviewing the all adult new pulmonary TB patients , registered under RNTCP during January 2014 to March 2014 in the said TU, so that the treatment outcome of those patients would be available by next 6 to 7 months time. Complete enumeration of all adult new pulmonary TB patients, who have been registered during the period 1st January 2014 to 31st March 2014 and who had their treatment outcome within October 2014, was done. By considering inclusion and exclusion criteria, sample size became 180. Patients who were deaf and mute, mentally ill and critically ill were excluded. During January 2014 to March 2014, total 199 patients were registered, among them 4 were paediatrics, 9 extrapulmonary, 5 Category II and 1 was critically ill patient (admitted).Thus total sample size became 180. The interview schedule was translated into the regional language i.e. Bengali before interview and again translated into English with the help of expert to ensure validity. Interview schedule was pretested on 10 patients and then modified accordingly. Informed written consent was taken from all participating patients before the start of interview, after explaining them the study purpose. They were interviewed during the observation period after consumption of medicines.

All patients were interviewed in the intensive period and following information regarding socio-demographic characteristics such as age, sex, religion, caste, marital status, type of family in part-I and information regarding care seeking behavior of the patients and treatment outcome of patients i.e. place of first care seeking, decision maker of seeking health care, cause of delay in seeking health care, patient delay, health

system delay, cured, treatment completed, treatment failure, defaulter, transferred out and died. Accuracy of data was improved by checking tuberculosis treatment card of patients and other relevant records such as tuberculosis identity card of patients, tuberculosis register.

Data were compiled in the computer using excel sheet and analyzed using proportion and Chi-square test with the help of SPSS software version 17.0. Chi square test was used to find out the association between different variables. P value was considered significant if the value is less than 0.05.

Ethical consideration:

Study was conducted after getting permission from institutional review board of Burdwan Medical College, Chief Medical Officer of Health, Burdwan District and District Tuberculosis Officer of Burdwan District.

III. Results

During January 2014 to March 2014, total 199 patients were registered, among them 4 were paediatrics, 9 extrapulmonary, 5 Category II and 1 were critically ill patients (admitted).Thus total sample size became 180. Majority (82.7 %) of the TB patients were economically productive age groups 15 – 54 years. TB was more common among males (72.3 %) than the females. Majority (73.3 %) of the patients were Hindus. General and Scheduled Caste were 40.2% and 32.5% respectively. Majority (84.4 %) of the patients were married. TB was more common (52.8 %) among patients belonged to joint family. It was observed that majority of the patients (82.2 %) presented with Cough for 2 weeks or more as their first symptoms (Table-1).Majority of the patients (64.4%) preferred Govt. health care provider and 6.2% preferred traditional healers as place of first care seeking.72.2 % patients themselves were the decision maker of seeking health care for their symptoms. 53.3 % patients sought health care within 7 days from the onset of first symptoms. Busy with work (53.3%) and thought to be subsided (42.3%) were the causes of delay in seeking care. Majority of the patients (67.3 %) were diagnosed as TB within 7 days after first care seeking. DOTS was initiated within 7 days after diagnosis of TB in majority (91.6%) of the patients.   Among 180 patients, 68 (37.8%) were cured, 77 (42.8%) completed their treatment, 3 (1.2%) were reported as treatment failure, 27 (15.0%) were defaulted and 5 (2.7%) died during treatment period. No patient was transferred out during the study period

IV. Discussion

Tuberculosis (TB) is a world wide, chronic communicable bacterial disease. It is very strange disease because of its varied clinical presentation, host response, chemotherapeutic response, etiology and social implications. Still it remains one of the most globally serious public health problems, despite its causative organism was discovered more than 100 years and highly effective drugs and vaccines are available making tuberculosis a preventable and curable disease.[3] The present study was a cross-sectional, observational, clinic based study. It was conducted in Bhatar Tuberculosis Unit (TU), situated at Chittaranjan Rural Hospital in Bhatar Block of Burdwan district, West Bengal, which is the RHU&TC of Burdwan Medical College. The objectives of the study were - 1. To assess the care seeking behaviour of patients receiving Directly Observed Treatment Short Course Chemotherapy in Bhatar TU. 2. To look for the treatment outcome of those patients and the association among them if any.

Among 180 patients, 68 (37.8%) were cured, 77 (42.8%) completed their treatment, 3 (1.2%) were reported as treatment failure, 27 (15.0%) were defaulted and 5 (2.7%) died during treatment period (Fig.1).

Jaggarajamma K. *et al* [9] observed in their study, 9% completed treatment, 13% died and 2% could not be traced. Chennaveerappa P.K.*et al* [10] revealed, cured, total success rate, treatment failure rate, defaulter rate and death rate were 84.2%, 83.4%, 2.2%, 8.2% and 6.1% respectively which were much higher likely due to well implemented DOTS program. Vasankari T. *et al* [11] found in Finland favourable outcome was achieved in 70.1% cases consisting of those cured 31.65% and treatment completed (38.5%). There was no treatment failure, 5.1% were defaulted and death was outcome in 17.2% cases which were similar to the present study. Gopi P.G. *et al* [12] found, cured, default, failure and death rate were 76.4%, 13.4%, 5% and 4.5% respectively, default rate was similar to the present study. Mahadev B. *et al* [13] found 74% cure rate. Studies by Khatri GR. *et al,*[14] Zalesky R. *et al* [15] found about twenty percents defaulter rate, were similar finding.

Cure rate (66.2%), treatment completion rate (64.9%), treatment failure rate (66.7%), defaulter rate (62.9%) were higher among patients who prefer government health care provider but death rate (60 %) was higher among patients who prefer private health care provider as place of first care seeking.

Gopi P.G.*et al* [12] found, defaulter rate (43%) was higher among who preferred private health care Cure rate (83.8%), treatment completion rate (67.5%) and defaulter rate (66.7%) were higher among patients who themselves were the decision makers whereas treatment failure rate (66.7%) and death rate (60%) were significantly higher among those where other family members were the decision makers of seeking health care.

Cure rate (51.5%), treatment completion rate (51.9%), treatment failure rate (66.7%) and defaulter rate (62.9%) were higher among patients who stated, busy with work was the main cause of delay in seeking health care but death rate (60%) was higher among who thought it will be subsided spontaneously, was the main cause of delay.

Gopi P.G.*et al* [12] found, defaulter rate, 42% and 28% were among those DOTS interfere daily activity and daily wages.

About patient delay, it was observed that cure rate (66.2%), treatment completion rate (48.1%), defaulter rate (40.7%) were higher among patients who sought care within 7 days and treatment failure rate (66.7%) was higher among those who sought care after 7 days from onset of first symptom(s).   Regarding diagnosis delay, cure rate (69.1%), treatment completion rate (98.7%), defaulter rate (%) and death rate (80 %) were higher among those who diagnosed as TB patients within 7 days and treatment failure rate (100%) was higher among those who diagnosed after 7 days of seeking first care.

About treatment delay, cure rate (95.6%), treatment completion rate (94.8 %) were significantly higher among patients whose treatment was initiated within 7 days and treatment failure rate (66.7%), death rate (60 %) were higher among whose treatment was initiated after 7 days of diagnosis.

V.   Conclusion

The present study revealed that TB was more common among of males and among 15 – 54 years age groups.Cough for 2 weeks or more with or without fever were the first symptoms in majority of cases. Government health care provider care was preferred by major patients. About two third of the patients themselves were the decision maker of seeking health care. Half of the patients sought health care within 7 days of onset of first symptoms. Busy with work and thought the disease would be subsided spontaneously were the main cause of delay in seeking care. Majority of the patients were diagnosed as TB within 7 days after first care seeking and DOTS was initiated within 7 days after diagnosis of TB.

Highest death rate was found among patients who prefered private health care provider as choice of first care seeking person. Treatment failure rate and death rate were highest among those where other family members were the decision makers of seeking health care that was likely due to lack of family support.

Patients experienced highest treatment failure rate among those who sought care after 7 days from onset of first symptom(s) and were diagnosed as TB after 7 days of seeking first care. Treatment failure rate and death rate were significantly more among whose treatment was initiated after 7 days of diagnosis.

Limitation:
1. Some of the questions may not have been fully comprehensible to illiterate patients.
2. Due to time constraint, other factors affecting treatment outcome like awareness and quality of work of health personnel etc. could not be studied.
3. Some patients may have expressed availability of DOTS service as good to please the health personnel.
4. Triangulation of data has not been explored.

Acknowledgement

Table-1. Patients distribution according to their first symptom(s).   *   (n=180)

First symptom(s)	Number	Percentage
Cough for 2 weeks or more	148	82.2
Fever at night	87	48.3
Weight loss	13	7.2
Coughing out of blood	11	6.1
Tiredness	23	12.8
Chest pain	2	1.1
Shortness of breath	50	27.8

* Multiple Response

Table 2. Patients distribution according to care seeking behavior. (n=180)

| Care seeking behavior	Treatment outcome					Total Number (%)	χ^2 d.f. p value
	Cured No. (%)	Treatment completed No. (%)	Treatment failure No. (%)	Defaulter No. (%)	Died No. (%)		
1. Place of first care seeking							
Govt. health care provider	45 (66.2)	50 (64.9)	2(66.7)	17 (62.9)	2 (40)	116 (64.4)	χ^2 =1.433,
Private health care provider	18 (26.5)	24 (31.2)	1(33.3)	7 (25.9)	3 (60)	53 (29.4)	d.f.= 4,
Traditional healers	5(7.3)	3 (3.9)	0 (0)	3 (11.2)	0 (0)	11 (6.2)	p =0.83.
2.Decision maker of seeking health care							χ^2 = 10.67, d f = 4, p = 0.03
Self	57(83.8)	52(67.5)	1 (33.3)	18(66.7)	2(40)	130 (72.2)	
Others	11 (16.2)	25 (32.5)	2 (66.7)	9(33.3)	3(60)	50 (27.8)	
3. Cause of delay in seeking health care							χ^2 = 1.732, d f = 4, p = 0.7
Busy with work	35 (51.5)	40 (51.9)	2 (66.7)	17 (62.9)	2 (40)	96 (53.3)	
Thought to be subsided	31 (45.6)	32 (41.5)	1 (33.3)	9 (33.3)	3 (60)	76 (42.3)	
Lack of family support	2 (2.9)	5 (6.6)	0 (0)	1 (3.8)	0 (0)	8 (4.4)	
4. Delays							
I.Patient delay (Days)							
≤ 7	45(66.2)	37(48.1)	1(33.3)	11(40.7)	2 (40)	96 (53.3)	χ^2=8.23, d f=4, p=0.08
8 - 14	8(11.8)	20(25.9)	2(66.7)	9 (33.3)	0(0)	39(21.7)	
15 - 21	11(16.2)	9 (13.2)	0(0)	4 (14.8)	2 (40)	26(14.4)	
22 - 28	2 (2.9)	4 (5.9)	0 (0)	0 (0)	0(0)	6 (3.3)	
>28	2(2.9)	7 (6.9)	0 (0)	3 (11.2)	1(20	13 (7.3)	
II.Health system delay							
a. Diagnosis delay (Days)							
≤ 7	47 (69.1)	54 (70.1)	0 (0)	16(59.3)	4(80)	121(67.3)	
8 - 14	13 (19.1)	16 (20.8)	1(33.3)	8(29.6)	1(20)	39 (21.6)	χ^2=44.01, d f=4, p= 0.001
15 - 21	6(8.8)	6(7.8)	2(66.7)	3(11.1)	0(0)	17 (9.4)	
22 - >28	2(3.0)	1(1.3)	0(0)	0(0)	0(0)	3 (1.7)	
b. Treatment delay (Days)							
≤ 7 days	65(95.6)	76 (98.7)	1(33.3)	21 (77.8)	2 (40)	165(91.6)	
> 7 days	3 (4.4)	1 (1.3)	2(66.7)	6 (22.2)	3 (60)	15 (8.4)	
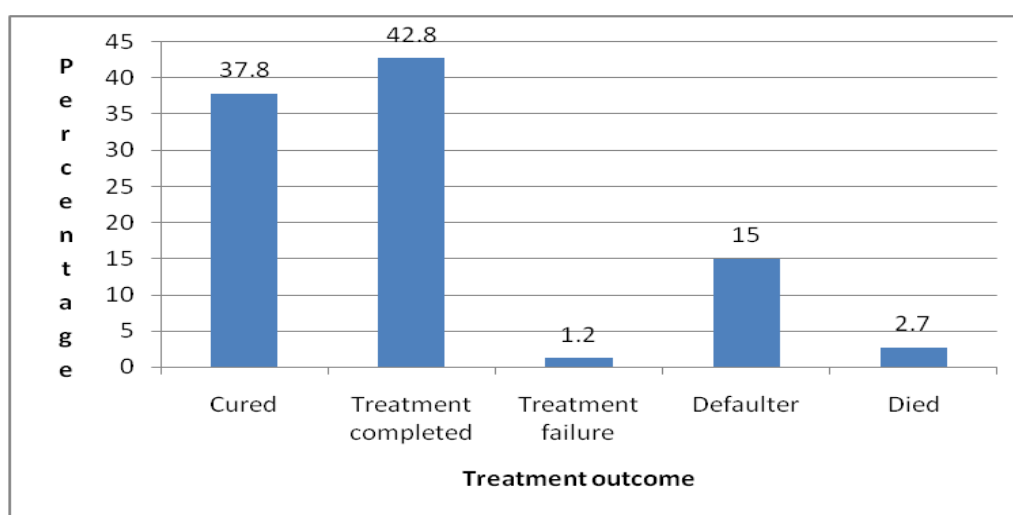
Fig.1. Patients distribution according to treatment outcome (n= 180)

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