



CHALLENGES IN INITIATION OF TREATMENT OF MULTI DRUG RESISTANT-TB PATIENTS: A HOSPITAL BASED CROSS SECTIONAL STUDY IN JHARKHAND.

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ABSTRACT

BACKGROUND: Multi-drug resistant tuberculosis has become major public health problem and obstacle to effective control of tuberculosis. Over a period of time, there are several landmark achievements including policy and system preparedness for universal access to TB care including mandatory notification of TB cases, development of standard for TB care in India, comprehensive real time TB information management system-NIKSHAY, use of rapid molecular diagnostics, successful innovations in private sector engagement for TB care-Universal access to TB care. Objective was to find out the challenges in initiation of treatment of Multi Drug Resistant-TB patients get admitted in Itki Sanatorium Ranchi Jharkhand.

METHODS: It was a hospital based cross sectional study carried out from August 2016 to Nov.2018 on Multi drug resistant tuberculosis patients admitted in MDR-TB centre Itki Sanatorium Ranchi after approved from institutional ethics committee. Total study subjects included in study was 64.

RESULTS: Most of the study subjects 58 (90.6%) did not know about the MDR-TB. Most of the study subjects 40 (62.5%) had been given reports of CB-NAAT test on same day followed by study subjects 24 (37.5%) on alternate day. No one study subjects 64 (100%) had been given any type of incentive for travelling to pretreatment evaluation centre. In above table, most of the patients 51 (79.7%) had made payment for investigations at district hospital/ SDH level followed by 13 (20.3%) who were free of any expenditure for investigations. Most of the study subjects 60 (93.7%) were not visited by any health staff between final diagnosis of MDR-TB and initiation of treatment for MDR-TB followed by subjects 4 (6.3%) who were being visited by health staff. Most of the study subjects 48 (75%) were unaware about the NIKSHAY POSHAN SCHEME for MDR-TB patients followed by subjects 16 (25%) who knew about the NIKSHAY POSHAN SCHEME for MDR-TB patients by means of various medium.

KEYWORDS : MDR-TB, Challenges, Treatment, Hospital based.

INTRODUCTION

Multi drug resistant tuberculosis (MDR-TB) is an important public health problem in India¹. Timely identification of MDR-TB cases and prompt initiation of treatment is crucial to prevent the transmission of disease and to reduce related high morbidity and mortality². Undiagnosed, untreated or improperly treated patients with MDR-TB are a source of ongoing transmission of resistant strains within the community³. Globally, prevalence of MDR-TB is estimated to be <3% among new cases and 14-17% among the retreatment cases⁴. In India, with an estimated annual incidence of more than half a million cases, Multi drug resistant TB is the highest burden of tuberculosis. It is also estimated that the about 99000 MDR-TB cases occur in the country of INDIA annually⁵. An inadequate or poorly administered treatment regimen allows drug resistant mutants to become the dominant strain in a patient infected with Tuberculosis. There are several causes of inadequate treatment which may come under various levels, such as, providers/programs level/Drug level/patient level. The most serious danger of MDR-TB is that it is more difficult to treat, even where second line drugs are available. Treatment of MDR-TB can take at least 2 years, but results are poor. Present study was done to determine the challenges in initiating treatment for MDR TB patients in Jharkhand.

MATERIALS AND METHODS:

Place Of Study: The present study was carried out at Itki sanatorium of Ranchi district of Jharkhand. Itki sanatorium is one of the largest centre for treatment of MDR-TB in Jharkhand and patients from every corner of state referred here for treatment. **Study Design:** This was a hospital based cross sectional study. **Study Period:** Total duration of study: 28

months, from August 2016 to Nov 2018. **Inclusion Criteria :-a)** All MDR-TB patients of Ranchi district transferred to Itki Sanatorium through government health facility channels .b) Age above 5 yrs C) Those who gave their consent to participate in study. **Exclusion Criteria:** a) X-DR TB patients, b) Patients not willing to participate in study.

Sampling Technique & Sample Size: The sampling method used in the study was total consecutive sampling. Total no. of MDR-TB patients of Ranchi district getting admission for pre-treatment evaluation for MDR-TB from September 2017 to August 2018 were 73. Among 73 patients, 6 patients were of XDR-TB and 3 patients were non co-operative. So the final sample size came out to be 64. All the patients were interviewed in Itki Sanatorium Ranchi.

Data Collection Techniques: The subjects were explained about the purpose of study. Data was collected by interview method using the pre tested semi-structured questionnaire. Interview was done after taking informed consent from each of the study subjects.

Data Entry and Analysis: A standard template was created in Microsoft-Excel sheet for data entry. Data entry was done in MS excel spreadsheet. The data were analyzed by using SPSS software 20.0 version.

Ethical approval: Study was approved from institutional ethical committee of RIMS, Ranchi.

RESULTS:

Most of the study subjects 58 (90.6%) did not know about the MDR-TB. Only six subjects (9.4%) knew about the MDR-TB that

contacts with MDR-TB or not taking drugs properly caused MDR-TB. None of the study subjects 64 (100%) had been reimbursed for travelling to pre-treatment evaluation centre from their residence. Most of the study subjects 40 (62.5%) had been given reports of CB-NAAT test on same day followed by study subjects 24 (37.5%) on alternate day. No one study subjects 64 (100%) had been given any type of incentive for travelling to pretreatment evaluation centre. In above table, most of the patients 51 (79.7%) had made payment for investigations at district hospital/SDH level followed by 13 (20.3%) who were free of any expenditure for investigations. Most of the study subjects 60 (93.7%) were not visited by any health staff between final diagnosis of MDR-TB and initiation of treatment for MDR-TB followed by subjects 4 (6.3%) who were being visited by health staff. In this table most of the study subjects 48 (75%) were unaware about the NIKSHAY POSHAN SCHEME for MDR-TB patients followed by subjects 16 (25%) who knew about the NIKSHAY POSHAN SCHEME for MDR-TB patients by means of various medium. Most of the study subjects 29 (45.3%) were not satisfied followed by 19 (29.7%) not satisfied and 16 (25%) satisfied regarding government public health care delivery system. (Table 1)

In the present study, the factors which was significant by univariate logistic regression (sex, Sputum smear status before starting ATT treatment, Sputum smear status after 2 months treatment of intensive phase, Missing doses during treatment, Knowledge about NIKSHAY Poshan Yojana) was taken for multivariate logistic regression found that knowledge about about NIKSHAY Poshan Yojana (OR=6.39, 95% CI= 1.24, 32.8) was the only valuable found significant as independent risk factors for non cure among MDR-TB patients. (Table 2)

Among Doctors knowledge level was good compared to other health personnel which had mean value 7.33 (± 2.79), Lab.Technician 3.45 (±2.64), STS 4.67 (± 1.59), Sahiya 2.1 (± 0.73). Regarding capacity enhancement level all health personnel needed refresher trainings in which doctors got 4.67 (±1.58), Lab. Technician 3.45±2.64, STS 1.72±0.34, and Sahiya 0.5±0.52. Specially sahiya needs training regarding MDR-TB because they are the connecting link between health system and community. Regarding execution level, Doctors got 1.86(±0.74), Lab. Technician 1.64(±0.56), STS 1.64 (±0.56) and sahiya (ASHA) 2.2(±0.4). Sahiya were better than other health personnel at execution level.

Table 1: Distribution of study subjects on the basis of knowledge and challenges about MDR-TB (N=64)

Variables	Frequency (%)
Knowledge about MDR-TB	Yes 06 (9.4)
	No 58 (90.6)
Reimbursement for travelling	Yes 0 (0)
	No 100 (100)
CB-NAAT report given	Same day 40 (62.5)
	Alternate day 24 (37.5)
Payment done for investigations	Yes 51 (79.7)
	No 13 (20.3)
Contact done to MDR-TB patient by any person	Yes 4 (6.3)
	No 60 (93.7)
Knowledge about nikshay poshan scheme	Yes 16 (25)
	No 48 (75)
Satisfaction level	Satisfied 16 (25)
	Partially satisfied 19 (29.7)
	Not satisfied 29 (45.3)

Table 2. Independent risk Factors for non cure among TB patients in Ranchi district identified by multivariate logistic regression analysis. (N=64)

Characteristics	Adjusted odds ratio(95% CI)	P-value
Sex	Male 1.29 (0.22-7.55)	0.77
	Female 1	

Sputum smear status before starting ATT treatment	negative	1.72 (0.67-4.43)	0.25
	positive	1	
Sputum smear status after 2 months treatment of intensive phase	negative	1.06 (0.46-2.47)	0.87
	positive	1	
Missing doses during treatment	yes	2.12 (0.69-6.51)	0.18
	no		
Knowledge about NIKSHAY Poshan Yojana	No	6.39 (1.24-32.8)	0.02
	yes	1	

Table 3: Assessment of the gaps in health system regarding the challenges in diagnosis and initiation of treatment in MDR-TB patients.

Types of health personnels	Numbers	Parameters	Mean ± SD	Maximum score
Doctors	15	Knowledge level	7.33±2.79	13
		Capacity enhancement	4.67±1.58	6
		Execution	1.86±0.74	3
Lab.Technician	05	Knowledge level	3.45±2.64	10
		Capacity enhancement	2.34±1.72	6
		Execution	1.64±0.56	3
STS	15	Knowledge level	4.67±1.59	8
		Capacity enhancement	1.72±0.34	3
		Execution	3.54±0.74	6
Sahiya (ASHA)	15	Knowledge level	2.1±0.73	6
		Capacity enhancement	0.5±0.52	2
		Execution	2.2±0.44	4

DISCUSSIONS:

In present study ,most of patients 35 (54.7%) did not know about DOTS therapy, 42 (65.65%) were not counselled by any health worker before taking ATT drugs, 31.3 % DOTS providers were family members, 39 (60.9%) cases had the history of missing doses in which 53.85% cases in continuation phase,34.4% cases had no history of follow up visits. In a study done by Maharaj,J, Ross A, Maharaj NR,Campbell L,⁶ 25% people were not aware about MDR-TB, 14.7% people had the history of missing doses.

IN present study the mean duration of taking ATT before starting treatment for MDR-TB were 2.13 (±1.17). Study done by Maharaj, J, Ross A. Maharaj NR, Campbell L,⁶ in which mean number of ATT taken before start of category IV was 2.85. However no significant difference was found between education of the patient and regularity of treatment.

Most of the study subjects 23 (35.9%) were defaulters who withdrew treatment due to no improvement in their symptoms (52%) followed by 19(29.7%) were completed category,10 (15.6%) were failure and 8 (12.5%) were new cases. Study by Thuy Thi Thanh Hoang, Nhung Vie⁷ Nguyen found that 34.3 % were defaulters, 46.6% were relapsed and 31.7 % were others.

IN present study, most of the study subjects 33 (51.6%) were getting reports of CB-NAAT test on alternate day, 35 (54.7%) study subjects were not taking preventive measures during coughing/sneezing, none of them had medical insurance, and 58(90.6%) study subjects had no knowledge about MDR-TB. None of them got reimbursement for travelling to pre-evaluation centre Iki sanatorium. Most of the study subjects 48 (75%) were unaware about the NIKSHAY Poshan yojana for supporting nutritional support to all MDR-TB patients.

CONCLUSIONS:

There was 'No Provision' known for their reimbursement of conveyance expenses. 79.7% of study subjects had paid charges at the time of primary investigation at District level

centres.75% of study subjects had been found of not having any Knowledge about NIKSHAY POSHAN YOJANA, whereas, the scheme is for nutritional support for all MDR-TB patients.

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