Original Research Article

STUDY TO ASCERTAIN MAJOR CAUSES OF DELAY IN INITIATION OF TREATMENT IN TUBERCULOSIS PATIENTS

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ABSTRACT

Background: Delay in initiation of anti-tuberculosis treatment contributes to continued transmission and poor outcomes. The objective is to identify factors associated with delay in initiation of treatment among tuberculosis patients.
Materials and Methods: A prospective cross-sectional study was conducted among 200 newly diagnosed TB patients registered under NTEP.
Results: Delay was significantly associated with distance >5 km from hospital (p=0.02).
Conclusion: Distance from healthcare facility remains a key determinant of treatment delay.

Keywords: Tuberculosis; Treatment Delay; NTEP; Distance; India

INTRODUCTION

In 2017, India reported 2.8 million new TB cases, yet only 63% were notified and treated.[1] Untreated sputum-positive cases remain the primary source of infection, creating a significant public health challenge. Delayed initiation of Anti-Tuberculosis Treatment (ATT) increases the risk of drug resistance, mortality, and ongoing transmission.[2] Despite free government services and extensive advertising through the National Tuberculosis Elimination Program (NTEP), many patients still present with advanced disease and permanent lung damage. Studies for factors leading to healthcare delay have been done as illustrated in the review of literature section, yet the outcome from the health program continues to be not satisfactory. A focused study on factors leading to delay in proper diagnosis and treatment of infectious cases of pulmonary tuberculosis is a need of the hour before changes in health policy regarding the same. This study investigates the factors contributing to these delays to inform health policy changes.

MATERIALS AND METHODS

This was a prospective, observational cross-sectional study. All newly diagnosed pulmonary and extra pulmonary tuberculosis patients reporting to DOTS centre referred from any OPD and registered under NTEP and belonging to the geographical area covered by the District TB centre of AFSMS who met our inclusion and exclusion criteria were taken up as study group. The enrolment was done through out-patient department (OPD) over a period of 1 year. The study included 200 newly diagnosed adult TB patients reporting to the DOTS center over one year.

Inclusion Criteria
Newly diagnosed adult TB patients (pulmonary and extra pulmonary) providing verbal and written consent and Patients presenting in OPD during the study period of one year.

Exclusion Criteria
Pediatric patients and admitted patients (as treatment for the latter is started without delay).

Data Collection: Patients were interviewed regarding symptoms (cough, fever, weight loss, etc.), duration of symptoms, and history of seeking medical attention (self-medication, private providers, or government setups). Patients were asked about the

time duration of first investigation and place of where the investigation was done. Details of first investigation and their times- Sputum smear/Chest X-ray/ Blood test/ Serology/ Skin test/ none were recorded. Time gap from the onset of symptoms diagnosis and initiation of treatment were also seen. Distance from the healthcare center was also recorded. The data were collected and entered into MS 2010.

Statistical Analysis: Data were analyzed using R software (v4.0.2). Normality was tested via the Kolmogorov–Smirnov test. Categorical variables were analyzed using the Chi-square test, and $P < 0.05$ was considered statistically significant.

RESULTS

Over a period of 1 year, 200 newly diagnosed TB patients were enrolled into the study. These included 116 (58%) pulmonary and 84 (42%) extrapulmonary TB cases. The gender distribution was almost equal- 101(50.5%) female and 99(49.5%) male patients. Most patients were in the age group of 16-30 years (41%), followed by > 46 years (26.5%), then similar patients in <15 years and 31-45 years age group. Delay was defined as greater than 2 weeks time lag from onset of symptoms till the start of ATT. Delay was found to be significantly associated with distance of greater than 5 kms from the hospital.

Age wise, delay was found to be more among the elderly, more in pulmonary TB patients as compared to extrapulmonary, gender wise there was equitable distribution. However, these findings were not statistically significant.

Table 1

Factors affecting delay	N=200	No.	%
AGE	≤15	33	16.5
	16-30	82	41.0
	31-45	32	16.0
	>46	53	26.5
GENDER	Female	101	50.5
	Male	99	49.5
SITE	Extrapulmonary	84	42.0
	Pulmonary	116	58.0
DISTANCE	<=5	43	21.5
	6-15	102	51.0
	>15	55	27.5

Table 2

Delay in treatment	Frequency	%
≤ 14 years	130	65.0
≥ 15 years	70	35.0
Total	200	100.0

Table 3

Factors affecting delay		No Delay	Delay in treatment	P Value
Age (in years)	≤15	21	12	
	16-30	53	29	P=0.79
	31-45	19	13	
	>46	37	16	
Gender	Female	65	36	P=0.84
	Male	65	34	
Site	Extrapulmonary	52	32	P=0.43
	Pulmonary	78	38	
Distance (of residence from hospital in kms)	<=5	35	8	P=0.02
	6-15	65	37	
	>15	30	25	

DISCUSSION

The studies done previously have divided the time lag from onset of symptoms to initiation of ATT into patient associated delay, diagnostic delay and treatment delay. The total delay being more than 40 days. It is imperative to note that all these studies were conducted before 2019.[3]

Active case finding leads to faster detection and timely initiation of ATT. However, in suburbs and periphery, we are still dependant on passive case finding.

India aims to eliminate TB by 2025, requiring minimal lag between symptom onset and ATT initiation. This study utilized a 2-week threshold to define significant delay. Our findings align with previous research indicating that physical distance (>10 km) is a major impediment to diagnosis and treatment.[4]

In contrast to studies in South-East Delhi or Mumbai, which found gender and facility type to be significant, our study identified geographical access as the primary statistically significant barrier.[5] Another study pointed to addiction, co-morbidity,

and awareness of monetary benefits as significant contributors to total delay in pulmonary TB patients which is in contrast with our study where distance was found to be the factor for delay in ATT.[6] The reliance on passive case finding in suburban areas places the "onus" on the patient to reach a facility, highlighting the need for improved accessibility and active case finding to reduce transmission.[7] Lack of knowledge about TB, stigma, and depression were also found to be the contributry factors.[8]

CONCLUSION

The study identifies distance from healthcare facilities as a major factor for treatment delay in Faridabad. To meet elimination targets, the national program must focus on decentralizing diagnostic services and addressing the barriers that prevent patients from reaching health systems in time.

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