Cross-Sectional Study:

A Study of Tuberculosis Patients for Compliance with Their Treatment

ABSTRACT:

Background: Tuberculosis is a chronic transmissible infection requiring long-term treatment. The treatment regimens are highly effective, but poor adherence to medication remains a significant barrier to its global control.

Objectives: To study the profile of TB patients, identify the reasons for non-compliance with DOTS treatment among tuberculosis patients, and find solutions for improvement.

Materials and Methods: This cross-sectional study was conducted in Karachi, Sindh. A total of 191 patients were included in this study, enrolled during the period from January 2016 to December 2017. A predesigned proforma was used to collect details of each patient. Patients who defaulted on treatment were followed up both telephonically and in person.

Results: Out of the total 145 patients, 31 (18.1%) did not adhere to treatment. Non-compliance was more common among elderly patients (33.8%). Side effects from medication and lack of awareness were the most commonly reported reasons (31.9%).

Conclusions: Non-compliance was primarily due to side effects of medication and lack of awareness. Therefore, educating patients about various aspects of tuberculosis and implementing measures to reduce side effects is of utmost importance.

Keywords: Rebelliousness, Tuberculosis, Side Effects, DR-TB

INTRODUCTION

It is believed that one-third of the global population is infected with M. tuberculosis, with new infections occurring at a rate of about one per second [1]. Currently, there are approximately 33,400 new cases of active tuberculosis in Pakistan [2]. In Pakistan, tuberculosis primarily affects the elderly, the rural and urban poor, and people with AIDS. The National TB Program (NTP) was initiated in Pakistan [3, 4]. After a review and recommendations, the Revised

Tuberculosis Control Program (DR-TB) began in 2009, with objectives to achieve at least a 67% cure rate for newly diagnosed sputum smear-positive TB patients and to detect at least 70% of new smear-positive patients once the first goal is met [2]. The entire country was covered under DR-TB by 2012. Directly Observed Treatment Short-course (DOTS) is the core strategy of DR-TB. It is mandatory for TB patients to take anti-TB medications correctly and completely. However, the long duration of treatment often leads to non-adherence (non-compliance), resulting in drug-resistant tuberculosis. Both patient-related and provider-related factors can affect compliance.

Patient-related factors include a lack of belief in the severity of the disease or the effectiveness of treatment; the presence of co-existing medical conditions (notably substance abuse); lack of social support; and poverty, including unemployment and homelessness. Provider-related factors that can improve compliance include educating and encouraging patients, offering convenient clinic hours, and providing incentives such as meals or travel vouchers.

METHODOLOGY:

The study was conducted in August 2017 and included all patients registered during the period from January 2016 to December 2017. This cross-sectional study was conducted in Karachi. All patients registered at three Designated Microscopy Centers (DMCs), under the only Tuberculosis Unit (TU) in Karachi, were included. A total of 156 patients were studied. An elucidative study was conducted, involving different modes of transmission (4 items). A scoring scale from 0 to 10 points was used, awarding 1 point for each correct answer and 0 for each incorrect one. Higher scores indicated better knowledge. A predesigned proforma was used to collect patient details. Treatment cards were obtained from the DMCs, and all required information was recorded. Patients who defaulted were followed both telephonically and in person. The collected data were digitized and manually analyzed.

RESULTS:

Table 1: Distribution of Total Patients and Non-Compliance According to Demographic and Clinical Characteristics (n = 156)

No.	Factors (n = 156)	Total Patients (%)	Non-Compliance (n=28)

			(%)
1	**Age groups (in years)**		
	<15	5	0 (0)
	15-30	52	2 (4.7)
	31-45	95.94	15 (19.2)
	>45	39.36	11 (34.3)
2	**Sex**		
	Male	126.69	23 (22.3)
	Female	65.19	5 (9.4)
3	**Religion**		
	Hindu	120.54	25 (25.5)
	Muslim	51.66	2 (4.7)
	Other	19.68	1 (6.2)
4	**Occupation**		
	Service	35	7 (24.1)
	Laborer	97	11 (13.9)
	Housewife	22	4 (22.2)
	Retired	23	3 (15.7)
	Unemployed	14	5 (45.4)
5	**Type of Disease**		
	Pulmonary	188	28 (18.3)
	Extra Pulmonary	5	0 (0)

6	**Type of patients**		
	New	41	9 (27.2)
	Treatment after default	99	7 (8.6)
	Failure	21	3 (17.6)
	Relapse	38	9 (36)
7	**Category of Treatment**		
	Category – 1	60	7 (14.2)
	Category – 2	114	20 (21.5)
	Category – 3	17	1 (7.1)
8	**HIV Status**		
	Unknown	91	8 (10.8)
	Positive	4	1 (33.3)
	Negative	97	9 (11.39)

Table 2: Most Common reasons for non-compliance

No	**Reasons**	**Number**	**Percentage**
1	Not satisfied with the service of the DOTS provider	4	10.7
2	Expenses	0	0
3	Side effects	11	31.9
4	Lack of awareness	11	31.9
5	Improvement in symptoms	5	13.8

6	No relief in symptoms	7	22.1
7	Others	6	17.8

Table I shows that 34 (18.1%) of the total 156 patients did not adhere to treatment. The highest default rate (11, 33.8%) was in patients over 45 years of age. Among the Hindu community, 25 (26.2%) patients defaulted. The default rate was higher (5, 45.5%) among unemployed patients. The default rate was 26.78% in new sputum-positive cases compared to 36% in relapse cases. Among 3 HIV-positive patients, 1 (33.3%) did not adhere to treatment.

Table II shows that side effects of medication were the most commonly reported reason (32.1%) for non-compliance. Other reasons included lack of care (32.1%), lack of awareness (31.9%), improvement in symptoms (13.8%), and lack of relief in symptoms (22.1%).

DISCUSSION:

The presence of acid-fast bacilli (AFB) in a sputum sample usually indicates active tuberculosis. Microscopic examination for AFB is a simple and fast method, but it does not confirm TB diagnosis, as some acid-fast bacilli are not M. tuberculosis. Therefore, confirmation is done through culture of initial samples. However, a culture-positive result is not always necessary to begin or continue treatment. A positive culture for M. tuberculosis confirms TB disease. All culture samples must be analyzed, regardless of smear results. Laboratories must notify primary care providers and national TB control programs of positive smears and cultures within 24 hours.

In the present study, 18.1% of the 191 patients did not adhere to treatment, much higher than the DR-TB expectation (<5%). Non-compliance in patients over 45 years (34.3%) may be due to self-neglect, lack of family support, more severe side effects, and poor awareness. Non-compliance was higher in the Hindu community compared to the Muslim community, which warrants further large-scale studies to explore underlying causes.

RECOMMENDATIONS

Non-compliance was mainly due to medication side effects, lack of awareness, and either symptomatic relief or no relief over time. A chest radiograph can help detect pulmonary abnormalities. Lesions can occur in any part of the lungs and may vary in size, shape, density, and cavitation. Although these findings may indicate TB, they are not sufficient for a definitive diagnosis. A chest X-ray may be used to rule out pulmonary TB in asymptomatic individuals with a positive tuberculin skin test or blood test. Efforts should be made to reduce anti-TB drug side effects without increasing pill burden.

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