Brief Research Article

Reasons for the Delay in the Initiation of Treatment and Initial Default among Drug-resistant Tuberculosis Patients in Ahmedabad Corporation Area

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Summary

The emergence of drug-resistant tuberculosis (DR-TB) has become a significant health problem in India. Delays in diagnosis and treatment initiation are frequently observed among patients with DR-TB, resulting in an increased risk of disease complications and high mortality and pretreatment lost to follow-up rates. To understand the factors associated with delays between the diagnosis and treatment, the study was carried out in Ahmedabad Municipal Corporation Area. A total of 177 DR-TB patients diagnosed in the year 2014 who had a delay in the initiation of treatment, and 23 initial defaulters were studied using a structured questionnaire. Fifty-four DOTS providers were also interviewed. Of 177 patients, 62.15% initiated treatment between 7 and 15 days and nearly 12% of them started the treatment after a month. The median duration of delay was 12 days (range: 8–144 days and interquartile range: 9–20 days). The most common reason for the delay in the initiation and initial default was the social and personal factors (48.80%), and in 34 (20%) of the patients, the delay was attributed to the effect of the previous treatment.

Key words: Defaulter, delay, drug resistant, treatment, tuberculosis

The emergence of resistance to drugs used to treat tuberculosis (TB) has become a significant health problem in a number of countries and an obstacle to effective TB control.[1] India is one of the high multidrug-resistant TB (MDR TB) burden countries, as the estimated percentage of new TB cases and retreatment cases with MDR TB was 2.1% (1.5–2.7) and 15% (13–17), respectively.[2] In Gujarat, the estimated prevalence of MDR TB cases was 2.4% (1.6–3.1) in new cases and 17.4% (15–19.7) in retreatment cases.[3]

India began the implementation of the programmatic management of drug-resistant tuberculosis (PMDT) in 2007 and has gradually expanded the services nationwide.[4] The state of Gujarat got the privilege to initiate PMDT services first in the country from March 2007, as the required prerequisites were fulfilled.

Improperly treated patients with resistant strains of TB are a source of ongoing transmission of resistant strains, resulting in added future costs. Ongoing transmission of established drug-resistant (DR) strains in health-care facilities is also believed to be a major source of new DR cases.[1] Delays in diagnosis and treatment initiation are frequently observed among patients with DR-TB, resulting in an increased risk of disease complications and high mortality and pretreatment lost to follow-up rates.[5]

Timely identification and prompt initiation of treatment prevent the patient from spreading the disease to others, acquiring further resistance and progress of the disease.[6] This study was undertaken to assess the reasons for the delay in the initiation of the treatment and initial default among DR-TB patients in Ahmedabad, Gujrat.

The present study was carried out from April 2014 to April 2015 in Ahmedabad Municipal Corporation Area. Patients were selected retrospectively by reviewing the records of

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TB registers, laboratory registers, and treatment cards of all patients with DR-TB, followed by the structured interviews of DR-TB patients and respective DOTS providers.

As per the data, 10%–20% of the DR-TB patients were initial defaulters and 30%–40% had a delay in the initiation of treatment. In the year 2012, 411 DR-TB cases were reported from Ahmedabad Municipal Corporation Area. Considering an average of 15% initial defaulter rate and 35% as delay in the initiation of treatment rate, the estimated sample size was 200. All the initial defaulters (23) were included in the study, and of 248 patients having a delay in the initiation of treatment (1st quarter of 2014 to the 4th quarter of 2014), 177 were studied.

Some of the operational definitions (as per the guidelines) followed in this study:

- Delay in the initiation of treatment: DR-TB cases who initiated the treatment 7 days after the diagnosis
- Initial defaulter: DR-TB patients who have failed to initiate the treatment after the diagnosis under the program[1]
- Patient delay (personal and social): Duration in days from the onset of symptoms to the first health-care seeking action taken by patients
- Health system delay (program delay): Duration in days between the first action taken by the patients and date of sputum examination for the diagnosis of TB[7]
- Effects of previous treatment: It includes adverse effects due to previous anti-TB treatment
- Alternative treatment: It includes taking Ayurvedic or Homeopathic medicine.

We conducted a pilot study for testing the structured predesigned pro forma, and necessary corrections were made accordingly. Initially, we collected the tuberculosis unit (TU) wise list of DR-TB patients in every quarter and reviewed the treatment cards. After identifying the patients who had a delay in initiation (collected from treatment card) and initial defaulters [obtained from Annexure III], a list of the patients was given to the field investigator along with the checklist pro forma. The field investigator visited the patient's house and DOTS center to interview patients and the DOTS provider, respectively. Privacy was ensured, and informed consent was obtained from participating patients and providers. Repeated visits were made if the patients were not available on the first visit. Ethical approval was obtained from the Institutional Ethics Committee, B. J. Medical College and Civil Hospital, Ahmedabad.

Two-third (77%) of the studied patients was in the age group of 15–44 years, and the majority of them were males (64.41%). The overall median age was 30 years (range: 7–80; males: 32 years and females: 28 years). No significant difference was observed between the age and gender (Yates $\chi^2 = 7.14$, $P > 0.05$). Of 177 patients with a delay in the initiation of the treatment, 62.15% initiated the treatment between 7 and 15 days and nearly 12% of them started the treatment after a month. The median duration of delay was 12 days (range: 8–144 days, interquartile range: 9–20 days). Males (42.11%) and females (30.16%) initiated the treatment after 15 days; however, there was no significant gender difference in the duration of delay in the initiation of the treatment ($\chi^2 = 3.54$, $P > 0.05$).

Almost half (48.80%) of the patients delayed the treatment because of some social and personal factors (such as temporary migration, lack of knowledge of the seriousness of the disease, function in the family, time taken for deciding to start the treatment, and belief in superstition). In 34 (20%) of the patients, the delay was attributed to the effect of previous treatment (such as fed up of taking medicines, side effects of previous treatment, and weakness due to the previous treatment) [Table 1].

Program factor alone contributed to one-fifth (18.80%) of the patients for a reason for the delay in starting the treatment. In 38 patients, program factor was responsible for the delay along with the social and personal factors.

Of total 23 initial defaulters, 14 were in the age group of 15–44 years and 8 were in the age group of 45–64 years. Three-fourths of the initial defaulters were male. Nineteen of 23 initial defaulters could be interviewed to elicit the reasons for the default [Figure 1]. The most common reason elicited was the social factor followed by seeking treatment from the private sector, as they did not get a cure with the previous treatment.

Nearly 50% of the patients delayed the initiation of the treatment because of social and personal factors. Sustained efforts should be made to counsel and motivate the patients and their family members for the support to initiate the treatment. Provider–patient communication plays an important role as few of the patients were not aware of the seriousness of the disease. About 12% of the patients need special effort as they delayed the treatment for more than a month due to the temporary migration and seeking alternative treatment.

Table 1: Reasons for the delay in the initiation of the treatment among drug-resistant tuberculosis patients

Category of reasons	Male ($n=111$), *n* (%)	Female ($n=62$), *n* (%)	Total ($n=173$)*, *n* (%)	*Z*
Patient delay (social and personal factors)[@]	51 (45.95)	35 (56.45)	86 (48.80)	1.33**
Health system delay (program factors)[#]	22 (19.82)	10 (16.12)	32 (18.80)	0.52**
Effect of previous treatment	25 (25.52)	09 (14.52)	34 (20.00)	1.81**
Taken alternative treatment	13 (11.71)	08 (12.90)	21 (12.40)	0.23**

*Information not available/included for four patients, **Nonsignificant, [@]Social and personal factors include factors such as temporary migration, seeking alternative treatment, unaware about the seriousness of the disease, function in the family, belief in superstition, lack of faith in medication, and long distance of the center. [#]Program factors include factors such as delay in receiving the laboratory reports and not being informed by the provider

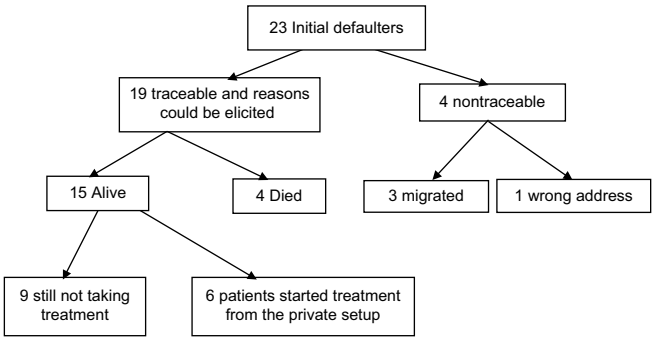

Figure 1: Details of the initial defaulters.

Retreatment patients are more likely to experience delays than new patients.[8] Since the majority of the DR patients were treated earlier and the reason for the delay observed in the study was side effects and lack of confidence with the previous treatment as they were not cured previously (stated by 20% of the patients). These patients should be treated with more concern and require intensified pretreatment counseling on the importance of early initiation of treatment. In a few of the initial defaulters, lack of faith in the previous treatment has led them to seek alternative treatment. Measures should be tailored to the individual patient's circumstances based on the patient's personal factors and acceptable to both the patient and the provider. Reassuring a patient and providing supportive treatment must take account of the practice of seeking second opinions and hindrances experienced due to the side effects experienced during previous drug administration.[8] Previous treatment should include a comprehensive package of adherence interventions, as few studies reported that using financial support, transport reimbursement and nutrition tended to have lower default rates.[9]

Men were more likely to be unwilling for the initiation of the treatment because of the problems associated with the loss of daily wages.[10] In this study also, the majority of the delayed patients reported that it is difficult to visit treatment facilities during working hours because of fear of losing daily wages. This can be addressed by providing the treatment at a location and time which is convenient to the patients to prevent the loss of daily wages and maximize the access.

Another important reason for the delay in initiation was the program factor which includes delay in receiving the laboratory report and information not provided by the provider. Studies among new pulmonary TB patients also observed that delay in getting the sputum report was the important reason for the delay in treatment.[11] From the laboratory, details of confirmed cases of DR-TB are sent to respective TUs on the same day. Due to the lack of infrastructure and Internet facilities at the TUs, there is a delay in receiving the report. Actions were being taken by sending the ward-wise report to minimize the delay. However, apart from sending the report through e-mail, the TU and DOTS provider can be informed on the same day through the SMS alert.

Alarmingly, 9 of 19 initial defaulters who could be traced still not initiated the treatment is a matter of concern, as defaulting from the treatment can lead to patients at higher risk of mortality and morbidity and may contribute to further spread of DR-TB in the community. Both social and personal factors and the effect of previous treatment were the main reasons for the delay in the initiation and initial default. As soon as the sputum is sent for drug-susceptibility testing of the suspected DR patients, there is a need for home visits to prepare the patient as well as family members. The involvement of the nongovernmental organizations for the counseling of the patients can be explored. Migration can be mitigated by encouraging patients to report if they are migrating and making available the treatment in all areas.

One important finding of this study was that the median duration of delay in the initiation of the treatment was 12 days that suggests their willingness to take the treatment. Little extra efforts in motivating the patient and sending the laboratory report timely can reduce substantially the delay in the initiation of the treatment.

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Conflicts of interest

There are no conflicts of interest.

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