CORRESPONDENCE

Pre-diagnosis attrition in patients with presumptive MDR-TB in Bhopal, India, 2015: a follow-up study

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Globally, India had the highest estimated number of multidrug-resistant/rifampicin resistant tuberculosis (MDR-/RR-TB) cases among notified pulmonary TB cases in 2014 and 2015 (71 000 and 79 000, respectively).^{1,2} Bhopal is the capital city of the state of Madhya Pradesh in Central India. Bhopal District has one district TB centre (DTC), five TB treatment and management units (TUs) and 24 designated microscopy centres (DMCs) for TB diagnosis based on acid-fast bacilli testing. According to national guidelines, if a TB patient had suspected MDR-TB, sputum, aspirate or fluid samples were sent by the DMCs for genotypic drug susceptibility testing (DST) to the national reference laboratory (NRL) in the district.³ After referral, the patient's information was logged in the 'referral for culture and DST register' at the DTC. If diag-

nosed with MDR/RR-TB, the patient was traced and referred to the drug-resistant TB (DR-TB) centre in the district for treatment initiation. Dates were routinely recorded at each step. The diagnosis and management of MDR-TB in India (Programmatic Management of DR-TB) were in line with the existing World Health Organization recommendations at the time.³

In 2014, we observed a high pre-diagnosis attrition rate of 60% (459/770) among patients with presumptive MDR-TB (eligible for DST) and a pre-treatment attrition rate of 13% (10/74) among patients with confirmed MDR-TB in the same cohort. Reasons for pre-treatment attrition were as follows: patient refusing treatment ($n = 5$), treatment in the private sector ($n = 2$), patient referred to another DR-TB centre ($n = 2$) and death ($n = 1$). Pre-diagnosis attrition was mostly

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KEY WORDS

multidrug-resistant tuberculosis; operational research; delayed diagnosis

FIGURE Flow chart of the diagnostic and treatment pathway for presumptive and confirmed MDR-TB patients, Bhopal, India, 2015. MDR-TB = multidrug-resistant tuberculosis; DST = drug susceptibility testing; NRL = national reference laboratory.

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due to failure to identify and refer eligible patients for DST.^{4,5} The denominator used to estimate pre-diagnosis attrition was all those eligible for DST based on a record review by the investigator (and not those referred for DST by the programme). As the failure to identify and refer presumptive MDR-TB was the key gap in the diagnosis and treatment pathway, we followed this up with another study in 2015 at two district TUs (one urban and one rural district selected on convenience sampling) to explore whether there had been a reduction in pre-diagnosis attrition. The methodology used was similar to our previous study in 2014.⁴

Among 318 patients, pre-diagnosis attrition was 44% (139/318), all due to the failure to identify and refer patients. There was no post-referral attrition. Of the 179 patients tested, six were confirmed as MDR-TB and four were initiated on treatment (Figure). The median time from eligibility to testing was 11 days (interquartile range 7–27). Patients residing in rural areas and those referred from DMCs outside the district were less likely to undergo DST. We observed that patients with presumptive MDR-TB were added to the referral for culture and DST register at the DTC if information was received from the NRL regarding receipt of sample. In addition, poor record-keeping and unreliable

maintenance of databases for presumptive MDR-TB patients could pose a challenge in tracing patients.

Similar to our previous study,⁴ the failure to identify and refer presumptive MDR-TB patients was the main gap in the treatment pathway. There is a need for further systematic, qualitative analysis of provider-reported reasons and suggested solutions for improving the identification, referral and tracing of presumptive MDR-TB patients from DMCs.

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