Outcomes associated with standardized treatment regimens for extensively drug-resistant tuberculosis

Dear Editor,

Extensively drug-resistant tuberculosis (XDR-TB) is defined as a strain of *Mycobacterium tuberculosis* that is resistant to isoniazid, rifampicin, any one of the fluoroquinolones and any one of the aminoglycosides.\(^1\) Although nomograms for predicting drug resistant tuberculosis has been suggested in recent times, the diagnosis of XDR-TB is mostly microbiological.\(^2\) The standardized treatment regimen of XDR-TB in India before 2017 consisted of 6-12 months of intensive phase therapy (capreomycin, moxifloxacin, high dose isoniazid, para-aminosalicylic acid, clavulanate and amoxicillin) followed by 18 months of continuation phase therapy (all except capreomycin). This study aimed to delineate the epidemiology of XDR-TB and outcomes associated with the long-term standardized treatment regimen.

This was a retrospective review of treatment charts of patients diagnosed with drug-resistant tuberculosis at our institute, a tertiary care center in Northern India. A total of 1819 patients with drug-resistant tuberculosis were registered between January 2013 and May 2017. Out of these, 36 (1.97%) patients were diagnosed with pulmonary XDR-TB based on phenotypic liquid culture-based drug susceptibility testing. All patients presented with cough and/or hemoptysis. Most of these patients were males (63.8%) and the mean age of presentation was 26 years. These patients were treated with standardized anti-tubercular therapy according to the national guidelines of that time. Nine patients (25%) required treatment modifications based on drug sensitivity pattern of other drugs or drug toxicities. A total of 25 patients could be categorized into treatment outcomes at the time of the study. Of these 25 patients, 7 patients (28%) were declared cured, 16 patients (64%) expired while on treatment and 2 patients (8%) defaulted on treatment. Out of the 16 patients who died, 11 patients died in the first 4 months of treatment.

Drug susceptibility testing is the mainstay of diagnosing XDR-TB, but its use is limited because of the lack of these facilities in many laboratories situated in resource-limited areas. Apart from the difficulty in its diagnosis, the long course of treatment regimens is associated with multiple side-effects, poor compliance and undesirable rate of a positive outcome. Before the availability of newer treatment regimens and newer drugs, positive outcomes in patients with XDR-TB have varied from a dismal 28% to 44%.\(^3\) World Health Organization (WHO) has recognized these issues and has taken affirmative steps towards improvement in management guidelines of patients with XDR-TB.\(^3\) Positive trends have been noticed with these newer treatment strategies. Injectable drugs such as kanamycin and capreomycin that are associated with poor outcomes have been removed from the new regimens.\(^6\) Shorter regimens and ‘all oral’ regimen incorporating the newer drugs appear to be the silver lining.\(^3\)

We report these findings to highlight the poor outcomes associated with standardized treatment of tuberculosis in patients with extensively drug resistant tuberculosis. Routine use of drug susceptibility testing and prompt initiation of correct therapy by the primary care physicians will not only help in early detection but prevent emergence of further resistance as well.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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