

## Drug susceptibility pattern of *Mycobacterium tuberculosis* isolates against conventional anti-tuberculosis drugs in Dhaka, Bangladesh

To the Editor

I have noted 2 interesting observations in Mottalib et al's study.<sup>1</sup>

First, from the period of 2000<sup>2</sup> to 2011<sup>1</sup>, there was a 1.5 fold increase in drug-resistant tuberculosis (DR-TB) (29.7% versus 50%), and nearly 2 folds increase in multidrug-resistant TB (MDR-TB) (4.95% versus 8%).

Second, the frequency of DR-TB addressed by Mottalib et al<sup>1</sup> in new TB cases (37.8%) and previously treated TB cases (84.6%) were much higher than 1.6% (new TB cases), and 11.7% (previously treated TB cases) reported worldwide<sup>3</sup>. These alarmingly high frequencies really reflect the persistence of certain risk factors for TB. Condensed population, poverty, poor resources, incomplete TB vaccination coverage, paucity of laboratories and anti-TB drugs, and failure to stick to the treatment protocols of TB are among the well-known factors that enhance the spread of TB on one hand, and the emergence of DR strains in Bangladesh on the other hand. Also, clinical DR-TB has been found to occur as a result of man-made selection during the disease treatment of these genetic alterations through erratic drug supply, suboptimal physician prescription, and poor patient adherence.<sup>4</sup> However, the role of human immunodeficiency virus (HIV) infection in triggering DR-TB must not be overlooked. Although Bangladesh has maintained a low HIV infection prevalence (of less than 1%)<sup>5</sup>, infection with this virus has been noticed to increase the occurrence of DR-TB<sup>6</sup>. Better management and control of TB, especially DR-TB by experienced and qualified doctors, access to standard microbiology laboratory, co-morbidity of HIV and TB, new anti-TB drug regimens, better diagnostic tests, international standards for second line drugs susceptibility testing, invention of newer anti-tubercular molecules and vaccines, and knowing the real magnitude of extensively DR-TB are some of the important issues to be addressed for effective prevention and management of DR-TB.<sup>7</sup>

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*Reply from the Author*

We cordially appreciate Prof. Al-Mendalawi for his intellectual comments on our article. The emergence of DR-TB is highly alarming in Dhaka. In our report, the incidence of both DR-TB and MDR-TB was found to increase by 1.5 folds within the last 10 years. These high frequencies indicate, as noticed by Prof. Al-Mendalawi, that there might have certain unrecognized risk factors for TB. Our survey explains satisfactorily the high occurrence of DR-TB in Dhaka. The capital of Bangladesh, Dhaka, is one of the most densely populated cities in the world, and there live a huge number of poor people. They have no literacy, and of course, they are poor in knowledge of health education. Samples were collected from patients attending the Tuberculosis Control and Training Centre, Chankharpool, Dhaka, and the Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM) Hospital, Dhaka for treatment of TB. Poor people from Dhaka and from different rural part of the country usually attend these 2 institutes in order to get cheaper treatment, whereas the affluent people attend to reputed TB specialists. Once getting infected with TB, these people cannot stick with treatment up to complete recovery, and gradually get DR-TB. Moreover, they spit everywhere due to lack of knowledge regarding TB. The above factors, we guess, are contributing a major part in high frequencies of DR-TB and MDR-TB. So far in our knowledge, there is sufficient TB vaccination coverage in Bangladesh, however, there is lack of well management in every aspect.

The HIV infection might be a factor in triggering DR-TB, however, it will be a very minor fact in causing DR-TB in Bangladesh as the prevalence of HIV patient is still low here. There is no available TB specialist in the rural area of Bangladesh, and for this reason TB patient did not get proper treatment in time, and finally spread DR-TB more frequently. Suboptimal TB diagnosis is also a major factor in spreading TB because there is very little facilities for TB cultured laboratories in Bangladesh. Therefore, it is difficult to look for TB patient in its primary stage. Immediate measures should be taken to resist spreading TB in Bangladesh. Therefore, it is essential to set up a sufficient number of standard laboratories with adequate facilities, and also needed a good number of TB specialists for better treatment of TB patients in Bangladesh.

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