Chasing Down the Acid-Fast Bacilli During Treatment

Need Better Yardsticks

To the Editor:

I read with great interest the article by Chien et al1 in a recent issue of CHEST (June 2013) wherein the authors reported the significance of smear positivity of acid-fast bacilli at the end of the fifth month of treatment in patients with non-multidrug-resistant (MDR) TB. The principal query in reference to this study arises with regard to its clinical and practical implication in the field setting. The conclusions of this research are probably of more interest in countries with a low prevalence of TB and not of practical use in countries with a high prevalence of TB.

Countries with a high burden of TB are still struggling to pick up MDR TB cases at an early phase of treatment because of a lack of adequate resources (ie, widespread availability of drug culture and sensitivity methods).2 Hence, by carrying out drug susceptibility testing at the start of treatment (ie, ruling out MDR TB at the outset), the practical application of this study is questionable. Second, excluding drug-resistant bacilli right at the start of treatment creates an obvious bias toward isolation of nontubercular mycobacteria and nonviable bacilli as the reason for persistent sputum positivity later during the course of treatment. The SCOR index (smear grading ≥3+ at the fifth month [S], no sputum culture conversion at the second month [C], lack of direct observation strategy [O], and no radiographic improvement at the fifth month [R]) appears to be a useful tool for monitoring treatment response because it does not require extra equipment or investment. A modified version of the SCOR index can be used, whereby the sputum smear for acid-fast bacilli status at 2 or 3 months can be taken instead of the first two indicators. This indicator can be used as a screening tool. Patients with a higher such index at 2 or 3 months of antitubercular treatment can be subjected to drug susceptibility testing because of an increased probability of picking up drug-resistant bacilli at an early stage of treatment. This would surely warrant a large-scale study for definitive conclusions.

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Response

To the Editor:

We thank Dr Khurana for his thoughtful letter regarding our article on its implication in highly endemic countries with limited resources in culture and drug susceptibility tests.1 The specificity of positive sputum smear for acid-fast bacilli is highly affected by drug resistance status, especially in patients with multidrug resistant (MDR) TB,2 who had a delayed culture conversion during treatment. Therefore, the assessment of treatment response should be different according to the status of drug resistance. Consistently, the results of our study1 emphasize that sputum smear results at the fifth month of treatment should not be the sole indicator of treatment failure. It also highlighted the importance of clinical characteristics, such as the integrated SCOR index (smear grading ≥3+ at the fifth month [S], no sputum culture conversion at the second month [C], lack of direct observation strategy [O], and no radiographic improvement at the fifth month [R]), in predicting culture results in patients with non-MDR TB.

Since only 6% of TB cases in India were MDR TB,3 our conclusion is applicable in probably >70% of TB cases and should be helpful in saving medical resources. Early detection of drug resistance, especially rifampin resistance, is another important issue. Several risk factors have also been published to achieve early diagnosis of MDR TB, such as identifying patients with high pretreatment probability of drug resistance (retreatment cases, poor response cases, MDR TB contacts, TB cases from highly prevalent areas of MDR TB) as well as early implementation of cost-effective rapid drug-resistance detection kits.4 In addition, sputum mycobacterial culture and drug susceptibility testing should be performed to detect drug resistance if the specimen obtained at the end of 2 or 3 months is smear-positive.5 Future large-scale investigations will be warranted to clarify the cost-effectiveness and priority of those strategies.

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