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Correspondence

Need to confirm isoniazid susceptibility in Xpert MTB/RIF rifampin susceptible cases

Sir,

The connoisseur performance of the Gene Xpert MTB/RIF (Xpert) assay (Cepheid Inc., USA) has made rapid detection of *Mycobacterium tuberculosis* (MTB) and rifampin (RIF) susceptibility in <2 h a true reality. This semi-automated assay is simple to perform, relatively free of infectious aerosols and has high sensitivity of 72.5 and 64 per cent for detection of tuberculosis (TB) in smear negative pulmonary and extrapulmonary tuberculosis, respectively (one specimen per patient)[1,2]. Similarly, the sensitivity and specificity for detection of RIF resistance are 94-99 per cent and 98-100 per cent, respectively[1-3].

Based on this evidence, in December 2010, World Health Organization endorsed and recommended the worldwide use of Xpert MTB/RIF as an initial diagnostic test for sputum specimens (including pellets from decontaminated specimens) in patients suspected of having MDR-TB and HIV-TB[4].

We assessed the performance of Xpert on 857 specimens (310 pulmonary and 547 extrapulmonary)[1,2] at a tertiary care referral centre at Mumbai and reported a pooled sensitivity for MTB case detection in comparison with culture to be 91.7 per cent. In case of pulmonary and extrapulmonary specimens, sensitivity of Xpert was found to be 98.4 and 83.3 per cent, respectively. On comparison with phenotypic rifampicin (1.0 µg/ml) drug susceptibility testing (DST) using liquid culture (BACTEC MGIT 960, BD Microbiology Systems), and after resolution of discrepant specimens by bidirectional sequencing, Xpert correctly identified 98.7 and 98.6 per cent of the RIF resistant and RIF sensitive specimens, respectively.

Of the 310 Xpert positive specimens, 8.7 per cent (n=27) patients (15 pulmonary and 12 extrapulmonary specimens) were reported to be isoniazid (INH) monoresistant. Thus, the assumption that RIF sensitive cases would also be INH sensitive is not necessarily true. A recent report from Mumbai, India, has reported the prevalence of INH monoresistance to be 7 and 11 per cent in untreated and previously treated TB cases, respectively[5]. Thus, in settings with high expected rates of INH monoresistance, Xpert RIF susceptible cases may receive a single drug therapy with RIF alone. A study by Cattamanchi *et al*[6] has shown the use of a modified and an extended treatment regimen with first-line anti-tubercular drugs to have a favourable treatment outcome in INH monoresistant cases in comparison to those of drug-susceptible patients on standard first-line treatment regimen. All Xpert RIF resistant cases were phenotypically proven to be INH resistant. Ideally, INH susceptibility should be confirmed by phenotypic DST in Xpert RIF susceptible patients.

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