Susceptibility Testing of *Mycobacterium, tuberculosis* Clinical Isolates by Three Different Methods

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Abstract

Recent detection of multidrug-resistant (MDR) *Mycobacterium tuberculosis* (M. *tuber culosis)* strains has made more urgent the effort to develop rapid and simple tests to detect antimicrobial susceptibility. This study aimed to assess the E-test and flow cytometry in comparison with proportion method for *M. tuberculosis* susceptibility testing. The study included 30 tuberculous patients. By proportion method, M. *tuberculosis* resistance to isoniazide (INH) was 40% (12 out of 30), while resistance to rtfampicin (RIF), streptomycin (SPM), ethambutol (EMB), ofloxacin (OFX) and ciprofloxacin (CIP) were 33.3%, 13.3%, 7.7%, 6.7% and 6.7% respectively. MDR was found in 30% (9 out of 30) of the isolates. By E-test, there was 100% agreement with proportion method for RIF, SPM, EMB and OFX and 6.7% agreement for INH. By flow cytometry, there was 100% agreement for EMB, OFX and €IP, while 96.7% agreement for INH, SPM and RIF. We concluded that determination of *M. tuberculosis* drug susceptibility testing is crucial for treatment failure, defaulter and relapse tuberculous patients. E-test is a sensitive, specific, rapid and cost-effective method. Future studies with flow cytometry on larger number of isolates are recommended to establish the best cutoff value for detecting Susceptibility.

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