

TITLE: IMPACT ON THE DIAGNOSIS OF TUBERCULOSIS WITH THE INTRODUCTION OF Xpert MTB/RIF AT A REFERENCE INSTITUTE IN BRAZIL

AUTHORS: SOUSA, T.S.; FONTES, C.F.

INSTITUTION: FUNDAÇÃO JOSÉ SILVEIRA-INSTITUTO BRASILEIRO PARA INVESTIGAÇÃO DA TUBERCULOSE (FJS-IBIT), SALVADOR, BA (LADEIRA DO CAMPO SANTO S/N, CEP 40210-320, SALVADOR-BA, BRAZIL).

UNIVERSIDADE FEDERAL DA BAHIA – FACULDADE DE FARMÁCIA, SALVADOR, BA (RUA BARÃO DE JEREMOABO, 147 CEP 40170-115, SALVADOR-BA, BRAZIL).

ABSTRACT:

Mycobacterium tuberculosis is the causative agent of tuberculosis, an infectious disease that mainly affects the lungs, but may also affect other organs (extrapulmonary tuberculosis). Xpert MTB RIF is a nucleic acid amplification technique, recommended by WHO in 2011, for initial diagnosis in all suspected cases of TB. This system has the ability to detect DNA from mycobacteria belonging to the *Mycobacterium tuberculosis* (CMTB) complex and simultaneously detect the mutation in the gene that confers resistance to rifampicin, a leading first-line drug used in the treatment of tuberculosis. Many methods have been used to detect *Mycobacterium tuberculosis*; the classics such as bacilloscopy can be performed in up to 1h, have a lower cost and have a lower sensitivity than the identification of the species; on the other hand, the culture in solid medium, although being an inexpensive method, of high sensitivity and specificity requires long period of incubation, 6-8 weeks; since the culture in liquid medium, despite the less time to release the results, requires the use of equipment and kits, which may make the process more expensive. A retrospective study was carried out, where 223 results were evaluated from January to May 2017 Lowenstein-Jensen solid culture medium (LJ), LJ ratio sensitivity test, and the Xpert MTB RIF assay. Of the 223 samples analyzed, 69 (30.9%) were positive in the molecular nucleic acid amplification assay, 50 (26.5%) were also positive in the bacilloscopy, and 55 (24.7%) presented culture positivity. The Xpert MTB / RIF, when compared to solid culture, showed sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of 98%, 93%, 83% and 99%, respectively. Of the 69 positive samples in Xpert MTB / RIF 04 (5.8%) were expressed as resistance to rifampicin detected, while 65 (94.2%) were expressed as undetected resistance. The Xpert MTB / RIF test showed good sensitivity and specificity in the studied population, allowing the laboratory detection of *M. tuberculosis* complex in paucibacillary respiratory specimens, as well as the early and accurate detection of MDR cases.

Keywords: *Mycobacterium tuberculosis*; resistance; tuberculosis

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