Diagnosis of lymph node tuberculosis using the GeneXpert MTB/RIF in Tunisia

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ABSTRACT

Introduction: GeneXpert MTB/RIF is a fully-automated diagnostic molecular test which simultaneously detects tuberculosis (TB) and Rifampicin (RIF) drug resistance.

The purpose of this study is to evaluate the accuracy of the GeneXpert MTB/RIF test for the detection of Mycobacterium tuberculosis complex (MTBC) in lymph node specimens.

Materials and methods: This study was conducted simultaneously in Abderrahmen Mami hospital, the National Reference Laboratory for Mycobacteria in Tunisia and Hedi Chaker Bacteriological Laboratory of Sfax, from January to December 2013. In total, 160 lymph node specimens (tissues and aspirates) were split and processed simultaneously for auramine fluorescent staining and immunohistochemical staining. In addition, conventional culture on both Lowenstein-Jensen and liquid medium (Bactec MGIT 960 BD system) and the new molecular-based GeneXpert MTB/RIF assay system were performed. Positive cultures were confirmed after the detection of the MPT64 antigen (SD BiolineTBAg MPT64 Rapid) and molecular identification (Genotype MTBC Hain Lifescience).

Results: Among the 160 samples tested, the GeneXpert detected the DNA of MTC in 120 samples (75%). Standard bacteriological assays including AFB microscopy and culture were positive, respectively, in 37 (23.13%) and 74 (46.25%) specimens. Mycobacterium bovis was isolated in 67.4% of positive cultures. No Rifampicin resistance was detected.

GeneXpert sensitivity and specificity results were assessed according to smear and culture results, clinical and histological findings.

The sensitivity and specificity of the Xpert assay was 91.5% (118/129) and 70.4% (19/27), respectively.

When compared with bacteriological findings, the concordance between the GeneXpert and bacteriological results was 69.4%.

Conclusion: The implementation of the GeneXpert MTB/RIF assay may dramatically improve the rapid diagnosis of lymph node TB. This rapid TB test may complete usual methods (conventional microscopy, culture and histopathology).

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