



XPert MTB/RIF ASSAY FOR THE DIAGNOSIS OF EXTRA PULMONARY TUBERCULOSIS

General Medicine

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ABSTRACT

Detecting patients with active Tuberculosis (TB) disease is an important component of tuberculosis control programs, as early diagnosis and treatment of tuberculosis is essential in reducing the morbidity, mortality and the escalating costs associated with advanced disease. We conducted this study to access the usefulness of Gene Xpert MTB/RIF assay technique in the diagnosis of tuberculosis and rifampicin (Rif) resistance. We retrospectively reviewed the clinical records and rapid diagnostic results of all patients with suspected Tuberculosis who visited the pulmonary clinic of Government Rajaji Hospital (GRH), Madurai from January 2017 to June 2017. Various extra pulmonary specimens were collected under aseptic precautions. These Xpert MTB/RIF samples were processed according to the manufacturer's specifications. A total of 79 consecutive extra pulmonary clinical samples were included. Out of 79 samples, 16 (21%) tested positive for *M.tuberculosis*. All these 16 positive samples were found to be Rif sensitive. This study shows that GenXpert is useful in the early diagnosis of Rif sensitivity in extrapulmonary specimens.

KEYWORDS

Gene-Xpert, tuberculosis, pulmonary, extrapulmonary

1. INTRODUCTION

Tuberculosis (TB) is the most common infectious disease worldwide caused by *Mycobacterium tuberculosis* (MTB). Detecting patients with active Tuberculosis (TB) disease is an important component of tuberculosis control programs, as early diagnosis and treatment of tuberculosis is essential in reducing the morbidity, mortality and the escalating costs associated with advanced disease. The Xpert[®] MTB/RIF assay (Cepheid Inc., CA, USA) marks an important development in the field of rapid molecular TB diagnostics. This multifunctional diagnostic platform is an automated, closed system that performs real-time PCR and can be used by operators with minimal technical expertise, enabling diagnosis of TB and simultaneous assessment of rifampicin resistance to be completed within 2 h. The Xpert MTB/RIF assay was rapidly endorsed by the WHO in December 2010 as a replacement for sputum smear microscopy, particularly in settings with high rates of HIV-associated TB and multidrug-resistant TB. More recently, evaluations of the assay have extended to a variety of nonrespiratory clinical samples from patients with EPTB. We conducted this study to access the usefulness of Gene Xpert MTB/RIF assay technique in the diagnosis of tuberculosis and rifampicin resistance.

2. MATERIALS AND METHODS

Study Design: Retrospective data record review.

Setting: Study was conducted in the Department of TB and Respiratory Diseases, Government Rajaji Hospital, Madurai Medical College, Madurai

Study Procedure: We retrospectively reviewed the clinical records and rapid diagnostic results of all patients with suspected Tuberculosis who visited the pulmonary clinic of Government Rajaji Hospital (GRH), Madurai from January 2017 to June 2017. The study was approved by the Hospital Ethics Committee. A waiver of consent was obtained due to the retrospective nature of the study. Various extra pulmonary specimens (ascitic fluid aspiration, cervical node aspiration, CSF sample, peritoneal fluid, sputum, tracheal aspiration,

urine, breast abscess aspiration) were collected under aseptic precautions. These Xpert MTB/RIF samples were processed according to the manufacturer's specifications.

Table 1: Clinical Characteristics and Xpert results of study patients

Variables	n (%)
Age (in yrs)	
Median (IQR)	45 (32, 55)
Age Group (in yrs)	
18 – 20	4 (5.1)
21 – 40	25 (31.6)
41 – 60	43 (54.4)
61 – 80	7 (8.9)
Sex	
Male	48 (60.8)
Female	31 (39.2)
Result	
Negative	61 (79.2)
Positive	16 (20.8)
DST	
Sensitive	16 (100.0)

3. RESULTS & DISCUSSION

All the records were scrutinized, checked, and computerized by trained data entry operators. Data entry was done in Excel 2013 and analysis was performed using SPSS 20. Descriptive statistics were performed. A total of 79 consecutive extra pulmonary clinical samples were included. These samples were obtained from patients with a median age of 45 yrs. Most of them 43 (54%) were in the 41-60 age group and 48 (61%) were males (Table 1). Out of 79 samples, 16 (21%) tested positive for *M.tuberculosis*. All these positive samples were found to be Rif sensitive and were started on antituberculosis therapy.

4.CONCLUSION

This study shows that GenXpert is useful in the early diagnosis of Rifamycin sensitivity in extrapulmonary specimens

5.REFERENCES

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