Utility of Line Probe Assay for diagnosis of extrapulmonary tuberculosis

Joveria Farooqi a,*, Salima Qamar a, Imtiaz Ali b, Kauser Jabeen a, Rumina Hasan a

a Department of Pathology and Microbiology, Aga Khan University, Karachi, Pakistan
b Clinical Laboratories, Aga Khan University, Karachi, Pakistan

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ABSTRACT
Introduction: In 2008, the World Health Organization (WHO) approved a rapid molecular test known as Line Probe Assay (LiPA) for the diagnosis of multidrug-resistant tuberculosis (MDR-TB) in pulmonary specimens. Due to lack of available data, its use in extra-pulmonary tuberculosis (EPTB) specimens has not been determined yet. Recommendations for the use of Xpert MTB/RIF in EPTB have been issued, but alternative rapid molecular tests for EPTB diagnosis need to be evaluated.

Method: LiPA (GenoType® MTBDRplus 2.0 Hain Lifescience) was performed on 97 specimens of extrapulmonary origin at the clinical laboratory at Aga Khan University (Dec 2012–Jan 2014). The results were compared with TB cultures in solid and liquid medium.

Results: 97 specimens were tested simultaneously for culture and LiPA, including pleural fluid (35), CSF (22), pus (17), tissue (10) and urine (3). Concentrated smear was positive for 7 while 14 were culture positive for MTB. All 7/7 smear-positive specimens were LiPA positive, while 6/7 were culture positive. Amongst the smear-negative specimens, 8/90 were culture positive and 9/90 were LiPA positive. The overall sensitivity and specificity of LiPA for the detection of MTB in the EPTB specimens was 71.4% (95% CI 41.9–91.4) and 92.8% (95% CI 84.9–97.3), respectively. The highest sensitivity (100%) was seen in urine as 2 of 3 which were culture positive were also LiPA positive. Pus samples showed sensitivity of 85.7% and specificity of 70%.

Conclusion: The study shows that LiPA has good overall sensitivity and specificity compared with culture. Although the number of samples was very small, the applicability appears to be most useful in urine and pus specimens and should be explored further as a diagnostic tool in these cases.

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