"A COMPARATIVE EVALUATION OF POLYMERASE CHAIN REACTION,ZIEHL-NEELSEN STAIN, AURAMINE STAIN AND CULTURE IN THE DIAGNOSIS OF EXTRAPULMONARY TUBERCULOSIS"

by

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Dissertation submitted to the

Rajiv Gandhi University of Health Sciences, Karnataka, Bangalore

In partial fulfillment of the requirements for the degree of

DOCTOR OF MEDICINE

IN

MICROBIOLOGY

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2014

ABSTRACT

Background and Objectives: Tuberculosis continues to have the highest number of TB cases in the world with over 2 million active TB cases every year. Extrapulmonary TB (EPTB) constitutes about 15 to 20% of all cases of TB. The conventional diagnostic methods are either slow or less sensitive in diagnosing EPTB. So there is a need for rapid and accurate diagnostic tests like molecular techniques such as PCR. These tests would facilitate early diagnosis of potentially infectious patients and prompt institution of anti tubercular therapy. The present study intends to evaluate the diagnostic efficacy of PCR, conventional AFB microscopy by ZN and Auramine stain, and culture by LJM and MB7H9 in the diagnosis of different forms of extrapulmonary tuberculosis taking Culture as gold standard.

Methods: Clinically diagnosed patients of EPTB were subjected to PCR (commercial kits). Out of these, 30 PCR positive samples and 30 PCR negative samples were evaluated by microscopy and culture. A total of 28 DNA samples from PCR-positive cases tested using commercial kits, were subjected to an in-house PCR test (*IS*6110 - 123 bp).

Results: In the present study, the sensitivity, specificity, positive predictive value and negative predictive value of microscopy were found to be 37.5%, 94.44%, 81.8% and 69.38% respectively against gold standard culture. Sensitivity and specificity of PCR was found to be 70.83%, 63.88%. Positive predictive value of PCR was found to be 56.66% and negative predictive value was 76.66% against gold standard culture.

Interpretation and Conclusion: EPTB is an important cause of morbidity and mortality. Laboratory diagnosis has many problems. Molecular techniques are rapid, sensitive and specific. However, all the available diagnostic methods should be

utilized as PCR is not 100% sensitive. The results need to be carefully correlated with clinical findings, to diagnose this disease.

Key words

Extrapulmonary tuberculosis; EPTB; PCR; ZN; Auramine; LJ medium; MB7H9 medium.