Diagnostics and biomarkers

PO - (8414) - EVALUATION OF MYCOBACTERIUM TUBERCULOSIS COMPLEX CULTURE METHODS IN MYCOBACTERIUM AFRICANUM SPECIFIC ENDEMIC REGION OF WEST AFRICA

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Background

*Mycobacterium africanum* (Maf) endemic West African laboratories use glycerol and pyruvate in separate LJ cultures (LJG and LJP) for isolation of MTBC. The aim of this work is to evaluate if combining both glycerol and pyruvate in a single LJ medium (LJGP) will lead to comparable growth characteristics and time to detection in comparison to LJG, LJP and MGIT 960.

Method

Total of 118 smear positive sputum samples were processed using 4% NaOH-NALC decontamination method. The decontaminated samples were inoculated parallel on LJG, LJP, MGIT 960 and LJGP. Positive cultures were confirmed using Ziehl-Neelsen staining method. MTBC identification was done using the Capilia TBNeo kit and spoligotyping used for speciation.

Result

The recovery rate for LJG, LJP, LJPG and MGIT was found to be 73.7% (87/118), 82.2% (96/118), 83.9% (99/118) and 93.2% (110/118) respectively. No significant agreement was observed between the LJPG and MGIT 960 with Kappa values of -0.105 (p-value = 0.199). However, there was significant agreement between LJGP and LJG and LJP with Kappa value of 0.736 (p-value <0.001) and 0.756 (p-value <0.001), respectively. There were 70 Euro-American, 34 Maf, 9 East-Asian, 2 Indo-Oceanic, 2 East-African-Indian and 1 M. Bovis. LJGP have better Maf recovery rate, 85.3% (29/34) in comparison to MGIT 960, 79.4% (27/34), LJP, 76.5% (26/34) and LJG, 61.8% (21/34). Seven of the 8 MGIT negatives that were LJGP positive were M. africanum and 1 M. bovis.

Conclusion

LJGP has a better detection rate and time to positivity compared to LJG and LJP, and shown to have a better *Maf* recovery than other LJ methods and MGIT 960. It is evident that LJGP is a promising culture tool for *Maf* endemic West African countries that will not only increased MTBC recovery rate in combination with MGIT, but also leads to better detection of *Maf*. 