#232. Test performance of a novel lateral-flow assay to detect Cryptococcal disease

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Background:

Cryptococcal meningitis is a leading cause of death among people living with HIV worldwide. Rapid and timely diagnosis remains a challenge and the widely used latex agglutination assay can take over 24 hours to process. A new FDA-cleared Cryptococcal Antigen Lateral Flow Assay (CrAg LFA) utilizes monoclonal antibodies with broad reactivity across the four major seroypes (including var gattii) and provides both qualitative and semi-quantitative results in ten minutes with no specimen pretreatment. Recent data have suggested that the sensitivity of the LFA is superior to that of latex agglutination. We reviewed discordant results between the LFA and latex agglutination to better understand the test characteristics of both assays.

Methods:

Serum and CSF clinical samples submitted to a US reference laboratory for CrAg testing were re-analyzed using the CrAg LFA (IMMY, Oklahoma, USA) and Latex-Cryptococcus Antigen Assay (IMMY, Oklahoma, USA) according to the manufacturer's instructions. A total of 261 serum (n=197) and CSF (n=64) clinical specimens were evaluated. Discrepant specimens were evaluated using the ALPHA CrAg EIA (IMMY, Oklahoma, USA).

Results:

The LFA and LA demonstrated agreement of 98.9% (258/261). Compared to CrAg LA, the sensitivity and specificity of the LFA assay were determined to be 99.2% (125/126) and 98.5% (133/135), respectively. For serum specimens, the overall agreement was 99.0% (195/197) and the sensitivity and specificity of the LFA assay were 100% (101/101) and 97.9% (94/96), respectively. For CSF specimens, the overall agreement was 98.4% (63/64) and the sensitivity and specificity of the LFA assay were 96% (24/25) and 100% (39/39), respectively. Of the three discordant results, two LFA+LA- serum specimens were CrAg EIA positive and had LFA titers of 1:5 and one LFA-LA+ CSF specimen was CrAg EIA negative.

Conclusion:

The CrAg LFA was found to have good agreement with LA. Given that LFA+ LA- specimens were found to be EIA positive at very low titers, the false positive rate of the LFA is likely overestimated. Further studies on the test characteristics of the CrAg LFA are warranted.