

Comparison of the Alere i Influenza System with the Sofia analyzer for rapid detection of influenza A and B viruses in patients presenting with acute flu-like symptoms

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Background:

Rapid influenza diagnostic tests (RIDT) are commonly used for timely diagnosis of influenza infection in emergency service. Most RIDTs aim to detect influenza A and B antigens. This prospective study compared the analytical accuracy of a point-of-care molecular test on the Alere i Influenza System with the Sofia analyzer for rapid detection of influenza A and B viruses.

Methods:

Nasopharyngeal swabs collected from admitted patients presenting with acute severe flu-like symptoms via Emergency or Outpatient Departments were requested for RIDT by physicians. Normal saline (<1.5mL) was used to prepare a suspension aliquot of each swab before analysis. Aliquots of suspension, selected at random, were promptly tested on the Sofia analyzer using the Sofia Influenza A+B fluorescence immunoassay (Sofia) and subsequently on the Alere i Influenza System using Alere i Influenza A &B (Alere) within 24 hours of collection. Both conventional Influenza viral culture and a laboratory-developed real-time PCR for detection of influenza A and B viruses based on a standard WHO protocol (2009) were performed on same aliquots. Either one was regarded as reference for accuracy evaluation on both RIDTs with valid results.

Results:

A total of 104 unrelated patient samples were investigated. The median age (range) of patients recruited was 16 (0-84) years. Sofia revealed 84-positive (47A and 37B) and 20-negative results, whereas Alere disclosed 76-positive (45A and 31B), 27-negative and one invalid results. Seven false-positive (2A and 5B) by Sofia and one false-negative (1B) by Alere were suspected respectively against reference methods. When calculating valid results, the analytical accuracy of RIDT was 93.3% (97/104) for Sofia and 99.0% (102/103) for Alere, respectively. The analytical agreement between Sofia and Alere was 92.2% (95/103).

Conclusion:

This preliminary study revealed that diagnostic accuracy of the Alere i Influenza System was better than the Sofia analyzer as a RIDT in emergency and outpatient units.