Evaluation of five Influenza rapid diagnostic kits for influenza A/B virus

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Abstract

Background:
Influenza viruses cause seasonal epidemics associated with high morbidity and mortality. However, even during periods of epidemic prevalence, clinical diagnosis is problematic. Rapid diagnostic tests for detection of pandemic influenza A/B virus are valuable for their ease of use. Recently, lots of rapid influenza diagnostic kits have been introduced in ROK, including Directizen EZ Flu A and B (Becton Dickinson, USA), Binax now Influenza A/B antigen kit (Alare, USA), Genedia influenza Ag (Green Cross co, ROK), Humasis Influenza A/B antigen test (Humasis Co., ROK), and SD Bioline rapid influenza kit (Standard Diagnostics, Inc., ROK). The objective of this study was to evaluate performance of five rapid diagnostic kits available in ROK, and the results were compared with viral culture.

Methods:
A total of two hundred and three nasopharyngeal swabs were analyzed from 203 patients (influenza A(n=67)/B(n=86), negative samples(n=50)). The specimens were tested by conventional influenza virus culture immediately, and followed by real-time reverse transcription (RT) PCR and rapid kits test.

Results:
There were slight differences in the performance of all rapid antigen tests, with sensitivities of 71% to 82% for detecting influenza A and 35% to 47% for B compared with culture and immunofluorescence (80%). The sensitivity for influenza A and B sensitivities of Directizen EZ Flu A and B, Binax now Influenza A/B antigen kit, Genedia influenza Ag, Humasis Influenza A/B antigen test, and SD Bioline rapid influenza kit were 82%, 71%, 76%, 78%, and 82%, respectively. For Influenza B, sensitivities were 41%, 36%, 40%, 36%, and 47%, respectively. Meanwhile, the specificity of all rapid tests shows 100%, respectively.

Conclusion:
Commercial antigen detection assays are useful tools for the rapid diagnosis of influenza; however, confirmatory testing is always recommended.

Key Words: Influenza A/B, virus culture, rapid diagnostic test