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Title: Application of dot immunoenzyme filtration assay for rapid detection of influenza A virus

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Body: Objective To explore an approach for rapid influenza A virus detection. Methods Nasopharyngeal swab specimens were collected for influenza A virus detection from 40 patients with suspected influenza who visited the First Affiliated Hospital of Guangzhou Medical College from November 2009 to March 2010. According to Ministry of Health of China in September 2009, the diagnostic criteria for the infection of influenza A is a positive test for influenza A virus via qRT-PCR. Based on the positive result with qRT-PCR, we compared dot immunoenzyme filtration assay(DIEFA) with colloid gold immunochromatography(GICA), the two rapid antigen tests, and the one with higher sensitivity and specificity would be the choice of rapid influenza A virus detection. Results 21 cases were founded influenza A virus positive by the way of qRT-PCR and the positive rate was 52.5%. 22 cases were found influenza A virus positive via DIEFA with a positive rate of 55%, while 12 cases were found influenza A virus positive via GICA with a positive rate of 30%. Compared with qRT-PCR detection, the sensitivity, specificity and consistency of DIEFA were 85.7%, 78.9% and 82.5% respectively, while the GICA's sensitivity, specificity and consistency were 42.8%, 84.2% and 62.5% respectively. The data showed that DIEFA had apparent superiority of sensitivity over GICA in rapid influenza A virus detection. Conclusions DIEFA can be an optimal approach for rapid detection of influenza A virus with the advantage of higher sensitivity and specificity, adapting for screening influenza A virus rapidly in influenza A virus epidemic conditions.