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Paper Poster Session II

Progress in microbiology lab automation

**Comparison of automated mariPOC® multianalyte test and direct fluorescent assay technique for the detection of eight respiratory viruses in children with pneumonia**

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**Objective:**

Respiratory viruses are significant pathogens of pneumonia especially in children. Multianalyte mariPOC® test system for rapid respiratory infection testing (ArcDia International Ltd, Turku, Finland) is based on two-photon excitation fluorescence assay technique. The platform applies a fully automated random-access analyzer for rapid detection of influenza A and B, respiratory syncytial, human metapneumo-, adeno-, and parainfluenza 1, 2, and 3 viruses. The objective of this study was to compare the performance of mariPOC® multianalyte antigen detection to those of conventional direct fluorescent assays (DFA) for detection of eight common respiratory viruses in children with pneumonia.

**Methods:**

Children who fulfilled inclusion criteria for pneumonia consecutively admitted to in-patient care of Dalian Children's Hospital of Dalian Medical University (Dalian, China) from 12/2013 to 07/2014 were enrolled in this study. Nasopharyngeal swab samples were tested by both mariPOC® multianalyte test and DFA for influenza A and B, respiratory syncytial, human metapneumo-, adeno-, and parainfluenza 1, 2, and 3 viruses. RT-PCR based methods were employed to verify the samples with contradicting results in mariPOC® and DFA.

**Results:**

During the 8-month period, 333 children with pneumonia (age<10) were enrolled in the study. Altogether 130 virus findings were reported by mariPOC® multianalyte test system while 127 positive results were obtained by DFA. Respiratory syncytial virus was most prevalent finding and it mainly occurred in the winter season.

There were 25 samples where mariPOC® multianalyte test and DFA gave contradicting results. In RT-PCR confirmation the results of 14 samples were consistent with mariPOC® test and 11 agreed with DFA.

According to the results, the positive consistency between mariPOC® multianalyte testing and DFA was 91.67% and the negative consistency was 91.04%. The Kappa analysis between these two methods (Kappa=0.820) showed that they had high level of agreement for diagnosis of respiratory viruses infection in children patients with pneumonia.

**Conclusions:**

The study showed that mariPOC® multianalyte test had a good correlation with direct fluorescent assay for detection of eight common respiratory viruses in children with pneumonia. DFA is widely used in clinical applications in China for detecting respiratory viruses. However, the assay requires much labour work and the observation of results is subjective to some extent. Our results suggest that mariPOC® multianalyte test can be an ideal replacement for DFA reducing the labour of technicians and minimizing lab-to-lab variation caused by differences in the experience of operators.