Introduction

Overwhelming evidence indicates a high incidence and high medical burden for Respiratory Syncytial Virus (RSV) disease in the pediatric population, with most patients intercepted in the primary care setting during the RSV epidemic season. The availability of a sensitive rapid RSV test would support the patient management and guide a potential antiviral treatment.

Methods

In a pilot study we compared the performance of the 3 mostly used RSV point-of-care (POC) tests (Directigen EZ, BinaxNOW and ClearView) with the new Sofia FIA test, using qRT-PCR as a golden standard. A subset of 22 samples were selected from a total of 80 midturbinate nasal swabs (Copan Flock Technologies) collected from patients presenting with acute respiratory condition during the 2012-2013 RSV season in Belgium.

Results

The subset contained 16/22 (12 pediatric and 4 adult) RSV qRT-PCR positive samples (8 RSV-A and 8 RSV-B) with a viral load ranging from 5 to 9 log_{10} RNA copies per mL (Table 1). Screening using the ClearView, BinaxNOW, Directigen EZ and Sofia FIA resulted in the identification of 1 (6%), 5 (31%), 5 (31%), and 9 (56%) RSV positive samples, respectively (Table 1). The ClearView, BinaxNOW, Directigen EZ and Sofia FIA identified 15 (94%), 11 (69%), 11 (69%) and 7 (44%) of the RSV positive samples as false negative, respectively, in comparison to qRT-PCR. No false positives were observed.

Conclusions

This qualitative comparison of the Directigen EZ, BinaxNOW and ClearView with the novel Sofia FIA test demonstrated a 2-3 log_{10} reduction in the lowest VL detected with Sofia FIA, clearly outperforming the other commonly used RSV POC tests. Sofia FIA identified 56% of the qRT PCR RSV positives samples in general and 67% of the qRT PCR RSV positives in the pediatric population. The availability of a more sensitive POC test in the clinical setting will improve the rapid detection of a RSV infection and will support future antiviral treatment.

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