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O0501 Prospective evaluation of the use of saliva specimens in the detection of respiratory viruses using a self-contained microfluidic based multiplex molecular assay

Kelvin Kai Wang To*[1], Cherie Lai[1], Antony Ng[1], Deborah Ho[1], Polly Pang[1], Cyril Yip[1], Rosana Poon[1], Ivan Hung[2]

[1]The University of Hong Kong, Microbiology, Hong Kong, *[2]The University of Hong Kong, Medicine, Hong Kong*

Background: Rapid detection of respiratory viruses is important for patient management and public health measures. Microfluidic-based rapid multiplex molecular assays, which integrate nucleic acid extraction, amplification and detection, are easy to use with minimal hands on time. These systems are often approved for nasopharyngeal specimens only. However, the collection of nasopharyngeal specimen is an invasive procedure that is associated with significant patient discomfort. Saliva specimen can be easily obtained from patients without any discomfort. This study sought to compare the performance of saliva and nasopharyngeal specimens for the detection of respiratory viruses in a commercially available self-contained microfluidic-based molecular assay.

Materials/methods: This is a prospective study conducted in Queen Mary Hospital. Adult patients admitted to acute medical ward were recruited if they have symptoms or signs of respiratory tract infection and duration of illness of ≤ 7 days. Both nasopharyngeal aspirate (NPA) and saliva specimens from recruited patients were tested for influenza A virus, influenza B virus and respiratory syncytial virus (RSV) using Xpert® Xpress Flu/RSV assay.

Results: A total of 214 patients were recruited. Male-to-female ratio was 119:95. The median age was 71 years (range, 18-99 years). A total of 79 (36.9%) patients tested positive for respiratory viruses in their NPA or saliva specimens. Invalid results occurred for NPA specimens of 3 patients and saliva specimen of 1 patient. Among the patients tested positive for respiratory viruses, 50 (63.3%), 4 (5.1%) and 25 (31.6%) patients were infected with influenza A virus, influenza B virus and RSV, respectively. Among the 77 patients with valid results for both NPA and saliva specimens and tested positive for respiratory viruses in either specimen, 7 (9.1%) patients tested positive only in their NPA, while 2 (2.6%) patients tested positive only in their saliva specimens. Hence the sensitivity rates of saliva and NPA were 90.1% and 97.4%, respectively, and the concordance rate was 87%. Testing both NPA and saliva specimen can increase the detection rate by 2.7% when compared with testing of NPA alone.

Conclusions: Saliva specimen has high sensitivity in the detection of respiratory viruses when tested in rapid multiplex molecular assays.