Diversity of respiratory viruses detected among hospitalized children with acute lower respiratory tract infections at Hospital Serdang, Malaysia

ABSTRACT

Background: The role of respiratory viruses as the major cause of acute lower respiratory tract infections (ALRTIs) in children is becoming increasingly evident due to the use of sensitive molecular detection methods. The aim of this study was to use conventional and molecular detection methods to assess the epidemiology of respiratory viral infections in children less than five years of age that were hospitalized with ALRTIs. Methods: The cross-sectional study was designed to investigate the occurrence of respiratory viruses including respiratory syncytisl virus (RSV), human metapneumovirus (HMPV), influenza virus A and B (IFV-A and B), parainfluenzavirus 1, 2, 3 and 4 (PIV 1, 2, 3 and 4), human rhinoviruses (HRV), human enterovirus (HEV), human coronaviruses (HCoV) 229E and OC43, human bocavirus (HBoV) and human adenovirus (HAdV) in hospitalized children with ALRTIs, at Hospital Serdang, Malaysia, from June 16 to December 21, 2009. The study was also designed in part to assess the performance of the conventional methods against molecular methods. Results: Viral pathogens were detected in 158 (95.8%) of the patients. Single virus infections were detected in 114 (67.9%) patients; 46 (27.9%) were co-infected with different viruses including double-virus infections in 37 (22.4%) and triple-virus infections in 9 (5.5%) cases. Approximately 70% of samples were found to be positive using conventional methods compared with 96% using molecular methods. A wide range of respiratory viruses were detected in the study. There was a high prevalence of RSV (50.3%) infections, particularly group B viruses. Other etiological agents including HAdV, HMPV, IFV-A, PIV 1-3, HBoV, HCoV-OC43 and HEV were detected in 14.5, 9.6, 9.1, 4.8, 3.6, 2.4 and 1.8 percent of the samples, respectively. Conclusion: Our results demonstrated the increased sensitivity of molecular detection methods compared with conventional methods for the diagnosis of ARTIs in hospitalized children. This is the first report of HMPV infections in Malaysia.

Keyword: Hospitalized; Malaysia; Respiratory virus