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Clinical and demographic characteristics of human bocavirus-1 infection among patients with symptoms of acute respiratory tract infection during the COVID-19 pandemic in the Central province of Sri Lanka

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Introduction and Objectives: Human bocavirus-1 (hBoV-1) was first detected in Swedish children with symptoms of acute respiratory infection (ARTI) in 2005. Since its first detection, hBoV-1 has been detected in patients with ARTI symptoms. However, the pathogenic role of hBoV-1 as a primary causative agent of ARTI is still under discussion due to its high co-infection rates and prolonged virus shedding following an infection. The current study aimed to determine the prevalence of hBoV-1 infection in patients with ARTI symptoms during the COVID-19 pandemic in the Central Province of Sri Lanka.

Methods: A total of 1021 patients (Aged 12 days to ≤ 85 years) with symptoms of ARTI including fever, cough, cold, sore throat, and shortness of breath within the first 7 days of the illness were included. The study was carried out at the National Hospital, Kandy, Sri Lanka from January 2021 to October 2022. Respiratory specimens were tested to detect 23 pathogens including hBoV-1 using a real time PCR assay (Real Star, Netherlands). Demographic and clinical data were extracted from the request forms of the patients.

Results: Known respiratory pathogens were detected in 51.5% (526/1021) of the patients. Of those, 436 (82.8%) were mono- and 90 (17.1%) co-infections. hBoV-1 was detected in 66 patients and was the most prevalent respiratory virus associated with co-infections (40%). Of the 66 hBoV-1 positive patients, 36 had co-infections of whom 33 had dual and 3 had triple infections. Most of the hBoV-1 co-infections (24/36; 66.6%) were identified in children aged 2-5 years. hBoV-1 co-infections were most frequently detected with respiratory syncytial virus (RSV) and Rhino/ Entero viruses (Rh/EnV). No significant differences were observed in age, gender, and clinical presentations in those with hBoV-1 mono- compared to co-infections. Intensive care admissions were less among hBoV-1 mono-infected than the co-infected patients.

Conclusion: This study shows the detection rate of 6.46% for hBoV-1 infections in patients with symptoms of ARTI. RSV and Rh/EnV were the most common co-infecting pathogens with hBoV-1. Clinical features of hBoV-1 mono-infections were not different to that of the hBoV-1 co-infections. Interactions between hBoV-1 and other respiratory pathogens need more investigations to identify the role of hBoV-1 in clinical severity of co-infections.

Keywords: Human bocavirus-1, acute respiratory tract infections, mono-/co-infections, Sri Lanka

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