

## Survey of Respiratory Virus in Patients Hospitalised for Acute Exacerbations of Heart Failure – A Prospective Observational Study

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### Abstract

**Introduction:** Respiratory virus (RV) infections have been implicated in acute exacerbation of cardiopulmonary conditions. This study aimed to determine the prevalence of RV infections in patients admitted to the cardiology unit with acute decompensated heart failure (ADHF) in a tertiary hospital in Singapore. **Materials and Methods:** This was a single-centre, prospective observational study. A total of 194 adults (aged >21) admitted to the Singapore General Hospital with ADHF were recruited. A nasopharyngeal swab was taken for multiplex polymerase chain reaction (PCR) detection of influenza virus, rhinovirus, parainfluenza virus (HPIV), human coronavirus (HCoV), adenovirus, human bocavirus (HBoV), human metapneumovirus (hMPV), and respiratory syncytial virus (RSV). **Results:** Twenty-five (13%) had RVs detected by RV multiplex PCR. These comprised 9 rhinoviruses (36%), 4 influenza A viruses (16%), 3 HPIV (12%), 3 HCoV (12%), 2 adenoviruses (8%), 1 human HBoV (4%), 1 hMPV (4%), and 1 RSV (4%). Symptoms-wise, cough was significantly more common in the PCR-positive group (48% vs 24%,  $P = 0.02$ ). There were no statistically significant differences in laboratory investigations (haemoglobin, leukocytes, platelets, creatine kinase, creatine kinase-muscle/brain, troponin T), and radiology findings between RV PCR-positive and -negative groups. The PCR-positive group did not have increased mortality or length of hospital stay. **Conclusion:** This study identified a considerable burden of RVs in our ADHF cohort, and highlights the need for prevention of RVs in this group of patients. We also recognised the difficulty with clinical diagnosis of RVs in ADHF patients.

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**Key words:** Cardiac failure, Heart disease, Influenza, Respiratory tract infections, Respiratory virus infections

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