

SARS-CoV-2 infection during pulmonary exacerbations in children and adults with cystic fibrosis from the province of Quebec, Canada

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Cystic fibrosis (CF) is among the most common fatal genetic diseases in Canada. Respiratory failure caused by infections is the primary cause of mortality in CF. These infections manifest by acute clinical events referred to as pulmonary exacerbations (PEX), which require antibiotics. PEX are associated with irreversible loss of lung function, admission to hospital, increased antibiotic use, poor quality of life and earlier mortality. In the last decade, the use of molecular detection has enabled the detection of respiratory viruses, which often trigger or complicate PEX in individuals with CF. The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) associated with the coronavirus disease 2019 (COVID-19) has caused a public health crisis, resulting in hospitalizations and deaths across the world. Quebec is the province with the highest incidence of SARS-CoV-2 cases. Limited literature has not established a link between SARS-CoV-2 infection and morbidity in the CF population. However, this association remains for the most part unknown. There is much to be learned about SARS-CoV-2 infection in CF. In this multicentric, prospective real-world observational study, we aim to determine the incidence of SARS-CoV-2 infection during PEX in children and adults with CF across the province of Quebec, using nasopharyngeal polymerase chain reaction. We will assess risk factors for SARS-CoV-2 infection. We will assess the impact of SARS-CoV-2 infection on short-term lung function recovery as well as the frequency of co-infection with other respiratory viruses. As co-principal investigator of a national study assessing seroprevalence of SARS-CoV-2 infection in CF, we will be able to correlate these findings with antibody response. As vaccine development is ongoing, understanding the epidemiology and impact of SARS-CoV-2 infection in the CF population will add valuable knowledge in order to improve the care and lives of these patients.