

Seroprevalence and Clinical Characteristics of SARS-CoV-2 Infection in Children with Cystic Fibrosis

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Abstract

Background: People with cystic fibrosis (PwCF) have chronic lung disease and may be at increased risk of COVID-19-related morbidity and mortality. This study aimed to determine seroprevalence and clinical characteristics of SARS-CoV-2 infection in children with CF, and to assess antibody responses following SARS-CoV-2 infection or vaccination. **Methods:** Children and adolescents with CF followed at Seattle Children's Hospital were enrolled between July 20, 2020 and February 28, 2021. SARS-CoV-2 serostatus was determined on enrollment, at 6 and 11 months (+/-2 months) for nucleocapsid and spike IgG. Participants completed intake and weekly surveys inquiring about SARS-CoV-2 exposures, viral/respiratory illnesses, and symptoms. **Results:** Of 125 PwCF enrolled, 14 (11%) had positive SARS-CoV-2 antibodies consistent with recent or past infection. Seropositive participants were more likely to identify as Hispanic (29% vs 8%, $p=0.04$) and have pulmonary exacerbations requiring oral antibiotics in the year prior (71% vs 41%, $p = 0.04$). Five seropositive individuals (35.7%) were asymptomatic, while six (42.9%) reported mild symptoms, primarily cough and nasal congestion. Anti-spike protein IgG levels were approximately 10-fold higher in participants following vaccination compared with participants who had natural infection alone ($p < 0.0001$) and resembled levels previously reported in the general population. **Conclusions:** A majority of PwCF have mild or no symptoms of SARS-CoV-2 making it difficult to distinguish from baseline respiratory symptoms. Hispanic PwCF may be disproportionately impacted, consistent with racial and ethnic COVID-19 disparities among the general US population. Vaccination in PwCF generated antibody responses similar to those previously reported in the general population.

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