

Cystic Fibrosis Research News

Title:

ASSOCIATION BETWEEN EARLY RESPIRATORY VIRAL INFECTIONS AND STRUCTURAL LUNG DISEASE IN INFANTS WITH CYSTIC FIBROSIS

Lay Title:

Respiratory viral infections and chest CT (computer tomography scan) changes in infants with CF

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Cystic Fibrosis Research News

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What was your research question?

We wanted to understand if respiratory viral infections (infections in the airways) during the first year of life of a child with cystic fibrosis (CF) were linked to any structural lung disease seen on chest CT scans at one year of age.

Why is this important?

Lung disease can be detected on chest CT scans in infants with CF, but we don't know a lot about what contributes to its development. Respiratory viral infections occur frequently in all infants, including infants with CF, and it is possible that these infections contribute to early lung disease.

Earlier studies have shown abnormal lung function after respiratory viral infections in infants with CF. If we found a link to structural lung disease, there would be more evidence for the importance of respiratory viral infections, and we could guide clinicians on how to monitor and treat these viral infections.

What did you do?

We followed 60 infants with CF from their diagnosis after newborn screening to 1 year of age. We collected nasal swabs to test for respiratory viruses, both routinely and when new respiratory symptoms developed. We obtained chest CT scans at 1 year of age and scored them using the PRAGMA-CF scoring system.

What did you find?

Overall, we found very mild lung disease at 1 year of age. We did not find any links between levels of lung disease and the child's age at the first respiratory viral infection, the detection of any respiratory viruses, or the detection of common respiratory viral infections such as human rhinovirus, respiratory syncytial virus (RSV), or parainfluenza (a common cause of croup). We did find evidence of early lung disease in infants who wheezed in the first year of life, and who were reported to cough more frequently.



Cystic Fibrosis Research News

What does this mean and reasons for caution?

Respiratory viruses in the first year of life may not contribute to early structural lung disease. The presence of wheezing and coughing could indicate the development of early lung disease.

The mild structural lung disease in our study limited our ability to find subtle differences. We only looked in the first year of life, and not at repeated infections over years. We did not detect some important viruses (such as influenza) very often, and this study was completed before the COVID-19 pandemic. We were not able to assess if any chronic CF medications helped to avoid lung disease development.

What's next?

We will investigate the relationship(s) between viral infections and germs found in samples from the airways, as well as infant lung function tests, to see if there are other ways that respiratory viruses could contribute to CF lung disease.

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