

Cystic Fibrosis Research News

Title:

Clinical Characteristics and Outcomes Associated with *Inquilinus* Infection in Cystic Fibrosis

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What was your research question?

What are the characteristics and clinical outcomes of persons with cystic fibrosis (CF) with *Inquilinus*, a rare bacterial infection?

Why is this important?

Improving laboratory techniques have led to the identification of a broader range of bacteria that can cause infection in people with CF. One such group of bacteria is *Inquilinus*, including *Inquilinus limosus* and other *Inquilinus* types. Earlier studies have suggested that this may be a harmful infection in CF, but these studies have included small numbers of people and have not attempted to compare *Inquilinus* infection to other common infections in CF, such as *Pseudomonas aeruginosa*, which is known to cause poor clinical outcomes.

What did you do?

We identified all cases of persons with CF with *Inquilinus* infection at the Colorado and University of Michigan CF Centers between 2006-2016. We evaluated clinical information such as age at first infection, whether persons had single or multiple *Inquilinus* positive cultures over time, and information on the response of *Inquilinus* to antibiotic treatment. . We compared lung function, body mass index (BMI), and frequency of lung infections (exacerbations) between persons with CF with *Inquilinus* infection and those who are

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chronically infected with *Pseudomonas aeruginosa*. We also compared bacteria genetic data from the *Inquilinus* types (strains) to look for evidence of person-to-person transmission.

What did you find?

We identified 17 persons with CF with *Inquilinus* infection. In all cases, *Inquilinus* was first detected in children and young adults. Most people with *Inquilinus* had multiple cultures that grew *Inquilinus* over time. *Inquilinus* bacterial isolates were typically susceptible to a group of antibiotics called carbapenems, but resistant to most other antibiotics that are commonly used to treat infections in people with CF.

We found that lung function and BMI were equally low for those with *Inquilinus* and those with chronic *Pseudomonas aeruginosa* and declined at similar rates over a five-year period after first infection for both groups. Lung exacerbations were frequent in both groups. Genetic analysis of *Inquilinus* strains suggests that person-to-person transmission is unlikely.

What does this mean and reasons for caution?

Our study demonstrated that *Inquilinus* infection is most often identified in childhood, often leads to chronic infection, and is resistant to most antibiotics. Persons with CF who have *Inquilinus* infection had low and declining lung function and BMI, as well as frequent pulmonary exacerbations that were similar to those with chronic *Pseudomonas aeruginosa*. One limitation of this study is the relatively small sample size, but this is expected as *Inquilinus* is a rare infection.

What's next?

Inquilinus infection is important to identify in people with CF and early antibiotic treatment for this infection should be considered. Future studies are needed to assess the efficacy of treatment for *Inquilinus* and whether treatment impacts clinical outcomes.

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