

Cystic Fibrosis Research News

Title:

Impact of antibiotic eradication therapy of *Pseudomonas aeruginosa* on long term lung function in cystic fibrosis

Lay Title:

How does early eradication of *Pseudomonas* affect lung function?

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What was your research question?

We wanted to know whether people with CF who were able to get rid of their *Pseudomonas* infection using an antibiotic protocol went on to have better lung function in the long term than people who did not get rid of their infection.

Why is this important?

Pseudomonas is a really common infection for people with CF, and unless it is cleared, usually through antibiotics, it can become a chronic infection. However, in young people when infection with *Pseudomonas* can happen without serious symptoms, getting rid of the infection doesn't always show an improvement in lung function right away. While it feels logical that getting rid of *Pseudomonas* infection must be a good thing, we wanted to see if consistently getting rid of the infection leads to differences in lung function many years later.

What did you do?

We looked at all people with CF followed in Toronto who were included in our city-wide database from 1998-2018. We only wanted to look at people who were children when they started the study and had at least 10 years of lung function measurements so we could see long-term differences. We grouped people based on whether they had, at that point in their



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lifetime: never had a *Pseudomonas* infection, had an infection but got rid of it (Eradicated), or had ever had an infection that was not able to be cleared with antibiotics (Chronic). We then looked at how their lung function changed over time.

What did you find?

We found that consistently getting rid of *Pseudomonas* infection, even if there were multiple infections per person, helped keep lung function higher than after *Pseudomonas* infection became chronic infection.

What does this mean and reasons for caution?

This means that using standardized antibiotic eradication protocols does matter in the long run. One of the most important measures of health in people with CF is lung function, and keeping it as high as possible for as long as possible is an important goal. So even if the difference is small per year, it adds up to bigger differences over time. It is important to be cautious, however, because this study covers a long time period that had changing clinical practices, including changes to which antibiotics are used for *Pseudomonas* and how. There could also be unmeasured factors, like how well a person followed their antibiotic protocol, that we weren't able to take into consideration.

What's next?

Lung function isn't the only measure of health in a person with CF, so we would also like to see how keeping *Pseudomonas* at bay can affect other outcomes, like exacerbations, long term. In the new era of highly effective modulator therapies, it will be important to keep monitoring *Pseudomonas* infections, since even adults may have better lung function that makes it hard to see immediate effects of antibiotic use.

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