

Cystic Fibrosis Research News

Title:

Antipseudomonal treatment decisions during CF exacerbation management

Lay Title:

How the number of kinds of antibiotics chosen to treat *Pseudomonas* during an exacerbation affect recovery

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What was your research question?

We wanted to know whether the number of kinds of antibiotics that are used to treat the bacteria *Pseudomonas* during a pulmonary exacerbation make a difference in how well people with CF have their exacerbation symptoms go away and their lung function return.

Why is this important?

There are different kinds of antibiotics that treat *Pseudomonas*, based on how they kill bacteria. Guidelines for treating exacerbations in people with CF say that at least two kinds of antibiotics should be used to treat *Pseudomonas*. However, there have been no studies showing that using more kinds of antibiotics works better and using more kinds of antibiotics might lead to greater risks of side-effects that could hurt patients. If using fewer kinds of antibiotics works just as well, it could help people who need to be treated to stay healthier and reduce antibiotic resistance.



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What did you do?

We studied all the people who were treated with antibiotics for *Pseudomonas* in a large exacerbation study called STOP2. We divided them into groups based on how many different kinds of antibiotics were used to treat their *Pseudomonas* and then compared the groups for how well their symptoms went away and lung function came back. We also looked at how long it took for the different groups to be treated for another exacerbation after the study was over.

What did you find?

As expected, most people in the study with *Pseudomonas* were treated with either two or three kinds of antibiotics, but some were treated with only one. We found that it didn't matter how many kinds of antibiotics people were treated with. Each group had the same average drop in symptoms and lung function increase. Also, people treated with only one kind of antibiotic were not more likely to have another exacerbation after the study.

What does this mean and reasons for caution?

If using only one kind of antibiotic to treat *Pseudomonas* during an exacerbation works as well as using more kinds, people would be exposed to fewer antibiotics. That could decrease their chances of having a bad side-effect and also reduce the chances of making bacteria more resistant to antibiotics over time. We need to be cautious in thinking about these results, because we don't know *why* some people's doctors chose to treat *Pseudomonas* with only one kind of antibiotic and we can't be sure that these people were in the same condition as those who were treated with more kinds.

What's next?

A clinical study is being planned in which some people with *Pseudomonas* who are having an exacerbation will be treated with only one kind of antibiotic, while others in the trial will be treated with two kinds. These two groups will be studied for how well they respond to treatment.

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