



Cystic Fibrosis Research News

Title:

IV-Treated Pulmonary Exacerbations in the Prior Year: An Important Independent Risk Factor for Future Pulmonary Exacerbation in Cystic Fibrosis

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What was your research question?

We wanted to know if CF patients treated with intravenous (IV) antibiotics for pulmonary exacerbations in the past year were more likely to be treated again for exacerbations in the coming year, and what things people who had frequent exacerbations in the past had in common.

Why is this important?

In CF clinical studies, we often want to know if a treatment can help patients have fewer pulmonary exacerbations (an increase of symptoms like coughing, shortness of breath, fever, etc.), because exacerbations are bad for quality of life and health. To assess a treatment's effectiveness in a research trial, we give some people the actual treatment and others a placebo (something that looks like the treatment but with no drug) and then study what happens to each group. The two groups need to have similar clinical symptoms before treatment: they should be expected to have about the same number of exacerbations if they aren't treated. Knowing how many exacerbations a group will have helps us choose study groups more wisely.

What did you do?

For more than 13,000 different people with CF who were treated with IV antibiotics at least once for pulmonary exacerbation after 2009, we counted how many similar treatments they had received in the year before and how many days after the end of their current treatment they were treated with IV antibiotics again. We recorded people's age, lung function, weight, and age at the time of treatment, and if they had complications such as diabetes, asthma, and others. We then investigated which of these things were more common in people who had to be treated again for exacerbation sooner than other people.

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What did you find?

Many different things, including poor lung function and older age were more likely to be found among people who had more exacerbations, but the most common thing and the one that was the best at predicting whether a person would have an exacerbation soon was how many times they had been treated for exacerbation in the past year. People who had been treated at least four times in the past year for exacerbation were six times more likely to be treated again than people who hadn't been treated in the past year.

What does this mean and reasons for caution?

We now know that when we study CF treatments that may reduce exacerbations, we have to make sure that patients with similar numbers of past exacerbations are placed in each study group. Also, because we can identify patients more likely to have exacerbations, we can study them more carefully for treatments that may help them. However, we only studied people who had their exacerbations treated with IV antibiotics. We don't know if these findings are also true for patients treated for exacerbation with only oral or inhaled antibiotics.

What's next?

We want to see if our results are also true for people treated for exacerbation with oral or inhaled antibiotics, and we want to study previous CF clinical studies to see if results were affected by having patients with different risks of exacerbation in each treatment group.

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