

Cystic Fibrosis Research News

Title:

Continuous alternating inhaled antibiotic therapy in CF: a single center retrospective analysis.

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What was your research question?

What are the characteristics of adult with cystic fibrosis (CF) treated with continuous alternating inhaled antibiotic therapy (CAIT) at the University Hospital of Leuven? Is the switch to CAIT among those previously treated with inhaled antibiotic monotherapy (treatment with a single antibiotic) associated with pulmonary improvement?

Why is this important?

The standard of care for treating chronic *Pseudomonas aeruginosa* infections in people with CF is inhalation of antibiotics as aerosol mists or dry powder, according to the typical one month on/ one month off treatment regimen.

In clinical practice we often see that during the “off” periods, patients lose lung function and experience more symptoms. As a result, many CF physicians have moved to using continuous inhaled antibiotic therapy, a treatment strategy in which two inhaled antibiotics are alternated monthly. Despite its increasing use in clinical practice, little data are available about the effectiveness of CAIT.

What did you do?

Medical records of adults with CF who received inhaled antibiotics between March 2010 and January 2015 were evaluated. In those receiving CAIT lung function data and number of

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IV antibiotic days were collected from fixed time intervals, from 6 months before to one year after the start of the 2nd inhaled antibiotic. For those on inhaled antibiotic monotherapy, the same data were obtained at similar intervals during the study period.

By means of statistical analysis using SAS software, we investigated the effect of adding a 2nd inhaled antibiotic on the evolution of lung function and on the number of IV antibiotic days.

What did you find?

49 of 89 people with CF using chronic inhaled antibiotic therapy received CAIT. CAIT users were slightly younger, had worse lung function and were more likely to have two of the same genetic mutations compared to those continuing with inhaled antibiotic monotherapy. In those who subsequently received CAIT, lung function had decreased during monotherapy. We observed that the initiation of CAIT was associated with a small but significant improvement in lung function, with the largest improvement observed for the addition of colistin to TOBI. Adding a second antibiotic was not associated with a decrease in the need for IV antibiotics.

What does this mean and reasons for caution?

Based on our data, CAIT could be considered as a step up therapy in those with worsening lung disease despite monotherapy with inhaled antibiotics.

The small number of participants with CF from a single center and the retrospective design of our study limits the interpretation of these data.

What's next?

Additional studies with larger populations are needed to confirm the long-term effectiveness and the impact on the development of antibiotic resistance of this therapeutic approach, as well as to define the optimum choice, dosing and duration of CAIT.

Original manuscript in PubMed

<https://www.ncbi.nlm.nih.gov/pubmed/?term=Continuous+alternating+inhaled+antibiotic+therapy+in+CF%3A+a+single+center+retrospective+analysis>.