Cystic Fibrosis Research News

Title:
Association between nebulizer therapies adherence and visit-to-visit variability of FEV1 in patients with cystic fibrosis

Lay Title:
Association between nebulizer therapies adherence and visit-to-visit variability of lung function in patients with cystic fibrosis

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What was your research question?
Some patients with cystic fibrosis have significant variations in their lung function from visit to visit, while others have stable values. We investigated whether this phenomena could be explained by differences in adherence to nebulised therapies.

Why is this important?
The variation in lung function from visit to visit may be a new prognostic marker for cystic fibrosis, with patients with greater variation then tending to have a more rapid decline in lung function. It is therefore important to understand what influences this variation in lung function, and particularly adherence to treatments.

What did you do?
We reused data from a randomized controlled trial, the ACtiF trial to conduct our analysis. The ACtiF trial took place in the UK and included adults with cystic fibrosis between 2017 and 2018 and followed them over 12 months. Adherence data were collected automatically at the patient's home using connected nebulizers, and we also had all lung function data from

these patients. We investigated whether there was an association between patients' adherence to their nebulized therapies and variation in their lung function from visit to visit over the 12 months of the study.

What did you find?

We based our analysis on data from 543 patients who had at least three lung function measurements over the 12 months of the study. On average, patients who were less adherent to their nebulized therapies had greater variation in lung function from visit to visit over the 12 months of the study. However, the level of adherence explained only a very small part of the variation in lung function.

What does this mean and reasons for caution?

Our results suggest that, at the level of a cystic fibrosis center, the monitoring of the variation of pulmonary function could indicate to physicians whether the trend is towards an increase or a decrease in the average adherence of all the patients followed. However, at the level of a patient seen in consultation, it is not possible to determine their adherence to nebulized therapies from the analysis of the variation in their pulmonary function.

What's next?

In the era of CFTR modulators, it will be interesting to study whether the variation in lung function from visit to visit is indeed an early prognostic marker, preceding the decline in lung function, and the factors impacting this variation.

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