

Cystic Fibrosis Research News

Title:

Clustered randomized controlled trial of a clinic-based problem-solving intervention to improve adherence in adolescents with cystic fibrosis

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What was your research question?

The primary goal of our study was to evaluate whether a brief, problem-solving intervention delivered in clinic could improve adherence to prescribed treatments in adolescents with cystic fibrosis (CF).

Why is this important?

The treatment regimen for CF is time-consuming, complex and burdensome. Numerous studies have shown that adherence to most aspects of the treatment regimen is poor, with rates of adherence typically below 50%. This includes inhaled antibiotics, airway clearance, enzymes and calorie boosting. Poor adherence is associated with more frequent pulmonary exacerbations, decreases in lung function, more disease and earlier mortality. Importantly, rates of adherence drop substantially in adolescence and continue to be low into adulthood. Thus, our study targeted improving adherence in the adolescent age group.

What did you do?

We enrolled 18 CF Centres in this study and randomized each centre to either a brief, problem-solving intervention (*Interactive Model of Personalized and Collaborative Treatment*; IMPACT) implemented during routine clinic visits or usual care. CF Centres randomized to the IMPACT intervention received a 2-hour training on the intervention and ongoing supervision. We enrolled 607 adolescents across these centres and provided the intervention at each quarterly clinic visit for 1 year.



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What did you find?

We did not find statistically significant improvements in medication adherence, based on pharmacy refill histories, or on the other secondary outcomes, such as health outcomes (e.g., lung function, body mass index) or quality of life. In contrast, adolescents, parents and providers reported high rates of satisfaction with the intervention. Several limitations of the study may explain our results, including missing pharmacy data in a large proportion of patients, an inability to measure adherence to non-medication treatments, such as airway clearance and calorie boosting, and possibly an insufficient “dose” of the intervention (on average, adolescents received 2.5, 10-minute problem-solving sessions in a year rather than 4).

What does this mean and reasons for caution?

Although adherence is a key target for improving health outcomes, changing daily behaviours is a major challenge for everyone. Our results suggest that although problem-solving may be an effective intervention and has evidence of efficacy in relation to adherence in other chronic conditions such as diabetes, it did not show efficacy in our study. We implemented a brief, “real world” intervention delivered by a range of CF team members and it may not have been intense enough to change these adherence behaviours in adolescents. Furthermore, we were not able to measure adherence to several key adherence behaviours that adolescents chose to work on (e.g., airway clearance, taking enzymes), and thus, we could not measure any potential effects.

What's next?

An important next step would be to implement a more intense (frequent) problem-solving intervention, with more time to solidify changes in behaviour. It would also be critical to utilize electronic measures of adherence (e.g. time using nebulizer, vest treatment) that obviate the limitations of pharmacy refill data, which is often plagued by missing data and only indicates if the patient picked up the medication, but not whether they actually took it. Recently, electronic monitors, which can collect date, time and duration of each treatment are now available for airway clearance devices and nebulizers. Developing effective interventions to address adherence challenges are urgently needed.

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