

Cystic Fibrosis Research News

Title:

***Clostridium difficile* carriage in adult cystic fibrosis (CF); implications for patients with CF and the potential for transmission of nosocomial infection.**

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What was your research question?

We aimed to discover how often people with cystic fibrosis (CF) had a bug called *Clostridium difficile* in their gut. We also examined which particular strains of *Clostridium difficile* were present and whether there was any link between the presence of *Clostridium difficile* and the overall health of people with CF.

Why is this important?

Clostridium difficile can cause a severe and sometimes fatal diarrhoeal illness. We know from previous studies that people with CF have higher rates of *Clostridium difficile* in their gut without showing symptoms of infection than other chronic and/or acute disease cohorts or healthy controls. Understanding the rate of presence of *Clostridium difficile*, what type (i.e. strain) of *Clostridium difficile* is present in the gut and whether it has an impact on the overall health of people with CF may enable the development of new strategies to prevent *Clostridium difficile* infection and improved the health of people with CF.

What did you do?

We collected stool samples from 60 adult patients with CF and an age matched healthy control cohort and examined them for the presence of *Clostridium difficile*. When we found

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Clostridium difficile on culture, we performed further analysis to establish whether the strains detected were virulent (i.e. able to cause infection). We tested the strains to see if they had developed resistance to any commonly used antibiotics. We also compared the overall health of people with CF who had *Clostridium difficile* in their gut with those who hadn't.

What did you find?

50% of people with CF had *Clostridium difficile* in their gut (compared with 2% in a non-CF group). 63% of those positive for it had strains of *Clostridium difficile* that are known to have caused large-scale outbreaks of diarrhoeal illness; however, these strains did not cause a diarrhoeal illness in any of the people with CF included in this study. No strains had developed resistance to antibiotics commonly used to treat *Clostridium difficile*. We did not find any link between the presence of *Clostridium difficile* and the overall health of people with CF.

What does this mean and reasons for caution?

People with CF are much more likely to have *Clostridium difficile* in their gut, than other chronic and/or acute disease cohorts or healthy controls. Despite finding many strains that are known to cause disease, people with CF in this study did not develop symptoms of *Clostridium difficile* infection; nevertheless these people may facilitate spread of *Clostridium difficile* to other patients who may develop infection. We did not take samples from other patients to see if *Clostridium difficile* had spread from people with CF to other patients who attended the hospital at the same time. Equally our study was a single center experience, from a single geographic location and patients self reported the presence/absence of symptoms. These limitations support further multi-center studies to confirm our findings.

What's next?

Further studies are required to examine whether people with CF who have *Clostridium difficile* in their gut can spread the bug to other patients.

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