

Cystic Fibrosis Research News

Title:

Clinical outcomes in cystic fibrosis patients with *Trichosporon* respiratory infection

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What was your research question?

Several laboratories have reported recovery of *Trichosporon* species from respiratory cultures in patients with CF and suggest that this yeast may be a novel pathogen (i.e. a disease-causing microorganism). Our research question was: Does *Trichosporon* affect clinical outcomes, in particular lung function, in infected patients? For comparison, we examined clinical outcomes in patients infected with *Chryseobacterium* bacteria, which is also a potential CF pathogen.

Why is this important?

Improvements in microbiological techniques used in the laboratory allow us to identify more microorganisms in the lungs of patients with CF. Therefore, we need to better understand which of these microorganisms are harmful to people with CF. This information is important to optimise treatment regimens.

What did you do?

We identified *Trichosporon* species as well as other common and potential CF pathogens, including *Chryseobacterium*, in all respiratory cultures from a large group (n=474) of children and adult patients with CF at our institution for over two years. We then analyzed clinical factors such as age, nutritional status, and lung function in those with and without *Trichosporon* infection. We also used sophisticated statistical analyses to help control for other factors that we know influence lung function.



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What did you find?

We found that patients with CF with *Trichosporon* infection tended to be older with worse lung disease compared to those without this infection. Importantly, patients with *Trichosporon* infection had a greater decline in lung function over time and this decrease in lung function was still observed after controlling for factors such as age, nutritional status, and infection with other common CF pathogens. In those patients, who received medication to target *Trichosporon* infection, there seemed to be some short-term (at least) improvement in lung function. In contrast, infection with *Chryseobacterium* was observed primarily in younger, healthier patients and did not seem to influence lung function.

What does this mean and reasons for caution?

These findings suggest that *Trichosporon* is a respiratory pathogen in CF, and treatment of this yeast should be considered when it is recovered from respiratory cultures. However, it should be noted that our data only show associations between detected of the yeast and change in lung function over time; therefore, further work is required to conclusively determine how *Trichosporon* infection affects lung function in patients with CF. Other limitations include the fact we only studied patients from one CF center and we cannot prove that there is a longterm benefit to treatment of *Trichosporon* infection.

What's next?

The next step would be to see if these findings can be verified in a larger group of patients in multiple CF centers. Ideally, this would also include prospective studies of the impact of antifungal medications in *Trichosporon* infected patients.

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