Cystic Fibrosis Research News

Title:

Combined antifungal therapy is superior to monotherapy in pulmonary scedosporiosis in cystic fibrosis

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What was your research question?

To find out the effectiveness of anti-fungal therapy in people with cystic fibrosis who experienced a fungal lung infection caused by *Scedosporium* and *Lomentospora* species. The main research question was to answer if treatment with two or three anti-fungal drugs is more beneficial that one anti-fungal drug for people with cystic fibrosis.

Why is this important?

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Lung disease in people with cystic fibrosis is of major interest as it influences quality of life as well as life expectancy. *Scedosporium* and *Lomentospora* species belong to the group of filamentous fungi that can cause scedosporiosis, a severe lung infection. Fungi causing scedosporiosis infection in cystic fibrosis are rare but very resistant to anti-fungal treatment. It is also of high interest to know whether the individual is only colonized with this fungus or infected but criteria to help differentiate between these two stages had not been defined prior to the start of the study. Overall, it is very importantfor healthcare professionals to have guidance to help diagnose and treat scedosporiosis infection effectively.

What did you do?

In this multi-centre study, individuals with a fungal lung infection were included that was highly suspected to be caused by a *Scedosporium* or *Lomentospora* species. To have an accurate diagnosis of scedosporiosis lung infection the authors established a definition for fungal infection of the lung in cystic fibrosis. To determine the best therapy, the authors studied the treatments of people with cystic fibrosis who had a scedosporiosis lung infection. The anti-fungal treatments were assessedfor outcomes including findings from lung X-rays, clinical symptoms (cough, amount and colour of sputum, difficulty breathing, and exercise capacity) and lung function test results. These outcomes were measured at the beginning of suspected scedosporiosis infection and at follow up.

What did you find?

A total number of 36 episodes of pulmonary fungal infections caused by *Scedosporium* or *Lomentospora* species, which occurred in 31 people with CF, were analysed in this study. The results of this study demonstrate a superiority of combined anti-fungal treatment compared to single-drug treatment. This difference was statistical significant. Only one patient of the combined therapy group did not respond. The duration of the anti-fungal treatment is recommended to be longer than a normal antibacterial treatment period which is usually not longer than 14 days. But people with scedosporiosis lung infection should be treated 28 days or longer as in the study the mean duration of treatment was 3.9 month.

What does this mean and reasons for caution?

Scedosporiosis infection can be very difficult to diagnose as symptoms of normal exacerbation and fungal infection might be overlapping. The definition used in this study might be a helpful tool to confirm a fungal infection due to *Scedosporium* or *Lomentospora* in cystic fibrosis. If the diagnosis of scedosporiosis lung infection is verified, treatment will depends on the exact species of the fungus identified. However, single-drug therapy should be avoided in favour of

combination therapy. In close cooperation with the individual the treatment has to be followed-up to ensure that the response to anti-fungal therapy is adequate.

What's next?

New biomarkers are being tested in clinical studies to ease the diagnosis of scedosporiosis infection in people with cystic fibrosis.

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