

Cystic Fibrosis Research News

Title:

Preclinical atherosclerosis in cystic fibrosis: two distinct presentations are related to pancreatic status

Lay Title:

There are two main types of problems with arteries in cystic fibrosis and existence of one or the other depends on pancreatic health

Authors:

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What was your research question?

Patients with cystic fibrosis experience problems with nutrition and inflammation. Some of them are pancreatic insufficient (have malabsorption and do not digest fat) while others are pancreatic sufficient. We have asked if this affects the health of arteries (blood vessels).

Why is this important?

In the past, patients with cystic fibrosis died young. Today, patients with cystic fibrosis are expected to live long. Longer life brings a higher risk of problems with arteries and the heart,

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even in completely healthy people. Patients with cystic fibrosis, however, may have a higher risk of artery and heart diseases because of problems with nutrition and inflammation. If we knew what exactly may increase the risk of such complications in cystic fibrosis, we could be able to prevent them.

What did you do?

We have studied 55 patients with severe cystic fibrosis and 51 healthy controls of similar age by measuring arterial stiffness and thickness, which are related to artery health. It was the first time arterial wall thickness was measured in cystic fibrosis. We have also considered the course of the disease, genetics, and measured a number of interesting markers in the blood, most of which related to fat metabolism and inflammation. We could study this because of financial support from the Polish National Science Centre.

What did you find?

We have found that walls of arteries in pancreatic sufficient cystic fibrosis patients are thicker. This is similar to what we can find in healthy people who eat a lot of fat, and an increase in fat particles in the blood was also alike. No such effect was found in cystic fibrosis with pancreatic insufficiency, probably because they have trouble digesting fat and they weight less. On the other hand, in pancreatic insufficient cystic fibrosis patients, we have detected greater stiffness of the arteries, which might indicate that there is stronger inflammation and more severe disease overall.

What does this mean and reasons for caution?

This could suggest that pancreatic sufficient patients with cystic fibrosis could benefit from healthy diet just as healthy people do. In cystic fibrosis it is crucial to provide adequate energy to be well-nourished. However, our study brings more attention to what kind of fat and how much of it should be eaten by pancreatic sufficient patients with cystic fibrosis. Our study has some limitations (few patients) and it would be beneficial if another research group obtained similar results independently before we translate them into practice.

What's next?

There are many interesting questions: how can we keep arteries healthy in pancreatic sufficient patients with cystic fibrosis? Why do arteries become stiffer in pancreatic insufficient patients with cystic fibrosis, and can this be reversed by the diet? Finally, does this associate with heart attacks and strokes?



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