

Cystic Fibrosis Research News

Title:

Multiple Prevalent Fractures in Relation to Macroscopic Bone Architecture in Patients with Cystic Fibrosis

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What was your research question?

We wanted to investigate the fracture rate in children, adolescents and young adults with cystic fibrosis (CF) and its relationship with the bone status assessed by two different X-ray techniques: dual-energy X-ray absorptiometry (DXA) and peripheral quantitative computed tomography (pQCT).

Why is this important?

In addition to breathing and digestive symptoms, people with CF are at risk of developing bone disease, weak bones (osteoporosis) and bone fractures. Previous research indicates that about every fourth adult with CF has a compromised bone health. It is important to predict which individuals with CF are at risk of bone fractures in order to start preventive measures early. However, the relationship between bone fractures and the bone status in CF is not completely characterized yet.

What did you do?

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We compared the bone status of people with CF aged 6 to 30 years who had had multiple fractures (at least two) to those who had not had any fractures or just one fracture. Everyone's bones were investigated by x-ray and the study participants were asked whether they had had any bone fractures so far. Laboratory markers for bone health were also investigated.

What did you find?

The fracture rate in people with CF was 9.2 times higher compared to healthy people with the same age. People with multiple bone fractures had significantly lower bone measurements using DXA and pQCT, which means that they are at a higher risk to develop a fracture.

What does this mean and reasons for caution?

This means that it appears reasonable to measure the bone status in people with CF, especially in those with risk factors for osteoporosis (low body mass index (BMI), low lung function), for the possible prevention of bone fractures by counselling and medical treatment. A limitation of our study is that we didn't investigate bone status when each fracture occurred and that we only examined study participants at a single time point which makes it difficult to make predictions.

What's next?

It would be useful to follow individuals for a longer time period to see whether those with a low bone status experience more fractures than those with a normal bone status.

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