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Cystic Fibrosis Research News

Title:

2D Shear Wave Elastography, a promising screening tool for Cystic Fibrosis liver disease, shows a correlation between vitamin D and liver stiffness.

Lay Title:

Vitamin D and liver stiffness measurements – Are they players in Cystic Fibrosis liver disease?

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What was your research question?

Is it possible to screen for liver disease in Cystic Fibrosis (CF) by measuring liver stiffness with an ultrasound guided technique called two-dimensional Shear Wave Elastography (2DSWE)? Is there a relationship between the stiffness of the liver and nutritional status, lung function and glucose tolerance?

Why is this important?

Liver disease can develop as a part of CF during childhood. The signs and symptoms of CF liver disease is often difficult to detect, and screening is recommended. Screening often includes blood tests and ultrasound imaging, but sometimes a liver biopsy is necessary. All these screening methods have some shortcomings in detecting CF liver disease. Furthermore, it is important to know which factors could be linked to liver problems in CF to be able to better understand and follow this part of CF.

What did you do?

We tested the ability of an additional method called 2DSWE to screen for liver disease in CF. The study involved children and adolescents at the CF center in Lund Sweden. Information was collected from their medical charts and the Swedish national CF registry. The ones who were included in the study had been screened for liver disease by ultrasound and 2DSWE

during 2018-2020. The results of these investigations were collected as well as information regarding nutritional status, lung function and glucose tolerance.

What did you find?

Fifty-one children and adolescents were a part of the study. Increased liver stiffness was found in children who had a serious liver disease. There was a significant relationship between having increased liver stiffness and lower vitamin D levels. There was also some correlation between elevated liver stiffness measurements and lower lung function. Children with abnormal glucose tolerance had increased liver stiffness compared to the ones who had normal glucose tolerance.

What does this mean and reasons for caution?

2DSWE could be used as an additional screening tool for CF liver disease. Even though a relationship was found between vitamin D levels, lung function and liver stiffness, more studies are needed to investigate this matter in more detail. This is a small study from one CF center, and it is not possible to ascertain any definite risk factors regarding CF liver disease although there are some interesting clues. It could be wise e.g. to pay special attention to children with glucose abnormalities.

What's next?

It will be interesting to see if the 2DSWE can be helpful in the individual follow-up and if it can somehow predict more accurately than other investigations how the liver problems in CF turn out. It would also be interesting to explore further whether vitamin D has a role in CF liver disease.

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