European Cystic Fibrosis Society
Journal of Cystic Fibrosis
The Official Journal of the European Cystic Fibrosis Society

Cystic Fibrosis Research News

Title:

Abnormal glucose tolerance and lung function in children with cystic fibrosis.
Lay Title: Comparing oral glucose tolerance test and continuous glucose monitoring

Authors:

Elidottir H [1,2,3] , Diemer S[1,2], Eklund E [1,2] , Hansen CR [1,2]

Affiliations:

[1]Department of Pediatrics, Institution of Clinical Sciences, Lund University, Lund, Sweden
[2]Section for Lung Medicine, Metabolism and Neurology, Pediatrics Clinic, Skane University Hospital, Lund, Sweden
[3]Children´s Medical Center. Landspitali – The National University Hospital of Iceland

What was your research question?

The aim of the study was to investigate the relationship between two different methods of screening for diabetes in people with CF:the oral glucose tolerance test (OGTT) and continuous glucose monitoring(CGM). We also wanted to examine the relationship of these tests to lung function capacity, as determined by spirometry and multiple breath washout.

Why is this important?

Cystic fibrosis related diabetes (CFRD) is a common and an important aspect of CF and there is a connection between CFRD and worse lung function. Regular screening for CFRD is recommended by using an oral glucose tolerance test. In recent years, CGM has surfaced as a possible method for glucose monitoring in CF but there is not yet sufficient evidence to support using CGM and data regarding the relationship of CGM results to OGTT results is lacking.

What did you do?

Children and adolescents from a CF center in Lund, Sweden participated in the research. All participants underwent both CGM and OGTT. Using the OGTT results, different types of glucose abnormalities were evaluated for each participant including CFRD and impaired glucose tolerance. After these two measurements were taken, the children answered a questionnaire regarding the different methods. Lung function was measured by spirometry and multiple breath washout. Further data were collected from the Swedish national CF registry.

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What did you find?

The OGTT data showed that glucose abnormalities were quite common in this group of children and adolescents with CF. The proportion of elevated glucose values and the number of glucose peaks measured by the CGM had some correlations with glucose abnormalities measured by OGTT but they did not correspond specifically with the values which actually give the CFRD diagnosis. The group of children with glucose abnormalities had lower lung function than those children with normal glucose values, both in terms of their spirometry and multiple breath washout results. The CGM was well tolerated by all children and the majority of them were more in favour towards the CGM method being applied than OGTT in their evaluations.

What does this mean and reasons for caution?

This research indicates that CGM can be a valuable addition to OGTT in evaluating glucose abnormalities in CF but it does not seem to be a sufficient method alone for CFRD screening. Multiple breath washout and spirometry can also both reveal differences in lung function between those with glucose abnormalities and those without abnormalities. This is a relatively small study from one CF center so larger studies could reveal more information.

What's next?

We can continue to use both OGTT and CGM in the evaluation of glucose abnormalities in CF to seek further knowledge and understanding of how the glucose metabolism affects people with CF and how CFRD evolves over time. We also need to learn more about the relationship between glucose abnormalities and lung function because not only is CFRD important in CF, there are also other types of glucose abnormalities which are quite frequently found in people with CF.

Original manuscript citation in PubMed

https://pubmed.ncbi.nlm.nih.gov/33478894/