



Cystic Fibrosis Research News

Title:

CONTINUOUS GLUCOSE MONITORING ABNORMALITIES IN CYSTIC FIBROSIS YOUTH CORRELATE WITH PULMONARY FUNCTION DECLINE

Authors:

Christine L. Chan¹, Timothy Vigers¹, Laura Pyle^{1,2}, Philip S. Zeitler¹, Scott D. Sagel³, Kristen J. Nadeau¹

Affiliations:

¹Department of Pediatrics, Division of Pediatric Endocrinology, Children's Hospital Colorado and University of Colorado Anschutz Medical Campus, Aurora, CO 80045

²Department of Biostatistics and Informatics, Colorado School of Public Health, University of Colorado Anschutz Medical Campus, Aurora, CO 80045 ³Department of Pediatrics, Division of Pediatric Pulmonology, Children's Hospital Colorado and University of Colorado Anschutz Medical Campus, Aurora, CO 80045

What was your research question?

Our research question was whether or not relatively healthy CF youth with normal blood sugar results on oral glucose tolerance tests, the routine screening test for diabetes in CF, would have blood sugar abnormalities detected by continuous glucose monitoring (CGM) when compared to youth without CF and whether these blood sugar abnormalities would be related to lung function and weight decline.

Why is this important?

CF related diabetes is a well-known risk factor for increased disease severity (morbidity) and earlier death (mortality) in people with CF. Blood sugars abnormalities in people with CF who don't yet have diabetes have also been linked to lung function and weight decline. However, given the ongoing development of new treatments and increasing lifespan of people with CF, we feel it is important to continually re-assess the presence and degree of glucose abnormalities, and to assess the relationship between blood sugars and clinical outcomes amidst the changing treatment landscape of CF.

What did you do?

We collected oral glucose tolerance tests (OGTT) and continuous glucose monitoring (CGM) data in 110 youth with CF and healthy controls. We grouped youth with CF by their OGTT-

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cfresearchnews@gmail.com



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defined categories (normal, abnormal/pre-diabetes, and diabetes). We then compared the CGM data among all four groups (healthy controls, CF with normal glycemia, CF with prediabetes, and CF with diabetes) to determine which, if any, CGM measures were different among the groups, with a focus on controls versus CF youth with normal OGTTs.

What did you find?

CF youth with normal OGTTs had higher peak glucoses, more time spent with high blood sugars, and more glucose variability (swings) on CGM than healthy controls. Peak glucose and glucose variability both were associated with declines in lung function over the prior year.

What does this mean and reasons for caution?

Higher blood sugars and blood sugar swings are associated with a period of decline in lung function in the preceding year.

What's next?

Follow up is ongoing to determine if these blood sugar abnormalities predict future declines in lung function and nutritional health measures. Studies are also needed to determine whether earlier treatment of these blood sugar abnormalities may slow decline in lung function.

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