Abnormal Blood Sugars in Cystic Fibrosis: Patient Information

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Introduction:

In Cystic Fibrosis (CF), it is very common to see intermittently elevated blood sugars, and these can increase over time. More than 50% of people with CF will develop Cystic-Fibrosis-Related Diabetes (CFRD) within their lifetime. Identifying early changes in blood sugars, even before developing diabetes, is important because it helps your CF care team understand your overall health and risk for progression to CFRD. Early elevations in blood sugars, although not yet high enough to be classified as CFRD, may also have negative effects on lung function, weight, and overall CF health.

Why is it important to test my blood sugar levels?

The effects of CF are not limited to the lungs and CF affects the insulin producing cells in the pancreas as well. Decreased insulin leads to an increased risk for high blood sugars, and the risk for progression to diabetes increases overtime. In the early stages, intermittent high blood sugars may have no obvious signs or symptoms. It is because of this that the Cystic Fibrosis Foundation recommends yearly screening to detect abnormal sugar levels. A once yearly oral glucose tolerance test (OGTT) is advised in all people 10 years or older with CF. Other ways for screening for diabetes (ex, hemoglobin A1c) are not typically recommended in CF, as they do not detect early increases in blood sugars with CF.

What is an oral glucose tolerance test?

This test involves drinking a sweetened beverage followed by a series of 2 to 4 blood draws over a 2-hour time period to measure your blood glucose (sugar) levels. You must fast for at least 8 hours prior to the beginning of testing. A blood test is done when you arrive. This is called the “fasting blood glucose” value or “0 hour” value. It will be compared to other blood glucose values collected after drinking the sugary drink. A blood sugar or glucose collection typically occurs 1 hour and 2 hours after you consume the sugary drink.

What does it mean if my results are abnormal?

Elevations in these blood sugars will tell your CF care team whether you may have diabetes or pre-diabetes. A normal OGTT will have a 0 hour result < 100 mg/dl, a 1 hour result < 200 mg/dl and a 2 hour result < 140 mg/dl. Abnormal glucose tolerance or “prediabetes” is diagnosed when your sugar levels are not high enough to meet criteria for diabetes (ie. a 0 hour result >125 mg/dL and/or a 2 hour result >/=200 mg/dL), but are above the normal range. Guidelines recommend treating CFRD with insulin. Abnormal glucose tolerance or prediabetes will tell your CF care team if there is a higher chance of developing diabetes. Some individuals may be at higher risk for complications of CF, even with prediabetes, and individuals with abnormal OGTT results should talk to their health care team and an endocrinologist about management options.

With CFRD, you will likely be referred to a diabetes specialist, or endocrinologist. During that visit, you can expect to discuss what it means to have CFRD, how to monitor blood sugar levels at home, and any treatment that may be required.

Talking to Your CF Health Care Team:

As part of your routine CF visit, it is important to follow the results of your yearly oral glucose tolerance test. It is also very important to bring up any concerns that you may have that could be related to elevated blood sugars, including an unexplained decline in lung infection, more frequent infections, or weight loss. It is also important to mention any signs of high blood sugar such as an increase in thirst or an increase in urination.

For more information:

https://www.cff.org/managing-cf/cystic-fibrosis-related-diabetes

https://www.cysticfibrosis.ca/uploads/resources/CF%20Health/English%202/dl_CF-Impaired-Glucose-Tolerance-logo%20(1).pdf

https://cdn.wchn.sa.gov.au/downloads/WCH/hospital-services/nutrition/children/conditions/impaired-glucose-tolerance-and-CF-related-diabetes-fact-sheet.pdf