European Cystic Fibrosis Society

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

Cystic Fibrosis Research News

Title:

Hypoglycaemia (low blood sugar) in cystic fibrosis: an analysis of single centre adult cystic fibrosis clinic

Authors:

Natasha Armaghanian[1,2], Tania P Markovic[3,4], Jennie C Brand-Miller[4,5], Peter TP Bye[2], Carmel P Moriarty[2], Kate S Steinbeck[1,2,6]

Affiliations:

[1] Discipline of Child and Adolescent Health, Sydney Medical School, University of Sydney, Australia.
[2] Department of Respiratory Medicine, Royal Prince Alfred Hospital, Sydney, Australia.
[3] Department of Endocrinology, Royal Prince Alfred Hospital, Sydney, Australia.
[4] Boden Institute of Obesity, Nutrition and Exercise, University of Sydney, Australia.
[5] School of Molecular Bioscience, University of Sydney, Australia.
[6] Academic Department of Adolescent Medicine, The Children's Hospital at Westmead, Australia.

What was your research question?

How common is the presentation of low blood sugar levels during oral glucose tolerance tests and in the day-to-day lives of cystic fibrosis patients at our adult clinic?

Why is this important?

Patients at our cystic fibrosis clinic, who are not on insulin injections, have reported symptoms suggestive of low blood sugar levels. These symptoms can be physically disturbing and usually occur after missing a meal, after exercise or after a high carbohydrate meal. Previous research has found that low blood sugar levels can also occur during oral glucose tolerance tests. In looking at trends in low blood sugar levels during oral glucose tolerance tests, we hope to uncover the reason why this occurs in the day-to-day lives of our patients. It is important to understand who is most likely to experience these symptoms, why these symptoms occur and what can be done about it.

What did you do?

We reviewed electronic medical records at our cystic fibrosis clinic to see how many patients had low blood sugar levels on their previous oral glucose tolerance test. Those who did have low blood sugar levels were compared to a group of similar patients who did not. We then tried to determine if there was a difference between the two groups such as a

different insulin response. We also reviewed electronic medical records to see how many patients had reported symptoms suggestive of low blood sugar levels to a health care professional at the clinic.

What did you find?

25 (15%) of the 169 patients who had an oral glucose tolerance test during our study had a low blood sugar level either at the beginning or the end of the test. When we looked at these patients' insulin levels during the oral glucose tolerance test, abnormal insulin levels did not seem to be the cause of low blood sugar levels. Another 14 patients had reported symptoms suggestive of low blood sugar levels to the endocrinologist or physician at our clinic. Interestingly, these were not the same patients who experienced low blood sugar levels during the oral glucose tolerance test.

What does this mean and reasons for caution?

This study found two different presentations of low blood sugar levels which occur in two different sub-populations at our cystic fibrosis clinic. Unlike previous studies in the same area, abnormal insulin did not seem to be the underlying cause. We are still unsure why low blood sugar levels occur and what can be done to manage it. We think the abnormal release of other hormones in the body may play a role.

What's next?

The authors are planning to undertake further research looking at measuring additional hormones during oral glucose tolerance tests to determine an underlying cause for low blood sugar levels in cystic fibrosis. Asking patients to measure their blood sugar levels when they experience symptoms would also be beneficial.

Original Manuscript citation in PubMed

https://www.ncbi.nlm.nih.gov/pubmed/?term=Hypoglycaemia+(low+blood+sugar)+in+cystic+fibrosis%3A+an+analysis+of+single+centre+adult+cystic+fibrosis+clinic