Low-Carb Diet Helps Cut HbA1c in Prediabetes

— Could be a useful approach for preventing, treating type 2 diabetes, says researcher

by Kristen Monaco, Staff Writer, MedPage

Sticking to a low-carbohydrate diet helped people with prediabetes bring down their HbA1c in just a few months, a randomized clinical trial found.

Compared with those eating their typical diet, people with an untreated, elevated HbA1c who ate a low-carb diet saw a significantly greater improvement in fasting plasma glucose (-10.3 mg/dL, 95% CI -15.6 to -4.9) at month 6, reported Kirsten S. Dorans, ScD, of Tulane University School of Public Health and Tropical Medicine in New Orleans, and colleagues.

Those on the low-carb diet, which also included dietary counseling, also saw a 0.23% greater drop in HbA1c at this time (95% CI -0.32 to -0.14), they wrote in *JAMA Network Open*.

Although the researchers acknowledged this HbA1c reduction was "modest," they explained it was still a little greater than the 0.17% reduction seen in the lifestyle intervention arm of the DPP trial, which subsequently led to a 58% reduced risk for type 2 diabetes progression over 2.8 years.

Participants on the low-carb diet also spent longer in target glucose range (70-120 mg/dL) according to readings from their continuous glucose monitors. In addition, they had significantly lower average 24-hour glucose levels than those eating their usual diets.

And low-carb-dieters also saw a 5.9 kg (95% CI -7.4 to -4.4) greater reduction in body weight (about 13 lbs.) after being on the diet for half the year. This was likely due to the significant decrease in caloric intake seen among those on the low-carb diet.

"Few participants had detectable urinary ketones, suggesting ketosis was unlikely to account for the findings," the authors noted.

The authors cautioned that "the study was unable to evaluate its [low-carb diet] effects independently of weight loss."

Still, Dorans said in a statement that "The key message is that a low-carbohydrate diet, if maintained, might be a useful approach for preventing and treating type 2 diabetes, though more research is needed."

Her group noted that study limitations included self-report of dietary intake, which is subject to potential recall bias. Also, "participants in the low-carbohydrate group had frequent interventionist interactions, whereas the usual diet group did not," they wrote.

All of the benefits seen at the end of the trial had already reached significance by month 3, with improvements only strengthening from months 3 to 6. By month 3, HbA1c dropped 0.16% more in the low-carb group, fasting plasma glucose dropped 8.0 mg/dL more, and body weight dropped 4.1 kg (around 9 lbs.) more.

A few other exploratory outcomes also showed significantly better 6-month outcomes with the low-carb diet:

- Waist circumference: -4.7 cm (95% CI -6.7 to -2.6)
- HOMA-IR: -2.4 (95% CI -3.7 to -1.1)
- Fasting insulin: -6.2 µIU/L (95% CI -10.5 to -2.0)

Some other improvements were seen among the dieters, but these benefits were significantly better than those sticking to a usual diet. These included systolic blood pressure, cholesterol, diastolic blood pressure, and 10-year atherosclerotic cardiovascular disease risk.

A total of 150 adults with prediabetes were randomized for the parallel-group trial. At baseline, they were all untreated with diabetes medications and had an HbA1c level between 6.0% to 6.9%. A total of 59% of the cohort was Black and 41% were white. Nearly three-fourths were women, and the average age was 59.

Those randomized to the "usual" diet group were only given standard dietary advice but no ongoing education or diet-specific recommendations. The low-carb dieters were instructed to keep their daily net carbohydrate intake to under 40 g for the first 2 months. Then, participants were told to pick their own lowest feasible target (anything under 60 g daily) for months 4 through 6. On top of these goals, participants were involved in individual and group sessions through the diet period and were also each given a handbook with dietary guidelines and recipes.

Kristen Monaco is a staff writer, focusing on endocrinology, psychiatry, and nephrology news. Based out of the New York City office, she's worked at the company since 2015.

Disclosures

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Dorans and co-authors disclosed relationships with the NIH.

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