Personalized health coaching helps reverse progression to diabetes

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People with prediabetes who took part in a comprehensive health program to improve nutrition, exercise, stress and sleep were able to revert to normal blood glucose metabolism, reducing their risk for developing diabetes—a known risk factor for cardiovascular disease—according to a study to be presented at the American College of Cardiology's 64th Annual Scientific Session in San Diego.

The program, which focuses on promoting healthy behaviors and reducing cardiac risk, is unique because unlike others that tend to focus exclusively on exercise and nutrition it also integrates managing sleep and stress, the study authors said. Participation in the program seems to help prevent progression to diabetes and improve overall health, said Mariam Kashani, DNP, chief scientific director at Walter Reed National Military Medical Center in Bethesda, Maryland, and the study's lead author.

Researchers examined data for 508 consecutive subjects in the Integrative Cardiac Health Project, an ongoing risk management program. Patients received a comprehensive assessment of their cardiovascular health along with personalized health recommendations with tailored goals—all in line with national preventive care guidelines—and then took part in 14 personalized in-person or telephonic coaching sessions with specialists in nutrition, exercise, sleep and stress management. Researchers examined the impact of the intervention on blood glucose levels and other key risk factors. Of the 107 participants who had prediabetes—when blood sugar is elevated but

not high enough to be diagnosed as type 2 diabetes—at the start of the study, 49 percent were at normal blood glucose levels at the end of the 6-month study period irrespective of weight loss.

"Many more patients reverted to normal blood glucose than expected, especially if we consider that they were not necessarily losing weight," Kashani said, adding that the program is a supplement to usual care. "This is important because prediabetes is a modifiable risk factor for cardiovascular disease."

An estimated 86 million Americans have prediabetes. The main concern is that as many as 1 in 3 people with prediabetes will develop diabetes within five years if elevated blood glucose levels are not managed or reversed. The risk goes up with excess weight, inactive lifestyle and family history. Most people are unaware they have prediabetes especially because there are often no discernible symptoms, according to the Centers for Disease Control and Prevention.

On average, participants who were able to regain normal glucose metabolism lowered their fasting glucose level by 12 percent, or 13 milligrams, dropping from 105.4 to 92.4 milligrams of glucose per deciliter of blood.

"This is a big deal because we know that with each 5 milligrams per deciliter drop in blood glucose, there is a significant reduction in cardiovascular risk," Kashani said. "Most importantly, they lowered their glucose levels below the threshold of 100 milligrams per deciliter when blood vessels start to become unhealthy."

In addition, patients with prediabetes had significant improvements in blood pressure, fasting insulin, perceived stress levels, adherence to the Mediterranean diet, which is known to be heart protective, and reported feeling less tired. As a result, Kashani said that medication use was often

reduced because it was no longer indicated at the same dose, though medication use was not tracked in the study.

A major limitation of the study is that it is observational and there is no comparison group—that is, everyone with prediabetes participated in the cardiovascular disease risk reduction program. However, Kashani said those who were able to revert to normal blood glucose levels also had significantly lower triglyceride levels at six months compared with others who remained prediabetic. Triglycerides are not only a measure of heart health, but in lifestyle medicine they are also a marker of patient compliance to behavioral change recommendations, according to authors. A study to compare this lifestyle intervention to usual care is underway.

Kashani said the findings confirm that focusing solely on diet and exercise can only get someone so far.

"By taking sleep and stress into account, we factor in important hormonal processes to better manage glucose," she said. "When we are stressed, our bodies release extra glucose and when we are tired, we tend to make poor food choices. In this context, people often regain weight, and in doing so, they may revert back to worsening blood glucose levels."

She adds it is one thing to educate people, but in order to help promote changes that are sustainable it is critical to look at the triggers and provide creative, practical tools such as food demonstrations, the introduction of 10-minute tension tamers, and using smartphones to set alarms as reminders for earlier bedtime.

"We meet patients where they are in their lives, and we emphasize small steps and practical tools," Kashani said. "It's not about waking up one day and making dramatic life changes but taking a step back and

figuring out what the triggers are because maladaptive behaviors don't happen on their own."

Because prediabetes is a precursor to diabetes, programs to help modify and reduce risks among this population are urgently needed. Kashani said she is hopeful the Integrative Cardiac Health Project can be that model. She and others are using the program's registry to study the sustainability of lifestyle change strategies over time. They are also initiating randomized-controlled trials to see how behavioral patterns correlate with biomolecular markers and genetics to develop more precise cardiovascular risk assessment tools.

The project is funded by the United States Army Medical Research and Materiel Command and includes a total of 770 patients.

The study, "Prediabetes Reversal Using a Novel Comprehensive Health Model," will be presented on March 14 at the American College of Cardiology's 64th Annual Scientific Session in San Diego.

More information: Kashani will present the study, "Prediabetes Reversal Using a Novel Comprehensive Health Model," on Saturday, March 14 at 1:30 p.m. PT/4:30 p.m. ET/8:30 p.m. UTC in Poster Hall B1.

Provided by American College of Cardiology