

Cutting Calories Yielded Lasting Cardiac Benefit

BY SUSAN BIRK

FROM THE ANNUAL MEETING OF THE RADIOLOGICAL SOCIETY OF NORTH AMERICA

CHICAGO – Four months of a restricted-calorie diet produced lasting reductions in pericardial fat and improvements in left ventricular diastolic function in a study of obese adults with type 2 diabetes.

The diet eliminated insulin dependence in all patients during treatment. After returning to a normal diet, approximately 75% of patients remained insulin free at 18 months, reported Dr. Sebastiaan Hammer of Leiden (the Netherlands) University Medical Center.

The finding underscores the value of lifestyle interventions as a tool for diabetes management, Dr. Hammer said in a press briefing at the meeting.

The reductions in pericardial fat also persisted at 18 months from baseline – more than a year after patients had resumed their normal eating habits, Dr. Hammer said. These improvements were sustained even in patients who regained weight that had been lost during the 4-month period of caloric restriction.

Dr. Hammer and his colleagues analyzed changes in cardiac function, pericardial fat, and body mass index (BMI) using cardiac magnetic resonance imaging in eight men and seven women with obesity-related type 2 diabetes. At the beginning of the study, all patients had a BMI greater than 30 kg/m², were being treated with insulin, and had no cardiac complaints.

Insulin treatment was stopped at baseline. Patients consumed a standardized, low-carbohydrate, 500-calorie/day diet for 4 months and were monitored weekly for blood glucose level and weight loss. At months 4 through 6, patients were gradually reintroduced to normal caloric intake. For the following 12 months, patients received treatment by their own physicians. Dr. Hammer and his colleagues performed cardiac MRI on all patients at baseline, 4 months, and 18 months.

Caloric restriction resulted in a decrease in mean BMI from 35.3 to 27.5

over a period of 4 months. Pericardial fat decreased from a mean of 39 mL to 31 mL.

The researchers also quantified the elasticity of the left ventricle by quantifying blood flow across the valve between the left atrium and the left ventricle, using the ratio between the early filling phase (vessel filling phase) and the atrial filling phase as a measure of diastolic heart function. The mean E/A ratio improved from 0.96 to 1.2.

Dr. Hammer noted recent findings that “the fat around the heart is not an inert adipose tissue compartment, but it is metabolically active, it is associated with coronary plaque formation, and it may be associated with cardiac dysfunction in patients with diabetes.”

Pericardial fat shows promise as a marker for cardiac risk in patients with type 2 diabetes because it can be quanti-

fied using standard MRI, he said.

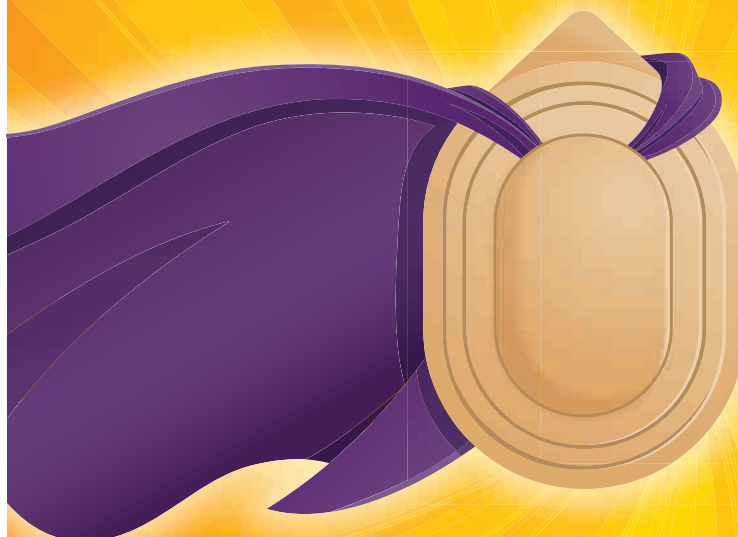
Although the patients in this study were obese and insulin dependent at baseline, none had cardiac disease, kidney disease, or other diabetic complications, he noted. “We are also testing if this strategy works in patients who do have some cardiac complaints,” Dr. Hammer said.

Dr. Hammer said he had no relevant financial disclosures. ■

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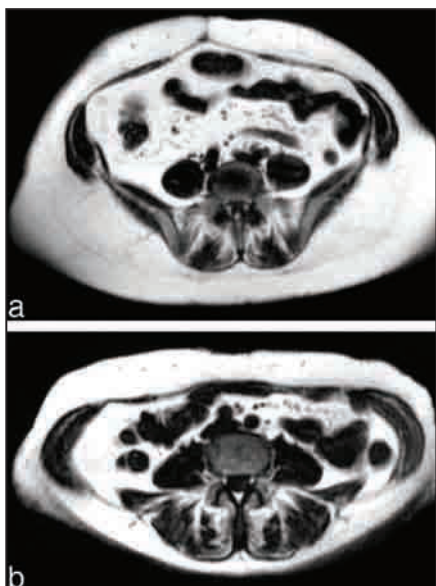
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Transverse abdominal MRI shows subcutaneous and intra-abdominal fat for a typical patient before (a) and after 4 months of caloric restriction (b).

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