Intensive Lifestyle Intervention Delivers a Bonanza of Benefits

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MUNICH — Obese type 2 diabetes patients with metabolic syndrome saw dramatic improvements in cardiac function and multiple cardiovascular risk factors after only 3 weeks in a German pilot study of an intensive lifestyle modification program including aerobic exercise and a low glycemic and insulinemic diet.

The catch? Those first 3 weeks of lifestyle modification were conducted on an inpatient basis. That's essential to the program's success because it enables patients to see the kind of early impressive benefits that result in greater buy-in and improved long-term adherence, Dr. Helene von Bibra said at the annual congress of the European Society of Cardiology.

She presented the results of an innovative prospective study involving 25 patients with type 2 diabetes and metabolic syndrome. Their baseline mean body mass index was 37 kg/m^2, with 41% body fat. They averaged 52 years of age and had a 4-year history of diabetes. None of the participants had known coronary disease. Nineteen were on oral antidiabetic medications.

The inpatient intervention included 2 hours of supervised moderate-intensity aerobic exercise daily and a low glycemic and insulinemic (LOGI) diet developed by Dr. David S. Ludwig, director of the obesity program at Children's Hospital Boston, and a pediatric endocrinologist at Harvard Medical School, Boston.

This low-carbohydrate diet derives 30% of calories from protein, 45% from fat, and only 25% from carbohydrate. The LOGI food pyramid described by Dr. Ludwig features unlimited consumption of fruits and most vegetables at its base. The second layer consists of low-fat dairy products, eggs, fish, lean meats, nuts, and legumes. Next come whole grains and pasta. The small peak of the pyramid comprises refined flour, potatoes, and desserts.

It's a diet designed to reduce postprandial blood glucose peaks and compensatory hyperinsulinemia while lowering blood pressure and improving lipid abnormalities, explained Dr. von Bibra of Bogenhausen Academic Hospital and State Clinic, Munich.

The LOGI diet was adopted for the program because of mounting evidence that traditional "heart healthy" low-fat diets are of questionable effectiveness. Dr. von Bibra cited a recent article by Dr. Paul R. Marantz and colleagues at Albert Einstein College of Medicine in New York that has been influential in Germany. The authors argue that U.S. national dietary guidelines introduced in the late 1970s that advocated low-fat diets for public health reasons were based on weak scientific evidence. Moreover, encouraging low-fat diets may have had the unintended consequence of contributing to the worsening obesity epidemic by leading to overconsumption of carbohydrates, according to Dr. Marantz and his coauthors (Am. J. Prev. Med. 2008;34:234-40).

Dr. von Bibra reported that after 3 weeks of inpatient lifestyle modification, patients showed mean reductions of 2.6 kg in body weight, 3.7 cm in waist circumference, 54% in postmeal insulin, and 6 mm Hg and 5 mm Hg in systolic and diastolic blood pressure, respectively. Of 19 patients initially on antidiabetic drugs, 13 were no longer taking them after 3 weeks; the remaining 6 patients were all taking lower doses.

The study was underwritten by a large health care and pension fund. ■

Key Metabolic and Cardiac Function Changes After Intensive Lifestyle Intervention

	Baseline	At 3 Weeks
Body mass index	37 kg/m^2	36.1 kg/m^2
Waist circumference	123 cm	119.3 cm
Triglycerides	192 mg/dL	145 mg/dL
Total cholesterol	207 mg/dL	195 mg/dL
HbA_{1c}	7.0%	6.7%
Fasting blood glucose	147 mg/dL	130 mg/dL
Postmeal glucose	143 mg/dL	123 mg/dL
High-sensitivity C-reactive protein	5.8 mg/L	3.8 mg/L
Systolic myocardial velocity	7.5 cm/sec	7.9 cm/sec
Diastolic myocardial velocity	9.6 cm/sec	10.5 cm/sec

Source: Dr. von Bibra

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