

Ornish Program Shows Benefit in Diabetes

The individual components all seem involved in improving coronary heart disease in diabetic patients.

BY MIRIAM E. TUCKER
Senior Writer

VANCOUVER, B. C. — Emerging data all point in the same direction: The intensive lifestyle modification program developed by Dean Ornish, M.D., reduces cardiovascular risk, including that of patients with diabetes.

The Ornish program—consisting of a low-fat vegetarian diet, stress management, moderate exercise, smoking cessation, psychological group support, and encouragement of partner participation—has been shown to bring about regression of even severe coronary atherosclerosis (*Lancet* 1990;336:129-33).

Since 1998, the Ornish program has been studied in the ongoing Multisite Cardiac Lifestyle Intervention Program (MCLIP), which now includes more than 1,600 participants in more than 22 U.S. sites.

An earlier demonstration project involving 440 subjects in eight U.S. sites showed that women benefit as much as men (*Am. J. Cardiol.* 2003;91:1316-22); data from 250 of those subjects showed that the program works just as well in places like West Virginia and Nebraska as it does in California. Dr. Ornish presented the findings at the annual meeting of the American Heart Association (*FAMILY PRACTICE NEWS*, Jan. 1, 2004, p. 20).

Now, new MCLIP findings by three of Dr. Ornish's associates at the Preventive Medicine Research Institute (PMRI), Sausalito, Calif., suggest that the regimen—officially called The Dr. Dean Ornish Program for Reversing Heart Disease—works in diabetic patients with coronary heart disease, and that each of the program's individual components appears to play a significant role in overall benefit. The data were presented in posters at the annual meeting of the American Psychosomatic Society.

Adherence Helps Diabetic Patients

Michael D. Sumner, Ph.D., was the lead author of the diabetes study, which in-

cluded 461 patients, of whom 10% had type 1 diabetes, 48% had diagnosed coronary heart disease (the rest had other risk factors), and 56% were female.

The patients achieved good adherence to the intervention: a plant-based diet with just 10% of calories from fat, at least 3 hours of moderate exercise per week, 7 hours per week of yoga and other stress-management techniques, and twice-weekly professionally supervised group support sessions. Mean dietary fat levels dropped from almost 30% of total calories to just 10%, weekly exercise levels increased from 1.3 to 3.8 hours, and weekly stress management practices rose from 0.4 to 6.3 hours. Mean support group attendance was 94%.

After 12 weeks, the group lost an average of 5.6 kg, and dropped from an average body mass index of 35.6 kg/m² to 33.5 kg/m². Mean systolic blood pressure dropped from 136.1 to 124.4 mm Hg and diastolic blood pressure fell from 78.9 to 72.4. Other significant changes included reductions in total cholesterol (187 to 161 mg/dL), LDL cholesterol (103 to 86 mg/dL), and triglycerides (222 to 189 mg/dL).

The drop in triglycerides was significant only in the men, but the changes in all other variables were significant for both genders, Dr. Sumner and his associates noted.

Diabetes-related changes included a drop in hemoglobin A_{1c} from a mean of 7.5% to 6.7% and fasting glucose levels from 159 to 126 mg/dL, with similar results for both type 1 and type 2 diabetic patients. More than a third (39%) were able to reduce their use of diabetic medications. Quality of life measures, such as physical function, bodily pain, general health, vitality, and social functioning, also improved significantly, along with significant declines in measures of depression, hostility, and perceived stress.

Analyzing the Interventions

A second study, led by Jennifer Daubenmier, Ph.D., sought to determine the relative

contributions of the program's individual behavior changes to reductions in coronary risk among 1,245 participants who had coronary heart disease (55%), diabetes, and/or at least three other risk factors (hypertension, hyperlipidemia, and obesity).

Changes at 12 weeks included significant reductions in weight (92.4 to 87.2 kg), functional capacity (9.0 to 10.9 metabolic equivalents), systolic blood pressure (133 to 123 mm Hg), diastolic blood pressure (79 to 73 mm Hg), total cholesterol (189 to 165 mg/dL), LDL cholesterol (108 to 92 mg/dL), and triglycerides (187 to 173 mg/dL). The group also had fewer depressive symptoms, lower hostility scores, and lower perceived stress after 12 weeks on the Ornish plan.

Regression analysis revealed significant additive effects of the health behaviors on decreases in weight, perceived stress, and depression at 12 weeks. For example, participants lost about 1.7% of body weight (1.53 kg) by reducing dietary fat, 1.2% (1.1 kg) through stress management practices, and 0.2% (0.18 kg) by exercising. (Remaining weight loss may have been due to other factors such as reduction in calories from sugar and alcohol.)

Reductions in dietary fat, exercise, and stress management also contributed significantly to levels of perceived stress, while improved diet and stress management contributed to lower depression scores.

The stress management component might indirectly boost the effects of diet and exercise in several ways. Yoga and meditation, for example, may facilitate healthier eating habits by increasing responsiveness to bodily cues and reducing stress-induced eating. Those practices might also mitigate cortisol-induced insulin resistance and weight gain.

"Traditional cardiac rehabilitation programs may increase their effectiveness by including a stress management component," Dr. Daubenmier and her associates concluded.

Impact of Support Groups

The third analysis, from Ute Schulz, Ph.D., focused on the impact of the group support component among the 440 participants in the earlier eight-site demonstration project. At 1 year, significant changes in coronary risk factors included reductions in weight from 85 to 80 kg and in LDL/HDL ratio from 4 to 3, along with increases in physical and mental functioning.

On average, participants attended 77% of all offered support group sessions during the year. The more support group sessions participants attended, the more time they spent practicing stress management and exercising.

That, in turn, was associated with better physical and mental functioning, weight loss, and decreased LDL/HDL ratios.

"Support group attendance may indirectly influence changes in coronary risk factors by fostering participants' adherence to exercise and stress management. . . . These findings underline the importance of multi-component programs in secondary prevention of CAD," Dr. Schulz and her associates said.

Few in the medical community doubt the efficacy of the Ornish program—what they question is whether it can be implemented in the real world. Those who work at the PMRI—of which Dr. Ornish is founder, president, and director—hope that the final results from the MCLIP will encourage physicians to try harder to get patients into the program.

At a symposium held during the American Psychosomatic Society meeting, Gerdi Weidner, Ph.D., PMRI vice president and director of research, summarized the previously reported data on the Ornish program and offered this perspective when questioned about its real-world applicability: "Of course lifestyle changes are not for everyone, but open heart surgery's not for everyone, either. Once you've been stented three times, the fourth time is not for [anybody]." ■

Traditional cardiac rehabilitation programs may increase their effectiveness by adding a stress management component.

Exenatide Benefits Hold Up Long Term in Type 2 Diabetes

BY NANCY WALSH
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NEW YORK — The glucose-lowering effects of the investigational agent exenatide were maintained for 80 weeks in an open-label extension study, Daniel J. Drucker, M.D., reported at a conference sponsored by the American Diabetes Association.

The reduction in hemoglobin A_{1c} (HbA_{1c}) remained at about 1%, which was initially seen in a 30-week randomized, blinded study. This reduction was accompanied by a mean weight loss of 10 pounds, said Dr. Drucker, director of the Banting and Best Diabetes Centre, University of Toronto.

Exenatide, the synthetic form of ex-

enin-4, is the first of a new class of antidiabetic drugs known as incretin mimetics. Incretins are gut peptides that are secreted in response to nutrient ingestion, stimulating the secretion of insulin, inhibiting the secretion of glucagon, slowing gastric emptying, and reducing food intake. Mimicking their actions is aimed at restoring β -cell function, Dr. Drucker explained.

Exenatide is a potent agonist for glucagon-like peptide-1 (GLP-1). It is derived from the saliva of *Heloderma suspectum*, the Gila monster.

A total of 963 patients with type 2 diabetes that could not be controlled with metformin and/or a sulfonylurea drug participated in the open-label study, Dr. Drucker said.

The 1% decrease in HbA_{1c} seen with twice daily injections of exenatide is "fairly reasonable," but "by no means can you say it normalizes blood glucose. It's another useful drug but type 2 diabetes is still a difficult disease to treat," he said.

"So why would anybody want to inject themselves twice a day with a substance derived from the saliva of a lizard? Because of the 10-pound weight loss," Dr. Drucker explained.

And despite the fact that 44% of patients in the placebo-controlled phase of the study complained of nausea, the dropout rate was quite low, he said.

Another observation that has emerged from the long-term study is that antibodies to the peptide do develop, but their

presence does not appear to correlate with the magnitude of HbA_{1c} reduction.

The drug also has pronounced effects on postprandial glucose. "Those of you who are following the debate about postprandial glucose and cardiovascular risk know that most of our drugs don't do a very good job at controlling this," he said. Recent reports have suggested that postprandial "hyperglycemic spikes" seen in diabetic patients may contribute to the onset of cardiovascular complications (*Diabetes* 2005;54:1-7).

Dr. Drucker disclosed that he is a board member of and consultant for Amylin Pharmaceuticals Inc., which has partnered with Eli Lilly & Co. to develop exenatide. ■