

# Gastric Bypass Lowers HbA<sub>1c</sub> Levels in Type 2

BY JEFF EVANS  
Senior Writer

NATIONAL HARBOR, MD. — Patients with type 2 diabetes who have undergone laparoscopic Roux-en-Y gastric bypass surgery might experience a significant drop in hemoglobin A<sub>1c</sub> levels to below the cutoff value recommended in guidelines, according to a retrospective study.

The procedure maintained its effect through 3 years of follow-up, during which the patients significantly lowered their use of oral hypoglycemic agents and insulin. More than half (53%) of the gastric bypass patients available for follow-up after 3 years experienced remission of their diabetes.

In comparison, an age- and gender-matched cohort of medically managed patients with type 2 diabetes who did not have surgery developed worsening hemoglobin A<sub>1c</sub> (HbA<sub>1c</sub>) levels and significantly increased use of oral hypoglycemic agents and insulin during a similar time frame.

“We feel that bariatric surgery should be

considered a first-line treatment option for obese patients with type 2 diabetes,” Dr. Daniel E. Mumme said at the annual meeting of the American Society for Metabolic and Bariatric Surgery.

The study that Dr. Mumme, a surgery resident, presented for his colleagues at Gundersen Lutheran Medical Center, La Crosse, Wis., compared the outcomes of 51 patients with type 2 diabetes who underwent laparoscopic Roux-en-Y gastric bypass at the center during 2001-2005 and 51 medically managed patients with type 2 diabetes identified within a family practice database. Patients in both groups had a mean age of 48 years and 78% were female.

In 48 surgical patients with HbA<sub>1c</sub> values recorded after 1 year of follow-up, mean HbA<sub>1c</sub> levels significantly dropped from 7.5% before surgery to 5.8%. The 29 patients who had 3-year follow-up data experienced a significant drop in mean HbA<sub>1c</sub> levels from 7.8% before surgery to 6.1%. HbA<sub>1c</sub> levels increased from 7% to 7.8% over a 3-year period in 39 patients of

the medically managed comparison cohort. Current treatment guidelines of the American Diabetes Association recommend HbA<sub>1c</sub> levels below 7%.

Data from a study investigating the association of HbA<sub>1c</sub> with cardiovascular disease and mortality in adults showed that a percentage point increase in HbA<sub>1c</sub> was associated with a 20%-30% increase in cardiovascular events or total mortality (Ann. Intern. Med. 2004;141:413-20). In another study, each percentage point drop in HbA<sub>1c</sub> was associated with a 37% decline in the risk of microvascular complications (BMJ 2000;321:405-12).

In the current study, the surgical patients lost a mean of 103 pounds, or 68% of their excess weight, at 1 year. The body mass index (BMI) of surgical patients dropped from a mean of 48 kg/m<sup>2</sup> before surgery to a BMI of 31 after 1 year. Nonsurgical patients had a mean BMI of 45 initially.

In surgical patients, the use of oral hypoglycemic agents significantly declined from 77% at baseline to 18% at 1 year and

22% at 3 years. In comparison, oral hypoglycemic use in conventionally treated patients rose from 67% at baseline to 82% at 1 year, remaining stable to 3 years. In both groups, insulin use followed the same trends as oral hypoglycemic agents.

At 3 years, 26% of gastric bypass patients used oral hypoglycemic agents and/or insulin, compared with 82% of conventionally treated patients. Remission of diabetes (defined as an HbA<sub>1c</sub> less than 6% and off diabetic medications) occurred at 1 year in 59% of surgical patients and in 35% of conventionally treated patients.

Of the 51 surgical cohort patients, the 31 who had gone into remission during the 3 years of follow-up had had diabetes for a mean of 4.1 years. That was significantly shorter than the mean duration of disease for the 20 patients who never remitted (7.9 years). Overall, surgical patients had a slightly longer mean duration of diabetes than did nonsurgical patients, said Dr. Mumme, who had no disclosures to make for himself or his coinvestigators. ■

## Target Lifestyle

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the same cardiovascular goals as diabetic patients, including blood pressure and lipid goals,” Dr. Handelsman said. The consensus statement is the first to recommend that people with prediabetes make a specific effort to improve their blood pressure and cholesterol profiles, he noted.

The recommendations, which will be finalized and published later in 2008, also emphasize that signs of metabolic syndrome should prompt primary care physicians to do glucose tests and check patients for prediabetes. Then they can focus on reducing cardiovascular risk factors while patients are still in the prediabetes state, noted Dr. Paul Jellinger, an endocrinologist on the voluntary faculty at the University of Miami, and a member of the writing panel.

The recommendations emphasize intensive lifestyle management for anyone who meets the criteria for prediabetes to prevent progression to diabetes. “Nothing else matches lifestyle in reducing the complications of diabetes,” noted Dr. Einhorn.

If lifestyle modification is not enough, or if someone is at increased risk for cardiovascular problems or progression to diabetes, the recommendations call for adding medications to manage blood pressure or cholesterol, in addition to glucose control medications if necessary.

The recommendations also state that “monitoring of patients with prediabetes to assess for worsening of glycemic status should include annual glucose tolerance tests and testing for micro-albuminuria.” In addition, fasting plasma glucose, hemoglobin A<sub>1c</sub>, and lipids should be checked twice a year. If hyperglycemia or cardiovascular risk factors are getting worse, more intense lifestyle modifications and pharmacotherapy may be needed.

One of the challenges in deciding whether to treat prediabetes is that although it is not a benign condition, it is essentially asymptomatic, said Dr. Michael Stern, an epidemiologist at the University of Texas at San Antonio.

“These people are completely well,” said Dr. Stern, who spoke at the consensus conference about the challenges of predicting disease outcomes in persons who meet criteria for prediabetes.

Cost-effectiveness must be considered, too. Any treatment incurs costs, but not everyone who meets criteria for treatment will progress to poor clinical outcomes, he noted.

Data from recent studies presented at the consensus conference suggest that the beginnings of the characteristic complications of diabetes can appear in individuals who meet criteria for prediabetes. Based on these findings, the recommendations state that persons with prediabetes should focus on reducing their risk of diabetes by taking action to improve risk factors such as high blood pressure, high cholesterol, and excess weight.

Most of the committee members were endocrinologists, but the recommendations are aimed more at primary care physicians because the number of prediabetes patients outstrips the capability of the endocrinology community, and primary care physicians are most likely to see prediabetes patients initially, Dr. Alan J. Garber, professor of medicine at Baylor College of Medicine, Houston, said at the briefing. As such, “the endocrine community has an obligation” to educate the public and the medical community about paying attention to risk factors and addressing them before they become serious, to prevent progression to diabetes, said Dr. Garber, who was chairman of the consensus conference.

Dr. Handelsman said he has received speaker honoraria from Amylin Lilly Alliance, AstraZeneca PLC, Bristol-Myers Squibb, Eli Lilly & Co., King Pharmaceuticals Inc., and Merck & Co. Dr. Einhorn stated he has received speaker honoraria from Amylin Pharmaceuticals Inc. and Takeda Pharmaceuticals North America Inc. Dr. Garber said he has received speaker and consultant honoraria from GlaxoSmithKline, Merck & Co., and Novo Nordisk A/S. Dr. Stern stated he had no financial conflicts to disclose, and Dr. Jellinger said he has received speaker honoraria from several companies including Amylin Pharmaceuticals Inc. and GlaxoSmithKline. ■



**Prediabetic patients should be treated for the same cardiovascular goals as diabetic patients.**

DR. HANDELSMAN

## Guidelines for Prediabetes Screening Miss Some Kids

BY BRUCE JANCIN  
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ESTES PARK, COLO. — A 2-hour oral glucose tolerance test is far more sensitive than the standard fasting blood glucose test in identifying obese children at increased risk for type 2 diabetes or metabolic syndrome.

Results of a recent Canadian study indicated that the current American Diabetes Association recommendation for prediabetes screening of obese children needed to be overhauled, said Dr. Walter L. Larimore, a Monument, Colo., family physician, at the annual conference of the Colorado Academy of Family Physicians.

The ADA recommends using the fasting blood glucose (FBG) test to screen obese children aged 10 years and older. But a study presented at the annual meeting of the Endocrine Society by Dr. Katherine Morrison of McMaster University, Hamilton, Ont., casts doubt upon that practice.

The study involved 173 obese children aged 5-17 years. With the FBG test alone, only 9% met the diagnostic criteria for prediabetes, compared with 24% of those who were screened by both the FBG and 2-hour oral glucose tolerance tests. The ADA defines prediabetes as an impaired FBG of 100 mg/dL or

greater, or an impaired glucose tolerance of at least 140 mg/dL.

“In other words, if we follow the current recommendation—which I’m certain will change—we’ll miss almost three-quarters of the kids” who are prediabetic, Dr. Larimore said.

Moreover, the current recommendation is to screen obese children at age 10 years and older. The yield in younger obese



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DR. LARIMORE

children has been thought to be too low to justify screening. But Dr. Morrison found that the prevalence of prediabetes in 5- to 9-year-olds in her study was 21%, similar to the 26% rate among those aged 10-17 years.

With the FBG test alone, 5% of screened children met International Diabetes Federation pediatric criteria for metabolic syndrome, compared with 13% when both screening tests were applied.

The 2-hour oral glucose tolerance test is more costly and inconvenient than obtaining an FBG level, but Dr. Larimore indicated that he is inclined, in light of the Canadian study, to make greater use of it in taking on the childhood obesity epidemic. ■