

# Cognition Not Impaired by Tight Glycemic Control

*By controlling HbA<sub>1c</sub>, patients improved their motor speed and maintained their psychomotor efficiency.*

BY JEFF EVANS  
Senior Writer

WASHINGTON — Tight glycemic control early in the course of type 1 diabetes does not result in later cognitive decline, according to new findings from two studies with an average of 18 years of follow-up data.

“Because of the length of follow-up and extent of cognitive testing, this study strongly supports the safety of intensive diabetes therapy,” Dr. Alan M. Jacobson said at the annual scientific sessions of the American Diabetes Association.

The results should allay the serious concerns about whether tight glycemic control might lead to more severe hypoglycemic episodes and subsequent decreased cognitive ability, said Dr. Jacobson, head of the behavioral and mental health research section at the Joslin Diabetes Center, Boston.

But the recurrent, severe hypoglycemic events that are more likely to occur with

tight glycemic control could still possibly have a negative cognitive effect on older adults, very young children, or those with a longer disease duration, he added.

The results from the multicenter, randomized Diabetes Control and Complications Trial (DCCT) and its continuation in the long-term observational Epidemiology of Diabetes Interventions and Complications (EDIC) study showed that patients receiving intensive glycemic control during the DCCT did not have any differences in cognition, compared with conventional treatment, as measured by an extensive test battery involving eight cognitive domains (problem solving, learning, immediate memory, delayed recall, spatial information, attention, psychomotor efficiency, and motor speed), Dr. Jacobson said.

Among patients in either group, there were no differences in cognitive functioning in those who had no hypoglycemic episodes, one to five episodes, or more than five episodes. Control of HbA<sub>1c</sub> (glycosylated hemoglobin) values to less than

7.9% similarly showed no significant effects, except in sparing patients from small reductions in psychomotor efficiency and in improving motor speed. The “very modest” declines in psychomotor efficiency and motor speed that were associated with higher HbA<sub>1c</sub> values (7.9% or greater) were “consistent with emerging literature on the effects of persistent hyperglycemia on mental and motor slowing,” Dr. Jacobson said.

All of the analyses were adjusted to account for the confounding variables of baseline age, gender, years of education, length of follow-up, and the number of cognitive tests taken.

The initial results at the end of the DCCT showed that maintenance of near normal glycemic control reduced the risk of developing—or the progression of—microvascular complications.

After 10 years of additional follow-up in the EDIC study, the patients who had prior intensive treatment still had reduced progression of retinopathy, nephropathy, neuropathy, and cardiovascular events.

As patients in the intensive treatment arm of the DCCT finished the trial and entered the EDIC study, they did not

maintain the same level of glycemic control during the ensuing years, whereas individuals who were in the conventional treatment arm of the DCCT received training on how to maintain tight glycemic control and soon began doing so on their own. Both groups had a mean HbA<sub>1c</sub> value of 7.8% at the end of 12 years of follow-up in the EDIC study, which includes data on more than 90% of the original DCCT patients.

At the end of the 12 years, a significantly greater percentage of the 583 patients who were in the intensive treatment arm of the DCCT had one or more severe hypoglycemic events leading to coma or seizures than did the 553 patients who received conventional treatment (44%, or 258 patients with 880 events, vs. 34%, or 187 patients with 452 events).

Most (97%) of the participants were white and were 27 years old on average when they entered the DCCT, where they received a mean of 6.5 years of intervention; they were 45 years old on average after 12 years of follow-up in the EDIC trial. At the last follow-up, all of the participants were adults and about 50% were employed as professionals. ■

## Hypertension Correlates With Hyperglycemia in Diabetics

BY ERIK GOLDMAN  
Contributing Writer

MADRID — Fasting blood glucose levels appear to be higher in diabetic patients with poorly controlled blood pressure than in those with well-controlled pressure, said Dr. Miroslav Soucek, at the annual meeting of the European Society of Hypertension.

This observation was based on a survey of more than 2,200 patients from 150 primary care practices in the Czech Republic. The primary objective of the study was to determine the prevalence of hypertension in the Czech population and the extent to which physicians can help their patients achieve pressure control targets as outlined in current ESH guidelines, said Dr. Soucek, who presented the findings in a poster.

Each participating physician recorded thorough case data from 15 consecutive patients aged at least 45 years, irrespective of the reason for each patient’s visit, to get a representative sampling of the health status of all those who visited primary care offices. The investigators defined hypertension as pressures above 140/90 mm Hg.

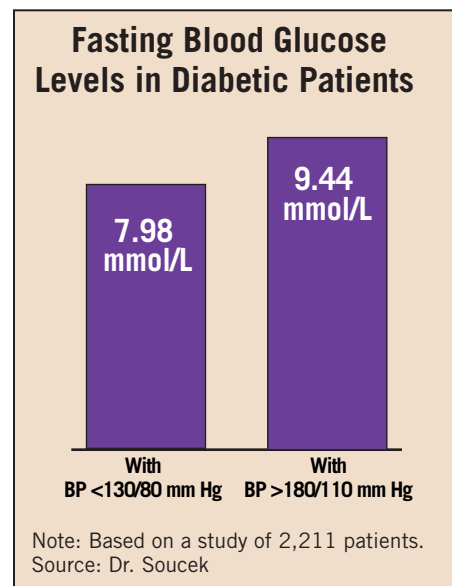
Dr. Soucek and his colleagues obtained data from 2,211 patients with a mean age of 62 years. Of the entire cohort, 78% of the patients were defined as hypertensive; of the 403 patients with diabetes, 75% had hypertension. Only 18% of patients being treated for hypertension were considered well controlled (pressures under 130/80 mm Hg); the rate for diabetics was 6%. He noted that blood pressure was uncontrolled in almost 30% of the diabetic patients with hypertension even though they were on at

least three antihypertensive drugs.

But the most striking finding was the correlation between poor pressure control and increased fasting blood glucose.

“The average fasting blood glucose showed a gradual increase, with increasing blood pressure, from 7.98 mmol/L in diabetics with blood pressure under 130/80 mm Hg to 9.44 in diabetic patients with blood pressures greater than 180/110 mm Hg,” reported Dr. Soucek of the department of internal medicine, St. Anne University Hospital, Brno, Czech Republic, adding that the mechanism underlying this connection is not known.

Uncontrolled pressure in a diabetic patient may signal uncontrolled glucose, and such patients need even closer attention than nondiabetic hypertensives or diabetics who are not hypertensive, he said. ■



## ADA Throws Its Weight Behind Obesity Issue in New Guidelines

BY BETSY BATES  
Los Angeles Bureau

LOS ANGELES — Primary prevention of diabetes begins with the prevention of obesity, as well as maintaining the ABCs of normal metabolism: hemoglobin A<sub>1c</sub>, blood pressure, and cholesterol, according to new nutrition guidelines from the American Diabetes Association.

Judith Wylie-Rosett, Ed.D., offered a sneak preview of the new guidelines at the annual meeting of the American Association of Diabetes Educators.

The guidelines, which will be published in this month’s issue of Diabetes Care, are intended to complement recent nutrition guidelines by the American Heart Association (Circulation 2006;114:82-96).

The guidelines share a focus on obesity, said Dr. Wylie-Rosett, professor of epidemiology and population health at the Albert Einstein College of Medicine in New York. Both guidelines stop short of offering advice on specific nutrients that are thought to prevent disease.

In the diabetes guidelines, available evidence is ranked according to whether it is backed up by well-conducted, generalizable, randomized or multicenter trials (level A evidence), by well-controlled cohort studies or metaanalyses (level B evidence), or, less powerfully, by supportive data (level C) or expert opinion (level D).

The strongest evidence (level A) was cited for the importance of monitoring carbohydrate intake as “a key strategy in achieving glycemic control,” and the fact that “sucrose-containing foods can be substituted for other carbohydrates in the

meal plan, or, if added to the meal plan, covered with insulin or other glucose-lowering medications. Fiber and protein are encouraged, but the guidelines note that evidence is lacking on whether people with diabetes need to modify the intake of these food sources beyond what is recommended for healthy adults.

In terms of structure, the diabetes guidelines break down into evidence addressing obesity, prediabetes, overt diabetes, and diabetes complications. For example, the guidelines cite level B evidence for the use of weight loss medications, which “may be useful in overweight/obese individuals with type 2 diabetes” for achieving a 5%-10% weight loss when combined with lifestyle change.

In general, the guidelines advise the limitation of food choices “only to the extent that we have evidence that it will be of benefit,” said Dr. Wylie-Rosett.

The guidelines also lend strong credence to the safety of sugar alcohols and nonnutritive sweeteners within Food and Drug Administration–recommended daily intake levels.

Dr. Wylie-Rosett said in an interview that the ADA is increasingly stressing the potential importance of the contribution of sugar, especially sugary beverages, to overall calorie intake. However, the new guidelines do not recommend low carbohydrate diets (less than 130 g).

“Although such diets produce short-term weight loss, maintenance of weight loss is similar to that from low-fat diets, and impact on cardiovascular disease risk is unknown,” they state, citing level B evidence. ■