Despite Secondary Prevention Medication
Diabetes Raises CVD Hospitalization Risk
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BY DOUG BRUNK

NEW ORLEANS — The rate of obe-

sity appears to be increasing more quick-

ly among young adults with type 1 dia-

betes compared with national prevalence
data, results from a 5-year, single-center study showed.

At the same time, obesity significantly
increased the likelihood of having ele-
vated systolic and diastolic blood pres-
sures and LDL cholesterol levels, and reduced HDL cholesterol levels, after adjustment for demographic factors, Samuel L. Ellis, Pharm.D., reported at the annual scientific sessions of the American Diabetes Association. “We need to continue this research and look at the impact of obesity on progression and complications,” he said.

While obesity is closely related to metabolic syndrome and type 2 diabetes in older adults, little is known about the prevalence and associated clinical effects of obesity in patients with type 1 dia-
betes. “There are limited data outside of the clinical trial population such as those in the Diabetes Control and Complica-
tions Trial,” said Dr. Ellis of the depart-
mament of clinical pharmacy at the Uni-
iversity of Colorado Denver School of
Pharmacy, Aurora.

He and his associates evaluated the electronic medical records of all patients with type 1 diabetes aged 18-30 years who received care at the Barbara Davis Center for Childhood Diabetes in Auro-
ra during 2000-2005. Patients were ex-
cluded if they were pregnant during the study period or if they had type 2 dia-
betes.

The number of patients seen per year
ranged from 1,141 in 2000 to 1,573 in
2005. The mean age of patients at base-
line was 23 years and their mean hemoglo-
in A1c level was 8.5%.

Patients were followed for the prima-
ry outcome of progression to obesity, de-
fined as a body mass index of 30 kg/m2 or higher; overweight was defined as a BMI of 25-29.9 kg/m2.

Secondary outcomes studied included the effects of obesity on blood pressure, lipids, and Hba1c levels.

Dr. Ellis reported that the number of patients with a body mass index of 30 kg/m2 increased 5.3 percentage points during the study period from 10.4% in
2000 to 15.7% in 2005. That is signifi-
cantly higher than the obesity rate in-
crease of 3.9 percentage points in the general population based on data from the 2000-2004 National Health and Nu-
trition Examination Survey, as well as the obesity rate increase of 3.4 percentage points based on data from the Colorado Behavioral Risk Factor Surveillance Sys-

Patients in the overweight and obese
groups had significantly greater LDL
levels during the study period compared with patients who had a BMI of less than 25 kg/m2. “This correlated at any given time period to about a 10-15 mg/dl
difference,” Dr. Ellis said.

In addition, patients in the overweight
and obese groups had significantly re-
duced HDL concentrations at all time
periods compared with those in the healthy BMI group. “We also noticed that those individuals who were obese had significantly lower HDLs in 2003, 2004, and 2005,” Dr. Ellis said.

A similar pattern was seen from a sys-
tolic BP standpoint. Patients in the
healthy BMI group had fairly normal sys-
tolic blood pressures, “but patients in the
obese group had elevated systolic blood pressures throughout the time period,” he said. “There were significant differ-
ences between the obese and the healthy BMI groups as well as between the obese and overweight groups.”

At the same time, diastolic blood pres-
sures in the obese group were 5-10 mm
Hg higher than those in the healthy BMI
group, and 2-4 mm Hg higher than those in the overweight group.

Mean Hba1c values throughout the study period were significantly lower in the obese group compared with patients in the healthy BMI group (8.4% vs. 8.06%, respectively). This finding may be the result of aggressive insulin therapy to lower Hba1c, which in turn results in weight gain, Dr. Ellis said in an interview. “But usually we don’t see this degree of weight change with a decrease in Hba1c,” he said.

Dr. Ellis said that the study’s observa-
tional, single-center design makes it difficult “to create an external validity that we can take outside of the state of Colorado.”

Dr. Ellis disclosed that he has served as a paid consultant for Merck.

BY MIRIAM E. TUCKER

NEW ORLEANS — Among patients with established cardiovascular dis-
ess, diabetes increased the risk for sec-
ondary cardiovascular hospitalization or death by 42% in a prospective analy-
sis of data from more than 12,000 members of Kaiser Permanente North-
west.

That increased risk was seen after adjustment for a wide range of risk factors associated with cardiovas-
cular events, and in the setting of relatively high use of guideline-recom-
mented medications for sec-
ondary prevention.

“Cardiovascular disease preven-
tion in patients with diabetes re-
mains the Holy Grail. Despite wide-
spread use of secondary prevention medications, the risk of CVD was still high. It seems unlikely that ‘more of same’ will be the answer,” Gregory A. Nichols, Ph.D., said at the annual scientific sessions of the Amer-
ican Diabetes Association.

The study, funded by GlaxoSmith-
Kline, is the first to document CVD hospitalizations and all-cause mortal-
ity in patients with and without dia-
betes outside of a clinical trial, said Dr. Nichols of Kaiser Permanente NW, Portland, Ore.

The study population comprised
12,278 patients who were added to Kaiser’s cardiovascular disease reg-
istry during 2000-2005 and followed through 2008 or until they died or left
the health plan. Of the registry pa-
tients, 2,384 (19%) had diabetes and
9,884 (81%) did not. In both groups
about 60% were male, and the mean age at baseline was 66 years.

The mean body mass index was sig-
nificantly higher in the diabetic pa-

tients than in the nondiabetic patients (32.6 vs. 29.6 kg/m2, respectively). Although there were significant dif-
ferences in blood pressure and LDL cholesterol levels, these factors were
well controlled in both groups.

Use of pharmacotherapy for CVD prevention was high in both groups, but the patients with diabetes were sig-
nificantly more likely than those without to be receiving antplatelets (86% vs. 71%), ACE inhibitors and/or angiotensin receptor blockers (60% vs.
40%), beta-blockers (76% vs. 67%), and statins (71% vs. 64%).

Nonetheless, over a mean follow-up
of nearly 4 years, 17% of the diabetes patients had a CVD hospitalization, compared with 10% of those without, a significant difference. Death oc-
curred in 15% of the diabetes patients,

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—Michele G. Sullivan

Uncontrolled High Blood Pressure
Doubles Diabetes Risk

Patients with uncontrolled hypertension are twice as likely to develop diabetes as are those whose blood pressure is well controlled, a prospective study has found.

The study followed 1,754 patients enrolled in a hypertension clinic network in Naples, Italy, for up to 3.5 years. At baseline, the pa-
tients’ mean age was 52 years, 67% had nor-
mal fasting glucose levels. Blood pressure was considered uncontrolled if it exceeded 140/90

mm Hg while the patient was taking antihy-
pertensive medication.

Uncontrolled hypertension occurred in 712 (41%) of the patients. Those with uncontrolled hypertension were significantly younger (51 vs. 53 years), and had a significantly higher heart rate than did those with controlled hypertension, Dr. Raffaele Iizzo of Federico II Universi-

ty Hospital in Naples, and his colleagues re-
ported (Diabetes Care 2009;32:845-50).

During follow-up, 21% of the patients de-
veloped diabetes. These patients were older (56 vs. 52 years), and had significantly higher body mass index, fasting glucose levels, uric acid, and triglycerides. They were significantly more like-
ly to have metabolic syndrome (61% vs 21%).

After the researchers controlled for age at the time of first visit, gender, baseline systolic blood pressure, family history, fasting glucose, BMI, and physical activity, the rate of diabetes was twiced as high among those with un-
controlled blood pressure. The risk of diabetes tripled when the regression model replaced fasting glucose and BMI with the modified Adult Treatment Panel–III definition of meta-
abolic syndrome.

The authors reported no conflicts of interest.