Acute MI Rates Differed With Types of Insulins

BY ELIZABETH MECHCATIE

Type 2 diabetes patients had a greater likelihood of having an acute myocardial infarction if they were treated with human neutral protamine hagedorn (NPH) insulin than if they were treated with insulin glargine, according to findings from a large retrospective study published online in the American Journal of Cardiology.

The results should be interpreted cautiously, noted the study's lead author Dr. George G. Rhoads, of the University of Medicine and Dentistry of New Jersey School of Public Health in Piscataway, and his associates.

However, they do "raise the possibility that specific insulin formulations or regimens might confer different levels of risk of [acute myocardial infarction] in patients with type 2 diabetes mellitus, and that this effect might be independent of the intensity of glucose control," they wrote (Am. J. Cardiol. 2009;104:910-6).

The investigators culled data from the Integrated Health Care Information System, a large administrative database involving enrollees of more than 30 U.S. managed health care plans.

All the inpatient claims analyzed were for acute MIs among patients who were taking oral antidiabetic agents after initiation of either NPH, a basal insulin (5,461 patients), or insulin glargine, a newer, long-acting synthetic insulin analogue (14,730 patients). Their mean age was 56 years.

In the NPH group, significantly more patients were women and the rates of baseline comorbidities, medical claims for hypoglycemia, and medical service use for diabetes were higher, but the rates of hypertension, hyperlipidemia, and statin use were lower. The average adjusted hemoglobin A_{1c} was about 8% in the two groups.

During a mean 2-year follow-up period after initiating insulin treatment, the risk of an acute MI was 56% greater in the NPH group than in the glargine group.

Among the possible mechanisms that might help explain the difference was a higher rate of hypoglycemic events, according to the investigators; however, after adjustment for such events, the association did not change significantly.

There is a paucity of information on the cardiovascular safety of injectable insulin agents; and the long-term safety of NPH insulin has not been compared with that of the newer synthetic insulins.

The study was sponsored by Sanofi-Aventis, the manufacturer of insulin glargine. Dr. Rhoads has served as a consultant to Sanofi-Aventis; other authors have served as speaker, adviser, and consultant for the company. ■

Diabetes-Related Visual Impairment Down 20%

BY MIRIAM E. TUCKER

MONTREAL — The age-adjusted prevalence of visual impairment among people with diabetes in the United States had a relative decline of more than 20% between 1997 and 2008, despite a sharp rise in the number of people diagnosed with the disease during that time.

The findings, calculated from National Health Interview Survey data, were presented in a poster by Dr. Nilka Rios Burrows at the World Diabetes Congress.

Visual impairment was defined as an affirmative response to the question, "Do you have trouble seeing even with glasses or contacts?"

The number of adults aged 18 and older with both self-reported diabetes and visual impairment increased from 2.6 million in 1997 to 3.6 million in 2008. Throughout the period, the prevalence of visual impairment was greater with increasing age, and was higher for women than men. But no racial or ethnic disparities were seen, said Dr. Burrows of the Centers for Disease Control and Prevention, Atlanta.

The prevalence of visual impairment declined steadily and significantly during the study period. Overall prevalence declined from 26% in 1997 to 22% in 2008, while the age-adjusted prevalence dropped from 24% to 19%, with an average annual relative change of 2.7%. The similarity of the crude and age-adjusted prevalences suggests that aging had little effect on the trends, she said.

The decline may be due in part to a reduction in ocular risk factors, improved detection and treatment of eye problems, or better health in the diabetes population overall. The increase in the number of new diabetes cases since the 1990s may have led to a large number of people who have not had diabetes long enough to develop visual impairment, Dr. Burrows and her associates noted in the poster.

Reported annual contact with eye care providers remained suboptimal among people with diabetes regardless of their visual status: Half of those surveyed reported having seen an eye doctor in 2008.

"Effective strategies are needed to increase awareness about eye health and improve rates of routine eye examinations among people with diabetes," the authors concluded.

Dr. Burrows declared that she had no conflicts of interest. ■

Low Vit D Linked to Higher Mortality in Type 2 Patients

BY DOUG BRUNK

SAN DIEGO — Adult patients with type 2 diabetes and severe vitamin D deficiency face a twofold increased risk of all-cause mortality, independent of urinary albumin excretion rate and conventional cardiovascular risk factors, results from a long-term observational study showed.

Severe vitamin D deficiency was significantly associated with all-cause mortality, even after adjustment for urinary albumin excretion rate, hemoglobin A_{1c}, and cardiovascular risk factors.

"A lot of people have insufficient levels of vitamin D without even knowing it," Dr. Christel Joergensen, lead author, said in an interview during a poster session at the annual meeting of the American Society of Nephrology.

Dr. Joergensen of the Steno Diabetes Center, Gentofte, Denmark, and her associates followed 290 white patients with type 2 diabetes for a median of 15.5 years.

They defined severe vitamin D deficiency as the lower 10th percentile (below 13.9 nmol/L, corresponding to 34.7 ng/mL).

At baseline, patients' mean age was 54 years, 173 were normoalbuminuric, 73 had microalbuminuria, and 44 had macroalbuminuria. The median vitamin D level was 35.7 nmol/L.

During follow-up, 142 patients (49%) died. Of these, 102 (73%) died from cardiovascular causes. All-cause mortality was significantly increased in patients with severe vitamin D deficiency, an association that persisted after adjustment for urinary albumin excretion rate, glomerular filtration rate, hemoglobin A_{1c}, and conventional cardiovascular risk factors.

Severe vitamin D deficiency was also significantly associated with cardiovascular mortality.

Dr. Joergensen cited the small number of patients as a study limitation. She had no financial conflicts to disclose. ■

HbA_{1c} Levels Above 8% Pose All-Cause Mortality Risk

BY MIRIAM E. TUCKER

MONTREAL — No difference in mortality was found at 4 years between baseline hemoglobin A_{1c} levels of less than 6.5% and levels of 6.5%-7.0% in a prospective observational study of nearly 3,000 unselected patients with type 2 diabetes.

However, the Diabetes in Germany study also found a dramatically increased risk of mortality for those with baseline HbA_{1c} levels greater than 8%, compared with those who began the study with lower HbA_{1c} values. Other baseline predictors of mortality included age, smoking, cardiovascular disease, and systolic blood pressure, Dr. Markolf Hanefeld reported at the World Diabetes Congress.

"In a diabetes population rather well controlled for hemoglobin A_{1c}, smoking status and good blood pressure control are of utmost importance for survival. However, at a level greater than 8%, [the degree of] glucose control becomes a serious risk factor for all-cause mortality," said Dr. Hanefeld of the Center for Clinical Studies, Technical University, Dresden, Germany.

Of an initial 4,020 unselected patients aged 35-80 years with type 2 diabetes in Germany, 2,784 completed the study at a median of 3.7 years; 175 died during that time. Most (86%) had no history of major cardiovascular events (MACE) at baseline; 251 (8.5%) reported a first MACE during follow-up. Average baseline HbA_{1c} for the entire group was 7.0%. Thirty-seven percent met the International Diabetes Federation's and American Association of Clinical Endocrinologists' target HbA_{1c} of less than 6.5%; 57% met the American Diabetes Association's target of less than 7.0%. But 29% had values above 7.5%. The average HbA_{1c} level for the entire group did not change over the 4-year period, Dr. Hanefeld said.

Among those who died during the study period, 6% had baseline HbA_{1c} values of less than 6.5%; 5.3% had values of 6.5%-6.9%; 5.1% had values of 7.0%-7.9%; and 7.6% had values of 8% or higher. The same trend was seen in MACE.

In a multivariate analysis, the most significant factor predicting mortality was MACE at baseline, conferring a twofold greater risk. Also significant were smoking, age, and systolic blood pressure. Female gender cut the risk by half. Hemoglobin A_{1c} did not contribute significantly to mortality, he said.

A comparison of these findings with the standard care arms of the randomized, controlled glucose-lowering trials ADVANCE, ACCORD, and VADT shows no link between HbA_{1c} and mortality.

Dr. Hanefeld stated that he had no conflicts of interest. ■

Pages 22a—22b