Type 2 Diabetes Linked to Complications in Teens

BY BRUCE JANCIN

FROM A CONFERENCE ON MANAGEMENT OF DIABETES IN YOUTH

KEYSTONE, COLO. — Adherence to therapy is dismal among adolescents with type 2 diabetes, in part because of a widespread mistaken notion that their condition requires less attention than does type 1.

"We need to understand that this is a very serious disorder. I think many patients get the message that, 'Whew, I don't have type 1 diabetes.' Unfortunately, they should have just the opposite reaction," Dr. Phil Zeitler said.

Dr. Zeitler serves as study chair for Treatment Options for Type 2 Diabetes in Adolescents and Youth (TODAY), a large, ongoing, multicenter National Institutes of Health–sponsored study. At entry, participants were generally in good glycemic control, yet already about 15% had moderate to severe hypertension, 12% had microalbuminuria, 20% had hypertriglyceridemia, and 60% had low high-density lipoproteins.

Moreover, 17% of the participants had both dyslipidemia and hypertension above the 95th percentile. Given the central role obesity plays in type 2 diabetes, this meant they also met criteria for the metabolic syndrome, added Dr. Zeitler of the department of pediatrics and clinical science at the University of Colorado, Denver, and medical director of the Children's Hospital Clinical Translational Research Center.

Hypertension was present in 30% of adolescents diagnosed with type 2 diabetes, compared with 4% with type 1.

DR. ZEITLER

Several years ago, he coauthored an analysis of published studies that showed that hypertension and nephropathy occur earlier and progress more aggressively in teens with type 2 diabetes than with type 1 (Lancet 2007;369:1823-31). For example, one study showed hypertension was already present at the time diabetes was diagnosed in 30% of the adolescents with type 2, compared with 4% with type 1. Microalbuminuria was present at diagnosis in 14% with type 2 and 0% with type 1.

In an Australian study, hypertension was present in 36% of type 2 diabetic patients and microalbuminuria in 28% a mean of only 1.3 years after diagnosis, compared with 16% for hypertension and 6.8% for microalbuminuria at 6.8 years' follow-up in adolescents with type 1 diabetes.

Dr. Zeitler said the available evidence indicates that a 15-year-old with type 2 diabetes develops nephropathy at the same rate as an adult diagnosed with type 2 diabetes at age 50 or older. Thus, 15 years after diagnosis of type 2 diabetes, the incidence of nephropathy is as high as 100 cases per 1,000 person-years—but someone diagnosed with type 2 disease at age 15 confronts this high rate of nephropathy at a mere 30 years of age.

Teens with type 2 diabetes have increased rates of numerous cardiovascular abnormalities, including greater carotid intima-media thickness than age- and body mass index–matched peers, higher mean nighttime systolic and diastolic blood pressures, diminished nocturnal decline in blood pressure, increased arterial stiffness, and left ventricular hypertrophy.

Diabetes in an adult is so potent a CV risk factor that it is considered a coronary heart disease equivalent. Noting that the average time from diagnosis of type 2 diabetes to a first CV event is 10-15 years in adults, Dr. Zeitler cautioned that if the time course of CV disease related to diabetes in adolescents is similar, "we can anticipate that adolescents with type 2 diabetes will begin having substantial cardiovascular morbidity and mortality in their 30s or 40s."

And now for the really bad news: Adherence to treatment in adolescents with type 2 diabetes is "terrible," he said. Most TODAY participants don't consistently attend clinic appointments. They also report discontinuing antidiabetic drugs periodically, said Dr. Zeitler at the meeting, which was sponsored by the University of Colorado, Denver, and the Children's Diabetes Foundation at Denver.

Dr. Zeitler serves as an adviser to several pharmaceutical companies. ■

Thiazolidinediones Tied to Increased Risk of Fracture

BY ROBERT FINN

FROM THE JOURNAL OF CLINICAL ENDOCRINOLOGY AND METABOLISM

Rosiglitazone and pioglitazone are both associated with an increased risk of fracture in postmenopausal women with type 2 diabetes, according to a matched case-control study that used data from the Translating Research into Action for Diabetes (TRIAD) trial.

After controlling for age, sex, race/ethnicity, body mass index, and health plan, Dori Bilik of the University of Michigan, Ann Arbor, and colleagues, found that both of the thiazolidinediones (TZDs) were associated with a 71% increase in the risk of fracture for women aged 50 and older, according to the study, published July 14 online.

The investigators detected no such increase in risk for younger women. In men, TZDs alone showed no association with an increase in fracture risk. But men who took both TZDs and loop diuretics experienced a 3.5-fold increase in the risk of fractures.

TRIAD enrolled 11,927 patients with diabetes in 2000-2001. All were at least age 18 years and in managed care for at least 18 months before the baseline patient survey. The investigators analyzed data from patients with type 2 diabetes, excluding those who were diagnosed before age 30 and treated only with insulin. Among these patients were 786 with a diagnosis of fracture, which the investigators matched with 2,657 controls, up to 4 controls per case and followed for a mean of 1.9 years.

"Our study shows that increased fracture risk is associated with higher TZD dose, but no difference between rosiglitazone and pioglitazone is apparent, suggesting a class effect of TZDs on fracture risk," said senior author Dr. William Herman of the University of Michigan Ann Arbor, in a prepared statement. "Physicians should be aware of this risk and weigh the benefits and risks of therapy when they initially prescribe or renew prescriptions for TZDs."

Researchers found a dose-response relationship between TZDs and fracture risk. Higher TZD doses were associated with a significant 42% increase in the odds of fractures for women aged 50 years and older, but not for women under 50 years or for men (J. Clin. Endocrinol. Metab. 2010 July 14 [doi:10.1210/jc2009-2638]). ■

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Major Finding: Both rosiglitazone and pioglitazone are associated with a 71% increase in the risk of fracture in diabetic women 50 years of age and older. In men with diabetes, there is a 3.5-fold increase in the risk of fracture when TZDs are used together with loop diuretics, but not when TZDs are used alone.

Data Source: Case-control study involving 786 cases of fractures and 2,657 matched controls in patients with type 2 diabetes.

Disclosures: The Centers for Disease Control and Prevention and the National Institute of Diabetes and Digestive and Kidney Diseases funded the study. The authors did not report other conflicts of interest.

White Rice Raised Diabetes Risk, Brown Rice Lowered It

BY MARY ANN MOON

FROM ARCHIVES OF INTERNAL MEDICINE

Consumption of white rice appears to increase the risk of developing type 2 diabetes, whereas consumption of brown rice appears to decrease that risk.

"Replacing refined grains such as white rice by whole grains, including brown rice, should be recommended to facilitate the prevention of type 2 diabetes," said Dr. Qi Sun of the Harvard School of Public Health, Boston, and associates.

White rice has a higher glycemic index than does brown rice, and its relationship to type 2 diabetes has been studied in several Asian countries, where it accounts for as much as 75% of the diet. This is the first prospective study to specifically assess the relationship between the disease and the intake of both white and brown rice in a Western population, where white rice accounts for 2% of the diet, Dr. Sun and his colleagues noted.

The researchers used data from three large cohort studies that documented food intake to examine this association, assessing diet and diabetes status in 39,765 men in the HPFS (Health Professionals Follow-Up Study), 69,120 women in the NHS I (Nurses' Health Study I), and 88,343 women in the NHS II.

There were 2,648 incident cases of diabetes during 20 years of follow-up in the HPFS, 5,500 cases during 22 years of follow-up in the NHS I, and 2,359 cases during 14 years of follow-up in the NHS II.

Greater consumption of white rice was linked to a higher risk of diabetes across all three studies. This link was attenuated after the data were adjusted to account for lifestyle and dietary risk factors, "but a trend of increased risk associated with high white rice intake remained," the researchers said.

Compared with those in the lowest category of white rice intake, "participants who had at least 5 servings of white rice per week had a 17% higher risk of developing type 2 diabetes" (Arch. Intern. Med. 2010;170:961-9).

Greater consumption of brown rice was linked to a lower risk of diabetes. This link was attenuated but remained significant after the data were adjusted to account for risk factors.

"When compared with the participants who ate less than 1 serving of brown rice per month, the pooled risk reduction of type 2 diabetes was 0.89 for intake of 2 or more servings per week," Dr. Sun and colleagues said.

The study involved working, highly educated health professionals of predominantly European ancestry. The findings may not be generalizable to other populations, they said. ■

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