Retinopathy Rate May Be 29% in Adult Diabetes

Study points to a high prevalence of vision-threatening diabetic retinopathy in the United States.

BY MARY ANN MOON

FROM JAMA

The estimated prevalence of diabetic retinopathy is about 29% in U.S. adults aged 40 years and older who have diabetes, according to an analysis of National Health and Nutrition Examination Survey data.

The estimated prevalence of vision-threatening retinopathy in the same population is about 4%.

The figures were derived from the most recent (2005-2008) NHANES data.

"Despite the documented increase in the prevalence of diabetes in the U.S. population, national population-based data on the prevalence and severity of diabetic retinopathy remain scarce, with previous nationwide prevalence estimates dating back to 1988-1994," said Dr. Xinzhi Zhang of the Centers for Disease Control and Prevention, Atlanta, and his associates.

The investigators based their analysis on a nationally representative sample of 1,006 patients with diabetes who were aged 40 or older when they underwent ophthalmic digital fundus photography as part of the NHANES study.

The estimated crude prevalence of diabetic retinopathy was 28.5% and that of vision-threatening retinopathy was 4.4%.

"Extrapolating to the overall U.S. population in the same period, the prevalences nationwide would be 3.8% and 0.6%," the investigators wrote (JAMA 2010;304:649-56).

About 1.5% of the study subjects had proliferative diabetic retinopathy and 2.7% had clinically significant macular edema.

That translates to rates of 0.2% and 0.4%, respectively, in the general U.S. population.

In the study subjects, there was no significant difference in the rates of retinopathy between patients aged 40-64 years and those aged 65 years and older.

Men were found to have a higher rate of retinopathy (31.6%) than women (25.7%).

Compared with white study subjects, members of minority groups were more likely to have diabetic retinopathy. The rate was 26.4% in whites, compared with 38.8% in black subjects, and 34% in Mexican American subjects.

As expected, subjects who used insulin and those with higher hemoglobin A_{1c} levels, longer duration of diabetes, and higher blood pressure all were more likely to have retinopathy than were those who did not have these risk factors.

This updated information shows that there is a high prevalence of diabetic retinopathy and a high prevalence of vision-threatening diabetic retinopathy in the United States, particularly in men and racial/ethnic minorities, the authors concluded.

The study was supported by the National Center for Health Statistics and the National Eye Institute, in addition to the CDC. ■

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Major Finding: Estimated crude prevalence of diabetic retinopathy was 28.5% and that of vision-threatening retinopathy was 4.4%, which extrapolates to 3.8% and 0.6% in the overall U.S. population.

Data Source: A nationally representative sample of 1,006 patients with diabetes who were aged 40 or older when they underwent ophthalmic digital fundus photography as part of the NHANES study.

Disclosures: The investigators disclosed no conflicts of interest.

Preventive Aspirin in Diabetes

Aspirin *from page 1*

evidence is vanishingly scanty. Of the nine published randomized trials that have examined aspirin for primary prevention and included subjects with diabetes, six were population-based trials that didn't focus specifically on diabetic patients. Indeed, in three of these six trials—the Physicians' Health Study, the British Medical Doctors, and the Thrombosis Prevention Trial—persons with diabetes accounted for a mere 1%-2% of participants.

Moreover, two of the three trials that focused on persons with diabetes included mainly or exclusively patients with type 2 diabetes. Only one randomized trial, the Early Treatment of Diabetic Retinopathy Study, published 18 years ago in the prestatin era, included a substantial population of type 1 diabetic patients. They composed 31% of the 3,711 study participants, noted Dr. Hirsch, professor of medicine and holder of the Diabetes Treatment and Teaching Chair at the University of Washington, Seattle.

The expert panel performed a new meta-analysis using the three trials in diabetic patients plus the diabetic subgroups from the six other trials. They found prophylactic aspirin was associated with a 9% decrease in the risk of fatal and nonfatal MI and a 15% reduction in the risk of stroke, consistent with what was deemed a "modest" but statistically nonsignificant benefit.

The panel determined that the excess risk of GI bleeding associated with aspirin for primary cardiovascular prevention in real-world settings may be one to five events per 1,000 treated patients per year. Thus, in persons whose risk of cardiovascular events is greater than 1% per year, the number of cardiovascular events prevented is likely to be equal to or greater than the number of bleeding events induced.

Based upon this reasoning, the panel concluded that low-dose aspirin at 75-162 mg/day is reasonable for adults with type 2 diabetes and no previous history of vascular disease whose 10-year estimated risk of cardiovascular events exceeds 10%, so long as they aren't at increased bleeding risk based upon medical history or concurrent use of other drugs that raise bleeding risk. Most diabetic men older than 50 years and diabetic women older than 60 years who have one or more of the standard major cardiovascular risk factors would fall into this category.

The ADA/AHA/ACC position statement recommended against aspirin for prevention of cardiovascular events in adult diabetics whose 10-year risk is under 5%. This would typically be most diabetic men younger than 50 years and women younger than 60 years without dyslipidemia, smoking, hypertension, albuminuria, or a family history of premature cardiovascular disease (Diabetes Care 2010;33:1395-402).

Low-dose aspirin might be considered for primary prevention on a case-by-case basis in diabetic patients at intermediate cardiovascular risk until further research is available.

Two major ongoing clinical trials will add badly needed additional information. A Study of Cardiovascular Events in Diabetes (ASCEND) is a U.K. study looking at the impact of 100 mg/day of aspirin versus placebo in 10,000 men and women over age 40 with either type 1 or 2 diabetes and no prior vascular events. The Aspirin and Simvastatin Combination for Cardiovascular Events Prevention Trial in Diabetes (ACCEPT-D) is an Italian study with a planned enrollment of nearly 5,200 diabetic adults older than 50 years.

In the absence of solid data on the impact of aspirin for primary prevention in adults with type 1 diabetes, Dr. Hirsch is applying the new recommendations generated for patients with type 2 disease to his type 1 patients as well.

He recommended two "excellent" cardiovascular risk prediction tools that can be loaded into a smartphone for use in the clinic: the UKPDS Risk Engine, at www.dtu.ox.ac.uk/riskengine/index.php; and the American Diabetes Association Risk Assessment Tool, wich is located at www.diabetes.org/phd.

These risk engines are valuable because, as the joint position statement points out, aspirin is not given in a vacuum. For example, a diabetic patient with an estimated 20% 10-year risk of a major cardiovascular event based on hypertension and dyslipidemia would have that risk fall to 13% by taking a statin, with a further reduction in risk to 10% with optimal blood pressure control. Thus, effective treatment of modifiable risk factors makes the aspirin risk-benefit decision more complex.

Some of the other medical risk management issues in aging adults with type 1 diabetes have more clear-cut answers than the aspirin question. In general, all adults over age 40 with type 1 diabetes should be on statin therapy, in Dr. Hirsch's view, particularly if albuminuria is present.

ACE inhibitors or angiotensin receptor blockers should be used liberally in adults with type 1 diabetes.

"Definitely they are the first drugs to use for treatment of hypertension. Data don't support their use for prevention of progression of nephropathy per se, but do support a protective effect against diabetic retinopathy as shown in the Renin-Angiotensin System Study (N. Engl. J. Med. 2009;361:40-51).

"I am very fast to start an ACE inhibitor or ARB when somebody develops early retinopathy," he added.

In terms of blood glucose control in aging adults with type 1 diabetes, Dr. Hirsch urged physicians to loosen up and individualize their hemoglobin A_{1c} targets compared to those they employ in children with the disease. He noted that the landmark Diabetes Control and Complications Trial, which established the long-term benefits of tight metabolic control, was conducted in relatively recently diagnosed patients.

"In my opinion, after 40-50 years of diabetes, the enemy is hypoglycemia, not a non–evidence-based A_{1c} target. There has never been a [Diabetes Control and Complications Trial]-type trial in type 1 patients 60 years of age with 40 years of diabetes. We are just starting to learn about how hypoglycemia is associated with inflammatory problems, endothelial dysfunction, cardiac arrhythmias, and blood coagulation abnormalities. Hypoglycemia is how these people die," Dr. Hirsch said.

The conference was sponsored by the University of Colorado, Denver, and the Children's Diabetes Foundation at Denver. Dr. Hirsch disclosed having no financial conflicts. ■