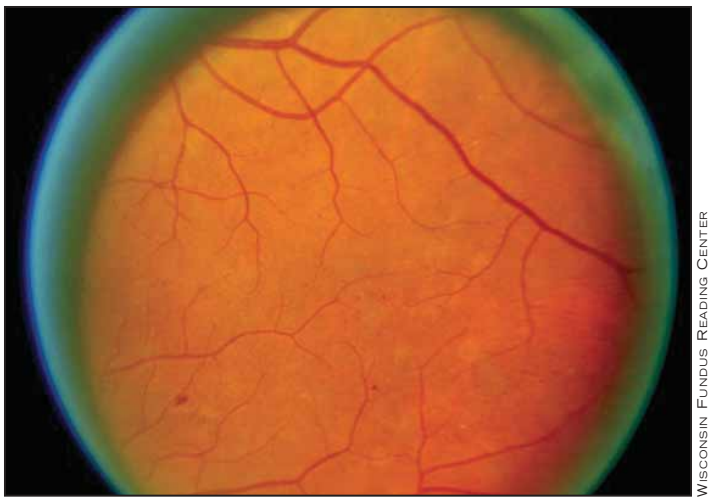

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Mild nonproliferative diabetic retinopathy like this may be seen in patients who have impaired glucose tolerance but do not yet have diabetes, the study showed.

Retinopathy Found Prior To Diabetes Development

BY MIRIAM E. TUCKER
Senior Writer

SAN DIEGO — Diabetic retinopathy can occur in people who do not yet have diabetes, Richard Hamman, M.D., reported at the annual scientific sessions of the American Diabetes Association.

The incongruous finding, among patients with impaired glucose tolerance (IGT) or impaired fasting glucose (IFG) who had participated in the Diabetes Prevention Program (DPP), suggests that the current cutoffs used to diagnose diabetes may need to be revised, said Dr. Hamman, professor and chair of the department of preventive medicine and biometrics at the University of Colorado, Denver.

More patients will need to be studied to determine whether the retinal lesions found in these "prediabetic" individuals represent early diabetic changes or perhaps are more indicative of arteriolar changes in people who are at risk for atherosclerotic vascular disease in general. Still, the finding does suggest that "a good retinal exam during the transition from prediabetes to early diabetes is important," Dr. Hamman said at a press briefing at the ADA meeting.

Little is known about exactly when retinopathy develops in patients with type 2 diabetes, because the diagnosis often lags years behind the actual onset of high blood sugar. The DPP, which followed 3,234 high-risk individuals at 6-month intervals, afforded a unique opportunity to date precisely the development of retinopathy in relation to diabetes onset, he noted.

At a mean of 5.5 years between randomization in DPP and the taking of retinal photos, retinopathy of any degree was found in 15% of the 301 who developed diabetes during the trial and in 10% of 585 who did not. Retinopathy of grade 20 or higher—considered more indicative of true diabetes-related changes—was found in 12.5% of those with diabetes of short duration and in 8% of those who remained as IGT or IFG.

Similarly, the proportions who had only microaneurysms were 11% and 7%, respectively. Moderate nonproliferative diabetic retinopathy was detected in 2% of those who did not meet the criteria for diabetes during the trial and in 1% of those who did, a nonsignificant difference that nonetheless follows the same trend.

These data also show that retinopathy may appear far earlier in the course of diabetes than was previously thought. "Just 6-12 months after diabetes onset, almost 13% had retinopathy," Dr. Hamman remarked at the press briefing.

Among the subjects who did not develop diabetes, triglycerides were the only other risk factor associated with the development of retinopathy, with no differences in other lipid parameters, hemoglobin A_{1c}, or blood pressure between those who developed retinopathy and those who did not.

But among those who developed diabetes, blood pressure and HbA_{1c} levels were associated with the presence of retinopathy. Prior to their diabetes diagnosis, those with retinopathy had a mean blood pressure of 129/80 mm Hg, compared with 124/78 mm Hg among those without retinopathy, a significant difference. After the diabetes diagnosis, those values were 127/79 mm Hg and 123/77 mm Hg, respectively.

The study is being funded by the National Institutes of Health and the Centers for Disease Control and Prevention. ■