

Clinical Capsules

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Body

Retinopathy Can Predict Diabetes

Individuals with retinopathy and at least one diabetic parent are more likely to develop diabetes themselves, according to findings of a longitudinal study.

Dr. T.Y. Wong of the University of Melbourne and colleagues studied diabetes-related blood levels, family-history data, and retinal photographs from participants in the Atherosclerosis Risk in Communities study, a previously conducted, population-based investigation involving persons aged 45–64 years from four U.S. communities.

The investigators evaluated retinal photographs of the 7,992 eligible subjects; 381 (5%) had retinopathy. Being male and being African American significantly increased the risk of retinopathy, as did elevated blood pressure and greater fasting insulin levels (Br. J. Ophthalmol. 2006;90:301–3).

During a median follow-up of 3.5 years, 291 participants developed diabetes. Retinopathy was not significantly associated with development of diabetes in the total cohort. However, in patients who reported at least one parent with diabetes, there was a significant association between retinopathy and incident diabetes.

The authors speculated that in those with a family history of diabetes, retinopathy might be a sign of abnormalities in glucose metabolism or microvascular disease.

Diabetes Risk Elevated With Smoking

Both smoking and exposure to secondhand smoke increase the risk of developing glucose intolerance, results of a prospective cohort study indicate.

Over the 15-year study period, development of glucose intolerance was most common among smokers (22%), followed by people who had never smoked but had secondhand smoke exposure (17%), previous smokers (14%), and those who neither smoked nor had secondhand smoke exposure (11.5%).

The investigators in the **Coronary Artery Risk Development in Young Adults (CARDIA) study** said this was the first study to show that secondhand smoke is independently associated with the risk of developing glucose intolerance (BMJ 2006 April 7 [Epub doi.10.1136/bmj. 38779.584028.55]).

Dr. Thomas K. Houston of the Birmingham (Ala.) Veterans Affairs Medical Center and his associates enrolled young adults, aged 18–30, from four U.S. cities. The cohort included 1,386 smokers, 621 previous smokers, and 2,565 individuals who had never smoked; all had normal glucose tolerance levels at baseline. The "never smokers"

included 1,452 people with secondhand smoke exposure, which was validated by a serum cotinine concentration of between 1 and 15 ng/mL.

Study participants received thorough examinations at baseline and at years 2, 5, 7, 10, and 15 that assessed medical and sociodemographic information. They also were interviewed by telephone each year. After 15 years, 17% of the subjects had developed glucose intolerance or diabetes.

Compared with people who had never smoked and weren't exposed to secondhand smoke, current smokers (hazard ratio of 1.65), never smokers with secondhand smoke exposure (hazard ratio of 1.35), and previous smokers (hazard ratio of 1.17) remained at increased risk for developing glucose intolerance, after adjusting for confounding variables.

More Fiber, Better Insulin Sensitivity

A small, randomized controlled study concluded that eating insoluble dietary fiber found in cereal, fruits, and vegetables improved insulin sensitivity, Dr. Martin O. Weickert reported.

Eating a diet high in insoluble fiber might be a safe, effective, and low-cost way to reduce insulin resistance in patients at risk of developing type 2 diabetes, said Dr. Weickert of the German Institute of Human Nutrition Potsdam-Rehbruecke, Nuthetal, Germany, and his associates (Diabetes Care 2006;29:775–80).

Seventeen overweight or obese women with normal glucose metabolism and no serious health problems ate bread enriched with oat fiber for 3 days followed by regular bread for 3 days, or vice versa, in a crossover design. At the end of each 3-day period, investigators measured whole-body insulin sensitivity and took blood samples.

In the 17 subjects overall, the 3 days of fiber-enriched bread were associated with significantly improved whole-body glucose disposal, equivalent to an 8% improvement in insulin sensitivity. Fasting insulin concentrations tended to be reduced after the days of fiber, an effect that might have been significant in a larger study, the investigators suggested.

A subanalysis excluded four women who probably did not follow the protocol; this found a highly significant improvement in whole-body glucose disposal after 3 days of fiber-fortified bread, equivalent to a 13% improvement in insulin sensitivity.

The enriched white bread contained 31.2 g insoluble fiber per day, which is within the recommended fiber intake of 20–35 g/day.

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