Macular Edema Tied to Cardiac Risk in Later-Onset Diabetes

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Senior Editor

Clinically significant macular edema with or without diabetic retinopathy correlates significantly with ischemic heart disease mortality in individuals with later-onset, but not earlier-onset diabetes mellitus, according to a large population study.

The researchers analyzed data on 954 younger-onset patients with diabetes and 1,295 older-onset patients, all of whom were participants in the Wisconsin Epidemiologic Study of Diabetic Retinopathy (WESDR), an ongoing prospective population-based cohort study initiated from August 1980 through July 1982. Younger onset was defined as diabetes diagnosed at under age 30 years (generally indicative of type 1 diabetes); the older onset group comprised those diagnosed at age 30 years and above (generally indicative of type 2 diabetes).

Clinically significant macular edema (CSME) was defined according to the Early Treatment of Diabetic Retinopathy classification protocol as the presence of retinal thickening at or within 500 mcm of the center of the macula or hard exudates at or within 500 mcm of the center of the macula, if associated with other characteristics of the disease, according to Dr. Flavio E. Hirai and his colleagues from the University of Wisconsin, Madison, and the Federal University of São Paulo, Brazil.

At baseline, CSME was 5.9% and 7.5% for the younger- and older-onset groups, respectively. After 20 years, 276 (about 29%) of individuals in the younger-onset group had died, 118 of ischemic heart disease and 18 of stroke. CSME status was not found to be associated with all-cause, ischemic heart disease, or stroke mortality. After 20 years, 1,123 (about 87%) of the older-onset group had died, with ischemic heart disease listed as a cause of death for 518 individuals, stroke for 193 individuals. CSME at baseline was significantly associated with increasing all-cause mortality in this group, adjusting for age, gender, and other risk factors (hazard ratio 1.27; 95% confidence interval). CSME was also significantly associated with ischemic heart disease in the age-gender–adjusted model (HR 1.56; 95% CI), but not with stroke mortality.

No correlations were seen between CSME and other factors such as age, diabetes duration, body mass index, nephropathy, or glycosylated hemoglobin status. However, in the older-onset group, there was a significantly higher association of ischemic heart disease mortality with CSME at baseline in those patients taking insulin (HR 1.58; 95% CI).

Diabetic retinopathy (DR) was also significantly associated with a higher risk of all-cause– and ischemic heart–disease mortality in individuals with DR alone or DR plus CSME.

"Although individuals who had CSME and DR had a 65% higher hazard of dying of ischemic heart disease compared with a 35% higher hazard among those with DR but without CSME at baseline, these differences were not statistically significant," according to the authors (Am. J. Ophthalmol. 2008;145:700-6).

"Breakdown of the blood-retinal barrier, secondary to poor glycemic and blood pressure control, may be a risk indicator of similar microvascular disease in the heart and elsewhere," the authors summarized.

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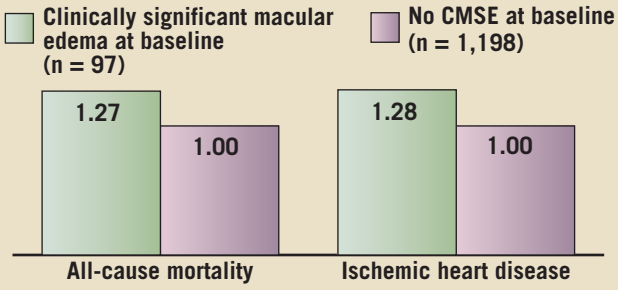
Hazard Ratios for Mortality and Heart Disease In Later-Onset Diabetes Patients After 20 Years



Note: Data adjusted for factors including age, gender, diabetes duration, glycosylated hemoglobin, and history of cardiovascular disease.
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