

Diabetic Retinopathy Associated With CAD

BY MARK S. LESNEY
Senior Editor

Diabetic retinopathy and coronary artery disease appear highly associated, and the severity of the retinopathy is correlated with a graded, increased risk of death from CAD or myocardial infarction, according to a literature review.

Patients with diabetic retinopathy, despite their increased risk, also appear to

have significant underdiagnosis of the presence of CAD, the reviewers said.

Coronary artery bypass grafting (CABG) appears to provide better survival outcomes than percutaneous coronary intervention (PCI) when treating patients with diabetic retinopathy. In addition, CABG delivers greater survival benefits when performed before diabetic retinopathy becomes severe, according to Dr. Takayuki Ohno and colleagues from the department of cardiothoracic surgery, the University of

Tokyo (Ann. Thorac. Surg. 2008;85:681-9).

The researchers included all cohort, case-controlled, cross-sectional, and experimental studies that evaluated the association of diabetic retinopathy and CAD in the Medline database published from January 1996 to July 2007. They also searched secondary sources manually. All papers were in English.

The studies reviewed showed that patients with advanced diabetic retinopathy have a poor life expectancy. In one retro-

spective study of 128 diabetic patients, the 5-year mortality was 45% in patients with proliferative diabetic retinopathy (PDR) and 8% for those without retinopathy. In a second prospective study of 709 patients with type 2 diabetes, the 5-year mortality was 44% for those with non-PDR (NPDR) and 1% for those with little or no retinopathy at baseline.

Mortality is primarily associated with CAD, according to other reports. For example, the Wisconsin Epidemiologic

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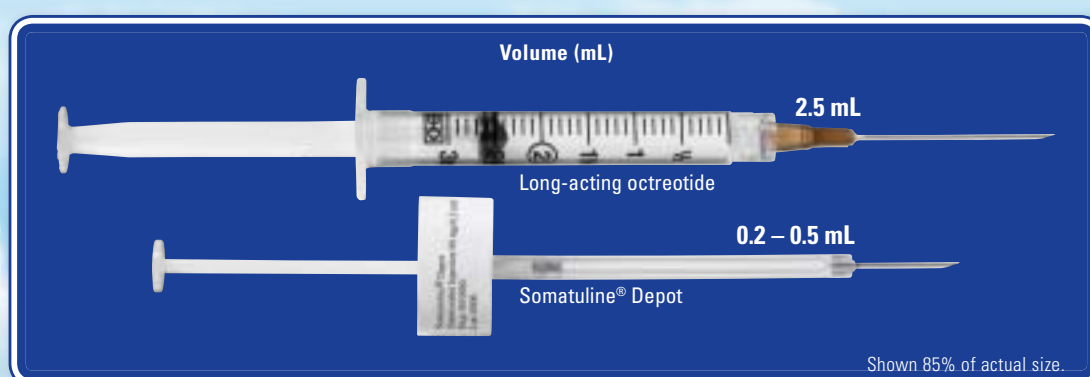
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Study of Diabetic Retinopathy followed 1,370 older-onset diabetes mellitus patients for an average of 8.5 years. Researchers found the age- and sex-adjusted hazard ratios for CAD mortality were 1.50 for patients with mild NPDR, 1.93 in patients with moderate NPDR, and 2.07 in those with PDR. In that same study, 996 patients with type 1 diabetes were also followed and 20-year cumulative self-reported incidence of myocardial infarction was 6.0% for those without retinopathy, 9.5% for early NPDR, 21% for moderate to severe NPDR, and 26% for PDR.

The authors also reported studies showing that heart failure was more likely to de-

velop in patients with diabetic retinopathy experiencing acute MI than in those patients without retinopathy. Of particular significance given these mortality and MI risks was the fact that several studies showed that approximately 20% of asymptomatic patients with diabetic retinopathy and normal resting electrocardiograms had CAD. The disease is often asymptomatic until the catastrophic events of overt heart failure or sudden death, the authors stated.

Coronary revascularization (either with CABG or PCI) is the mainstay of treatment for CAD, according to the authors, and this is of particular concern to patients with diabetic retinopathy.

Dr. Ohno and colleagues cited data from the Bypass Angioplasty Revascularization Investigation (BARI), which showed that at 5-year follow-up, there were 15 excess deaths for every 100 diabetic patients revascularized by PCI rather than CABG, 20 excess deaths at 7 years, and 22 at 10 years. They stated that, "in the real world, the presence of diabetes does not influence treatment decisions regarding revascularization in patients with stable CAD" because of the perceived benefits to patients of local anesthetic and minimal postprocedural morbidity.

But CABG alone is not enough, according to the authors. Timing is also im-

portant. They reported a retrospective study of 223 diabetic patients undergoing CABG. The 12-year survival was 82% for patients without retinopathy, 56% for patients with mild to moderate NPDR, 36% for patients with severe NPDR, and 12% for those with PDR. These data indicate that patients should be treated with CABG early before retinopathy becomes more severe, they stated.

Diabetic retinopathy should thus be considered not only as a sign for intensive monitoring of possible CAD, but also as a guide for developing an appropriate coronary revascularization study, the authors said. ■



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