Comorbid Depression Can Double Risk of Dementia

Adverse synergy is marked by sedentary lifestyle, nonadherence, and lower levels of self-care.

BY DAMIAN McNAMARA

Diabetes and hypertension were strongly and independently associated with brain infarcts, as well as with atrophic changes such as increasing ventricular size and sulcal widening.

The finding, from one of the first longitudinal imaging studies to look at vascular risk factors and infarct, confirms that “control of blood sugar and blood pressure in midlife should reduce the likelihood of ischemic and atrophic changes in the brain in subsequent decades,” wrote Dr. David S. Knopman and his colleagues (Neurology 2011 May 4 [doi:10.1212/WNL.0b013e31821d753f]).

Dr. Knopman of the Mayo Clinic, Rochester, Minn., and his colleagues looked at an initially middle-aged cohort of patients from the Atherosclerosis Risk in Communities (ARIC) study, which in 1987 recruited nearly 16,000 adults aged 45-64 years from Forsyth County, N.C.; Jackson, Miss.; selected suburbs of Minneapolis; and Washington County, Md. The subset for the current study included 1,812 patients who underwent brain MRI in 1994-1995. They were 55 years and older at this time, and came from Forsyth County or Jackson.

Ten years later, between 2004 and 2006, the patients were invited to undergo a follow-up MRI and vascular health assessments. Overall, 1,112 of these follow-up images were of sufficient quality for inclusion in the present study (689 females; mean age 61.7 years).

“Compared with current participants, those who died, were ineligible, or re-fused to participate in the follow-up scan were older, had a much higher stroke rate, had a higher rate of diabetes and hypertension, and had worse imaging at the baseline scan,” wrote the authors.

At baseline, 50.3% of the included subjects had neither hypertension nor diabetes. Among the 1,112 patients who had at least one infarct, as well as having “low vascular risk,” the researchers wrote. Patients with both conditions were referred to as “high vascular risk” and made up 9.2% of the total cohort studied, they added.

Among the high-risk group, incident infarcts were seen in 32.6%, compared with 15.1% in the low vascular risk group, and 20.1% in the overall cohort. The risk increased with disease severity, the authors found.

“Those in the highest tertile for both fasting blood sugar and systolic blood pressure had 3.68 higher risk (95% confidence interval, 1.89-7.19) of new infarcts compared with subjects in the lowest tertile for both conditions,” they added.

Diabetes alone was also associated with incident infarct, independent of hypertension. After adjustment for variables including age, sex, race, hypertension, and prevalent stroke, diabetes conferred a nearly two-fold risk of incident infarct, compared with those patients without the condition (odds ratio, 1.96; 95% CI, 1.23-3.10).

By looking at brain atrophic changes, Dr. Knopman found that most patients had a change in ventricular size, sulcal widening, and white matter hyperintensities over the 10-year period, and older age by itself accounted for worsening in these categories.

The authors found no race- or sex-specific interactions between changes in brain imaging and vascular risk factors.

The study’s strengths include its large sample size, broad racial composition, extensive risk factor assessment at baseline, and decade-long follow-up, the researchers said. Its weaknesses included the fact that many subjects were lost over the 10 years of follow-up. But “those persons who lost follow-up scans were healthier in all respects including lower burdens of vascular risk factors, and less pathology on imaging,” they wrote.

Consequently, “our findings probably underestimate the links between diabetes and hypertension.”

In addition, the time of the initial scans, volumetric MRI was not yet available, making measurement over time of that particular parameter impossible, they noted.