

Cognitive Impairment Signals Subclinical Vascular Disease

BY SARA FREEMAN

VIENNA — Measuring cognitive function might help determine if an elderly patient is at risk for developing a host of vascular diseases, including stroke and transient ischemic attack, research presented at the annual European Stroke Conference suggested.

The research, which has been accepted for publication in the *Journal of Neurology*, showed that lower performance in a measure of global cognitive function was associated with a 57% increase in the risk of stroke and a 69% increase in the risk of coronary heart disease.

“If a person has a poor performance or clinical impairment in cognitive function, it means that the clinician should perhaps be careful because the patient might be at risk of developing diseases such as stroke, [TIA], myocardial infarction, and so on,” Somayeh Rostamian, PhD, a nurse scientist at Leiden (the Netherlands) University Medical Center, said in an interview.

During her presentation, she explained that it was well known that cardiovascular risk factors and diseases were associated with mild cognitive impairment. Data also have shown that mild cognitive impairment might signal the onset of common age-related neurologic diseases such as dementia.

“We hypothesized that mild cognitive impairment might be an early

manifestation of vascular diseases in subjects without clinically recognized disease,” Dr. Rostamian explained, suggesting it could be “the tip of the iceberg.”

To test their hypothesis, the research team first performed a systematic review and meta-analysis (*Stroke* 2014;45:1342-8) to look at the available evidence on the association between cognitive impairment and stroke risk. The results showed that stroke risk was increased by 15% overall, although individual study estimates ranged from 1% up to 49%.

Deficits in executive function, rather than memory, were predictive of stroke and coronary heart disease.

“We then decided to look at the association between cognitive function, stroke, and coronary heart disease, and to evaluate the association between cognitive function domains and the risk of such diseases,” Dr. Rostamian said.

Data on the cognitive function of 3,926 men and women between 70 and 82 years old were obtained from the randomized controlled Prospective Study of Pravastatin in the Elderly at Risk (PROSPER). This trial looked at the role

of statin therapy in an elderly cohort that had or was at high risk of developing cardiovascular disease and stroke (*Lancet* 2002;360:1623-30). Results of the trial suggested that statin therapy might reduce the incidence of TIAs by up to 25%, but it did not reduce the risk for stroke or have an effect on cognitive function.

Nevertheless, the trial provided information on cognitive function that was assessed at enrollment and then annually, which could be used for the current study. Dr. Rostamian noted that the team used data from the Stroop Color and Word test, the Letter Digit Substitution test, and the Picture-Word Learning test, which evaluate selective attention, processing speed, and immediate and delayed memory, respectively. A composite score for executive function was obtained by combining the results of the Stroop and the Letter Digit Substitution tests, and a composite score for memory was obtained from the Picture-Word Learning test results.

Over a follow-up of just more than 3 years, there were 155 stroke and 375 coronary events, giving incidences of 12.4 and 30.5 per 1,000 person-years, respectively.

After adjusting for multiple confounding factors, patients in the low tertile of cognitive function had the higher risk of both stroke and CHD, compared with those in the high-cognitive function


tertile who were used as a reference. Patients in the middle tertile also had an increased risk for both diseases.

The results also suggested that deficits in executive function, rather than memory, were predictive of stroke and CHD. So, it might be more important to assess patients’ ability to perform tasks that involve their ability to pay attention or process information.

Indeed, when comparing patients in the low-cognitive and high-cognitive tertiles, the risk for stroke was 51% higher and the risk for CHD was 85% higher. In contrast, there was no increased risk linked to memory deficits, with an RR of 0.87 for stroke and 0.99 when comparing patients in the low- and high-cognitive tertiles.

“Impaired executive function, but not memory, was associated with increased risk of cardiovascular diseases and can be considered as an indicator of cardiovascular events. Lower performance in global cognitive function was associated with a higher risk of stroke and coronary heart disease,” Dr. Rostamian summarized.

“Cognitive assessment might provide a tool for clinicians to identify older subjects at an extra risk for future cardiovascular events,” she concluded.

Dr. Rostamian had no conflicts. 

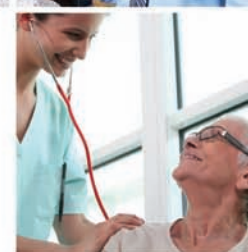
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