RSNA® Radiological Society of North America

820 Jorie Blvd
Oak Brook, IL 60523
TEL 1-630-571-2670
FAX 1-630-571-7837
RSNA.org

NEWS

RSNA Press Release

Carotid Artery Stenting Improves Thought Process

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Media Contacts:

RSNA Media Relations: (630) 590-7762

Maureen Morley
(630) 590-7754
mmorley@rsna.org

Heather Babiar
(630) 590-7738
hbabiar@rsna.org

At A Glance

- Carotid artery stenting not only helps prevent stroke, it speeds up the brain's thought process.
- Stenting is a minimally invasive procedure that effectively treats narrowing of the carotid arteries.

In patients with decreased blood flow to the brain, carotid artery stenting improves memory function.

CHICAGO - Stenting of the carotid artery significantly improves cognitive speed and may improve memory function in some patients, according to research presented today at the annual meeting of the Radiological Society of North America (RSNA).

"To my knowledge this is the first study combining neuropsychological testing and perfusion imaging that screens for silent ischemic stroke events that can occur during stenting," said Iris Q. Grunwald, M.D., consultant at Saarland University Clinic in Homburg, Germany.

Stroke is the third leading cause of death in the United States. Every year, approximately 600,000 Americans experience a stroke, one-quarter of which are caused by carotid arterial occlusive disease, or a narrowing of the carotid arteries. Until recently, surgery was the standard treatment for this disease, but carotid artery stenting has emerged as an accepted minimally invasive alternative to restore blood flow to the brain.

To perform the procedure, an interventional radiologist inserts a long catheter into a tiny incision in the common femoral artery in the leg. Using an image-guidance system such as computed tomography (CT) and a guide wire, the radiologist positions the sheath at the site of the narrowing, or stenosis, in the carotid artery, expands the artery with a balloon and inserts a stent to hold the artery open.

While stenting is known to be an effective treatment for stroke prevention, little is known on the treatment's effects on cognitive function.

Dr. Grunwald and colleagues performed carotid artery stenting on 26 patients. All were given neuropsychological tests at least 24 hours before and three months after the stenting procedure. These tests included tests for cognitive speed (how quickly the brain processes information) and memory function. Patients were also tested for dementia and depression. The researchers examined the patients with diffusion- and perfusion-weighted magnetic resonance imaging (MRI) before and after stenting.

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The results showed that cognitive speed increased significantly after stenting, regardless of the patient's age or the severity of the stenosis. In addition, the researchers found a correlation between the degree of vessel stenosis and perfusion deficit, or decreased blood flow, in the brain area on the side of the stenosis. Increasing the blood flow by stenting resulted in an increase in memory function in patients with perfusion deficit.

"Stenting is a safe way to treat carotid artery stenosis," Dr. Grunwald said. "In addition, stenting of the carotid artery may offer more than reduced stroke risk, especially to patients with impaired brain perfusion."

Co-authors are Wolfgang Reith, M.D., Tillman Supprian, M.D., Peter Falkai, M.D., Christoph Krick, Ph.D., Tobias Struffert, M.D., Kathrin Zercher, Verena Fedder and Friederike Winnemann.

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