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Embargoed for Release, Friday, March 31, 2006, 9:00 a.m. ET

**Study Shows Carotid Stenting Improves Memory and Thinking Ability
in Patients Classified as “Asymptomatic”**
*Interventional Radiology Findings May Change More Than 50 Years of Prevailing
Thought About Significance of Blocked Carotid Arteries*

Toronto, Ontario (March 31, 2006) – Patients classified as “asymptomatic” and “symptomatic” both had statistically significant improvement in brain function after being treated with carotid artery stenting, a non-surgical procedure used to prevent stroke by opening the narrowed artery that supplies blood to the brain. The study, presented today at the Society of Interventional Radiology’s 31st Annual Scientific Meeting, involved the most comprehensive measurement of pre- and post-neurocognitive effects in any study to date of carotid stenting. It shows that patients with narrowed carotid arteries were, in fact, having neurocognitive deficits involving memory and executive functions, and that these deficits improved after the interventional radiology treatment. This study corroborates results from two previous small studies out of the U.S. and Germany.

The study indicates that patients could benefit from being treated earlier in their disease than currently thought. In spite of being classified as “asymptomatic,” these patients are clearly having a dampening in brain function, especially in the more advanced brain functions, known as executive functions, which are the first to shut down with decreased blood and oxygen supply due to a clogged carotid artery. The procedure also improves brain function in symptomatic patients, but “asymptomatic” patients had the biggest gain.

“We know from previous studies that carotid stenting can prevent a stroke in those at high risk, but what we didn’t know is that the treatment makes people’s brains function better. Their memory improved, some say they see colors brighter, and they can think better,” says study author Rodney Raabe, M.D., interventional radiologist.

Currently, “asymptomatic” patients are generally treated if their carotid artery is more than 80 percent stenosed (blocked with plaque), because patients with severely stenosed carotid arteries are at risk for stroke. Symptomatic patients, those who have had a stroke or are exhibiting mini-stroke symptoms, called transient ischemic attacks, are also treated to prevent future stroke.

In this study, the patients in the “asymptomatic” category improved the most in neurocognitive function, most likely because they have not suffered previous injury to the brain from strokes or mini-strokes. Though all those studied showed improvement, the

younger patients did better. They have more neurocognitive reserve and had the biggest gains in neurocognitive function. The improvement was due to the increase in blood flow to the brain, as shown on MRI after the procedure.

The study involved very sophisticated neurocognitive measures including IQ, handling of spatial relationships, memory and other executive functions. Patients were tested for memory and executive function five times before and an additional four times after the procedure. The tests include the ability to respond to a command, integrating the command, and providing an answer in return. Functions were also tested, such as word memory, number memory, and putting things in order. These functions improved, even in patients with a lower degree of stenosis, and the improvement was statistically significant. These are interim results and analysis in 26 patients at six months in this ongoing study.

The purpose of this study was to test the hypothesis that carotid stenting with filter protection can prevent neurocognitive deficit due to little pieces of plaque breaking off during the procedure and causing trauma if they reach the brain. The study used the Acculink™ stent and the Accunet™ embolic protection filter, which captures microemboli that might come loose during the procedure, preventing it from traveling to the brain in the bloodstream.

“We know when patients have a coronary bypass operation with aortic clamping, that there is a memory and cognitive decline from microemboli that reach the brain and cause permanent damage to brain function. We thought microemboli that might break loose during stenting could cause the same effect and wanted to see if filter protection would prevent this,” says Raabe. The study shows that using the embolic protection filter did save patients from neurocognitive decline and the author concludes that an embolic protection device is beneficial and should be used during carotid stenting procedures. The filter has a membrane so small that only very small particles like blood can get through. Any plaque that might break off during the procedure is captured in this filter. It closes like an umbrella and is withdrawn in the catheter after the stent is deployed.

“We set out to show that the protection filter would protect the brain, and expected to prove it by showing that the patient’s brain function did not worsen after carotid stenting. We never expected to see brain function improve. These patients are seeing better and thinking better, and those with least degree of disease had the greatest gain,” says Raabe.

Abstract number 1029 can be found at www.SIRmeeting.org.

About the Society of Interventional Radiology

Interventional radiologists are board-certified physicians who specialize in minimally invasive, targeted treatments. They use X-rays, MRI and other imaging to advance a catheter in the body, usually in an artery, to treat at the source of the disease non-surgically. They are certified in both Diagnostic Radiology and Vascular & Interventional Radiology. As the inventors of angioplasty and the catheter-delivered

stent, interventional radiologists pioneered minimally invasive modern medicine, and provide treatments that offer less risk, less pain and less recovery time compared to open surgery. More information can be found at www.SIRweb.org.

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