

Diabetes No Liability in Endovascular AAA Repair

BY MITCHEL L. ZOLER

PHILADELPHIA — Patients with diabetes fared no worse during hospitalization for an endovascular aortic aneurysm repair than did others undergoing similar percutaneous repair in an analysis of more than 12,000 U.S. patients.

“Diabetes may confer less risk for EVAR [endovascular aneurysm repair] than previously thought,” Dr. Jovan N. Markovic said at the annual meeting of the Eastern Vascular Society. “EVAR may be a favorable alternative to open surgery for patients with coexisting diabetes and an abdominal aortic aneurysm [AAA],” said Dr. Markovic, a surgeon at Duke University, Durham, N.C.

The finding contrasts with results from prior open AAA repair studies showing that patients with diabetes faced a higher risk for postoperative complications than did those without diabetes, he added.

While the new finding appears promising for patients

with diabetes, it applies strictly to outcomes during hospitalization; postdischarge outcomes in these patients after undergoing EVAR aren't addressed by the study, Dr. Markovic said in an interview.

Patients with renal insufficiency who underwent EVAR for AAA repair had a significantly increased (16-fold) risk of dying while hospitalized following their procedure, Dr. Markovic added. “Renal insufficiency had a profound effect on outcomes from EVAR, with a greater negative influence than previously suspected,” he said.

The study used data collected from 12,451 patients who underwent EVAR for AAA at a U.S. community hospital during November 2000–December 2005, as part of the annual Nationwide Inpatient Sample, a program of the federal Agency for Healthcare Research and Quality. In this group, 12% of the patients had diabetes, 2% had renal insufficiency, 0.4% had both conditions, and 85% were free of both conditions. The sample included patients who underwent urgent or emergency EVAR as well as patients with elective repairs.

The analysis identified patients with diabetes or renal insufficiency based on diagnostic codes in their charts. Because of this limitation, the investigators were unable to identify the extent of renal dysfunction in individual patients.

The investigators calculated an adjusted odds ratio for the occurrence of adverse outcomes during hospitalization, including 15 potentially confounding variables such as age, sex, race, and other comorbidities. For patients

with renal insufficiency only, the risk of dying while hospitalized was significantly increased, whereas patients with diabetes only actually had a reduced mortality risk. The difference between these groups was not statistically significant (see table).

Patients with renal insufficiency also had a significantly reduced rate of routine hospital discharge, compared with patients without either renal disease or diabetes. The renal insufficiency patients also had a significantly longer hospital stay on average and a significantly higher hospitalization cost. Patients with diabetes alone had no significant difference in their routine-discharge rate or in their average number of days hospitalized. The average hospitalization cost was significantly higher for both the renal insufficiency and diabetes groups than for the reference-group patients, and patients with renal insufficiency had the highest costs.

The finding on diabetes “is reassuring and not terribly surprising because [patients with diabetes] are very well treated today. We have them in the best possible condition when we take them to an elective procedure,” commented Dr. Bruce A. Perler, professor of surgery and chief of vascular surgery at Johns Hopkins University in Baltimore.

Dr. Perler also thought the finding on renal insufficiency was predictable. “We know that in vascular surgery in general, renal insufficiency tends to be a risk factor. So while they may have an increased risk from EVAR, these patients probably also have an increased risk from open repair. It's interesting data, but I don't think it will change anyone's practice,” he said in an interview.

On the basis of their findings, Dr. Markovic and his associates were unable to determine how to manage patients with renal insufficiency who have an AAA that requires treatment. “We use a serum creatinine level of 2 mg/dL” as a cutoff, he said in an interview. AAA patients with a creatinine level of up to 2 mg/dL and favorable vascular anatomy are usually managed by EVAR at Duke. Those with creatinine greater than 2 mg/dL are considered for open repair, he said. ■

Outcomes During Hospitalization Following EVAR

Parameter	Patients with diabetes	Patients with renal insufficiency	Patients without diabetes or renal insufficiency (reference group)
Adjusted odds ratio for death in hospital	0.44	16.33*	na
Adjusted odds ratio for routine hospital discharge	0.74	0.30*	na
Average length of hospital stay	2.4 days	4.4 days*	2.4 days
Average hospitalization cost (inflation adjusted)	\$63,055*	\$71,842*	\$57,739

*Statistically significant difference, compared with reference group

Note: Odds ratios based on risks relative to patients without diabetes or renal insufficiency who underwent endovascular aneurysm repair (EVAR). Ratios adjusted for baseline variables including age, sex, race, and comorbidities.

Source: Dr. Markovic

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Revascularization Boosts Cognitive Function, at a Price

BY MITCHEL L. ZOLER

PHILADELPHIA — Both carotid artery stenting and carotid endarterectomy produced a roughly 50% increase in overall cognitive function in a study of 46 patients undergoing intervention for asymptomatic severe carotid stenosis.

The change was big enough to significantly improve the patients' quality of life.



There are many mechanisms by which carotid endarterectomy and stenting may produce cognitive dysfunction.

DR. LAL

But both revascularization methods also had a price: Carotid stenting resulted in a clinically significant deterioration in average psychomotor speed, and carotid endarterectomy produced a clinically significant decrease in average memory.

The unexpected finding raised questions about how two methods of carotid revascularization produce two different

sets of cognitive outcomes. “We were very surprised by the results,” Dr. Brajesh K. Lal said at the annual meeting of the Eastern Vascular Society.

“There is a lot to understand about the travel of microparticles, which may selectively affect different parts of the brain.” That is just one possible explanation for the finding. Stenting and endarterectomy differ in arterial clamping, balloon placement, stenting, dissection, and hypoperfusion, any of which could play a role. “We hypothesize multiple mechanisms by which carotid endarterectomy and stenting produce cognitive dysfunction,” said Dr. Lal, a vascular surgeon at the University of Maryland, Baltimore.

The study administered six cognitive tests to 46 asymptomatic patients with unilateral carotid stenosis of 70% or more who were scheduled to undergo revascularization. Patients took 50 minutes to complete the panel of tests before surgery and again at 4-6 months after treatment. The tests measured memory, attention, psychomotor speed, motor speed/coordination, learning, and fluency.

Of the 46 patients, 25 had endarterec-

tomy and 21 had stenting. Just over half the patients in each group had right-sided stenosis, and there were no significant clinical differences between the groups at baseline.

About 6 months after treatment, the composite score rose by an average of 0.47 for the stented patients, compared with baseline, and by 0.51 for the endarterectomy patients.

The cognitive changes, scored on a scale of 0-1.0, showed that the two groups weren't significantly different,

but the increases in both groups were very clinically meaningful.

In the stented group, all individual cognitive scores rose by 0.46 or greater, except for psychomotor speed, which fell by a third after stenting (see table). In the open surgery group, all domains rose by 0.58 or better except memory, which dropped by 0.41.

The same panel of cognitive tests should be used on similar patients managed medically to gauge the cognitive effect of treatment, Dr. Lal said. ■

Change in Cognitive Function After Carotid Revascularization

Cognitive domain tested	Average change from baseline in carotid artery stenting patients (n = 21)	Average change from baseline in carotid endarterectomy patients (n = 25)
Motor speed/coordination	+0.63	+0.74
Psychomotor speed	-0.32	+0.58*
Attention	+0.59	+0.66
Memory	+0.46	-0.41*
Verbal fluency	+0.69	+0.61
Learning	+0.77	+0.86
Composite of all six texts	+0.47	+0.51

*Statistically significant difference between groups.

Source: Dr. Lal

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