Improved CAS Protocol Reduced Embolic Events

BY DOUG BRUNK
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SAN DIEGO — Significant reductions in peri-procedural embolic events were achieved after implementation of quality improvement measures for carotid angioplasty and stenting, results from a single-center study showed.

In a previous report, Dr. Maureen M. Tedesco and her associates in the division of vascular and endovascular surgery at Stanford (Calif.) University found a 70% incidence of microemboli in patients who underwent carotid angioplasty and stenting (CAS) as detected by diffusion weighted MRI, compared with no microemboli in those who received carotid endarterectomy for carotid disease (J. Vasc. Surg. 2007;46: 244-50).

"Although there was a much higher incidence of microemboli after CAS, most of the emboli were asymptomatic; only two of the CAS patients who had microemboli demonstrated temporary neurologic symptoms that resolved within 24 hours," Dr. Tedesco said at the Vascular Annual Meeting. "Of all patient demographic, anatomic, and procedure-related factors that were analyzed, only the performance of arch angiography and history of significant coronary artery disease were associated with an increased risk of microemboli formation."

Before publication of that report, the vascular group at Stanford demonstrated that a multidisciplinary peer review process for carotid procedures at Stanford University Medical Center reduced the risk and cost of surgical endarterectomy (Arch. Surg. 2000; 135; 939-42). In an effort to study the impact of this peer review process since the advent of the CAS program at Stanford, two time periods were compared before and after quality-improvement measures were implemented, under the direction of the project's principal investigator, Dr. Jason T. Lee, director of endovascular surgery at Stanford University Medical Center.

Period 1 (November 2004 through April 2006) included a review of 27 patients undergoing CAS with pre- and postprocedure diffusion-weighted MRI. "During period 1, our standard protocol for CAS included performance under local anesthesia, routine arch angiography, use of a distal protection device, pre- and poststent deployment balloon dilatation, and completion intracranial cerebral angiograms," Dr. Tedesco said.

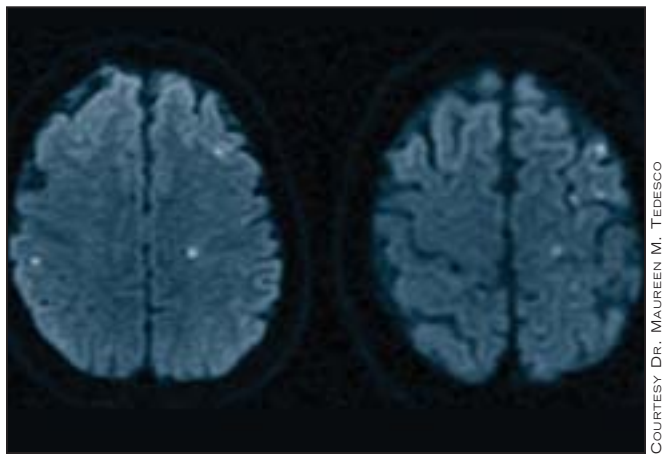
There was a much higher incidence of microemboli after CAS, but most were asymptomatic.

DR. TEDESCO

Period 2 (May 2006 through February 2008) was a prospective analysis of 20 patients undergoing CAS who underwent pre- and postprocedure MRI. The quality improvement measures implemented during period 2 included early heparinization "as soon as groin access was obtained as opposed to period 1 when heparinization was instituted after sheath placement into the target common carotid artery; the preferential change to a closed cell carotid stent system [Abbott Xact stent], and elimination of routine arch angiography."

The researchers then reviewed the hospital records of all patients and collected symptoms, comorbidities, lesion characteristics, preprocedural information, and postoperative outcomes. They used diffusion-weighted MRI to determine the incidence and location of acute, postprocedural microemboli.

The mean age of patients was 70 years and most (90%) were male. There were no differences between period 1 and period 2 patients with respect to gender, the presence of diabetes, hypertension, or hyperlipidemia. However, there was a higher percentage of smokers in period 1 and a higher incidence of obesity in period 2 patients. In addition, analysis of comorbidities revealed that there were no differences between period 1 and period 2 in terms of history of coronary artery disease, chronic obstructive pulmonary disease, peripheral vascular disease, atrial fibrillation, redo CAS procedures, or symptomatic patients.



COURTESY DR. MAUREEN M. TEDESCO

This diffusion-weighted MRI image demonstrates the presence of microemboli.

Compared with period 1 patients, period 2 patients had significantly more calcified lesions (68% vs. 27%, respectively), longer lesions (15.9 mm vs. 8.2 mm), and ulceration of their lesions (55% vs. 27%), but there were no differences between the two groups in the type of arch. "[These data suggest] that the period 2 lesions were perhaps technically more challenging than the period 1 lesions," Dr. Tedesco commented.

Further analysis showed no differences between the two groups in fluoroscopy time or in the number of stents used. However, period 2 patients received significantly less contrast volume than did period 1 patients (58 mL vs. 77 mL, respectively). This difference "is likely due to the elimination of the routine arch angiography," she said.

Dr. Tedesco reported the main findings of the study, that 20 patients from period 1 (74%) and 7 patients from period 2 (35%) demonstrated acute microemboli on postprocedural MRI, a difference that was statistically significant. The mean number of microemboli was 4.1 in period 1 patients, and 1.5 in period 2 patients, a difference that was also statistically significant.

Even with these microemboli, however, only two patients in period 1 and one of the patients in period 2 experienced temporary neurologic symptoms that resolved within 24 hours. The 30-day stroke rate in both groups was 0%.

"The long-term neurologic benefits associated with reduced subclinical neurologic events remains to be determined, but there remains a significant risk of microemboli as identified by diffusion-weighed magnetic resonance imaging following carotid angioplasty and stenting," Dr. Tedesco concluded. "Efforts to reduce these subclinical radiographic findings may have a positive impact on long-term outcomes after CAS with respect to device improvement, procedural modifications, and patient selection."

Dr. Tedesco and Dr. Lee had no conflicts to disclose. ■

Avoid Drug-Eluting Coronary Stents in Cancer Patients

BY MITCHEL L. ZOLER
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NEW YORK — Cancer patients and survivors who develop acute coronary syndrome or myocardial infarction need a different approach to stent treatment than do conventional coronary disease patients.

Drug-eluting coronary stents should be avoided, and bare-metal stents should be used judiciously in patients with a history of cancer, Dr. Jean-Bernard Durand said at a symposium on cardiovascular disease in cancer patients sponsored by the University of Texas M.D. Anderson Cancer Center.

Cancer patients are often highly prothrombotic, and they face a substantially increased risk from coronary stent thrombosis. As a result, "we have made a big change [in our use of coronary stents] and it's made a big difference; our patients are doing much better," said Dr. Durand, a cardiologist and medical director of cardiomyopathy services at the University of Texas M.D. Anderson Cancer Center in Houston.

Patients with a history of cancer who present with a symptomatic coronary thrombosis never receive a drug-eluting stent, and get a bare-metal stent only for lesions that are eccentric, are at a bifurcation, or are heavily calcified. Symptomatic patients with simpler coronary lesions are treated with balloon angioplasty only, and patients with significant coronary obstructions who are not acutely symptomatic are treated only with aggressive medical management, Dr. Durand said in an interview.

In addition, patients who receive a bare-metal stent are treated only with aspirin, not clopidogrel or ticlopidine. Patients with a history of cancer often have an abnormally low level of platelets, and their platelets also often show unusual patterns of reactivity and clotting. "The platelets tend to form loose clots, so an 80-mg/day dosage of aspirin seems to be enough to prevent clots," Dr. Durand said at the meeting, which was also sponsored by the American College of Cardiology and the Society of Geriatric Cardiology.

His group also uses a thromboelastograph (TEG) to quantitatively assess platelet function and clot formation in patients. "We use it to determine how aggressively to treat patients" with anticoagulants, he said.

Dr. Durand and his associates documented the importance of aspirin therapy in cancer patients with acute coronary syndrome (ACS) in a review of 70 cancer patients who developed ACS and were managed at M.D. Anderson during 2001 (Cancer 2007;109:621-7). The analysis included 43 patients (61%) with normal platelet counts of greater than 100,000/mcL, and 27 patients (39%) who were thrombocytopenic, with platelet counts of less than 100,000/mcL. The median platelet count in the thrombocytopenic group was 32,000/mcL.

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DR. DURAND

Immediately after their ACS event, thrombocytopenic patients were significantly less likely to be treated with aspirin than were nonthrombocytopenic patients (37% vs. 74%, respectively), or with a β-blocker (41% of thrombocytopenic patients, compared with 74% of those without thrombocytopenia).

In a multivariate analysis that controlled for other variables, patients who did not receive aspirin were more than 18-fold more likely to die during the first 7 days after their event than those given aspirin.

Dr. Durand conceded that this study involved relatively few patients and brief follow-up. But a subsequent analysis of about 500 patients and longer follow-up by the M.D. Anderson group found that cancer patients had significant benefit from aspirin therapy after ACS events regardless of whether they were thrombocytopenic, he said. ■

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