Age Affects Carotid Intervention Outcomes

BY MITCHEL L. ZOLER

SAN ANTONIO — The largest-ever, head-to-head comparison of stenting versus surgery for treating severe carotid artery stenosis showed a marked effect of age, with patients older than 70 having fewer adverse outcomes after carotid endarterectomy and patients younger than 70 having fewer complications following carotid angioplasty and stenting.

Although the highly anticipated results from the decade-long Carotid Revascularization Endarterectomy vs. Surgery Trial (CREST) seemed, in simplest terms, to show a dead heat between carotid stenting and surgery (see table), the results reported at the International Stroke Conference actually revealed statistically significant and clinically important differences between the two treatments.

The statistically significant interaction between patient age and outcome will likely play a major role when physicians and patients now decide which intervention to favor for a specific patient.

The CREST results also showed another significant difference between carotid surgery and stenting: Surgery led to a 1.2% increased absolute rate in the incidence of periprocedural MIs, whereas stenting produced a 1.8% increase absolute rate of periprocedural strokes, a finding that will force patients and their physicians to ask themselves which complication they would rather risk.

The patients in CREST answered that question, at least in part, via another outcome measure. Assessment of patient physical and mental quality of life with the 36-item Short Form (SF-36) Health Survey a year after treatment showed that patients who developed new strokes, even "minor" strokes, had statistically significant reductions in both their mental and physical well-being compared with baseline, whereas patients who developed new MIs had, on average, no significant changes in their SF-36 mental and physical scores, Dr. Wayne M. Clark reported while presenting the CREST results.

The CREST report prompted some experts to highlight that the stenting results in the trial came from selected, experienced operators and that it would be a leap to expect comparable results from physicians who were not trained as well as the more experienced operators.

CREST randomized 2,502 patients with either symptomatic carotid stenosis or asymptomatic severe carotid stenosis (at least 60% blockage) at 108 sites in the United States and 9 in Canada. The patients' average age was 69 years, a third were women, and 47% were asymptomatic. The analysis showed no significant effect from either gender or symptom status on outcomes.

The age effect produced the sharpest distinction between stenting and surgery, and confirmed evidence that began emerging a few years ago that carotid stenting poses a special problem for elderly patients. In fact, some of the first suggestions of safety problems that can occur when stenting elderly patients came from the lead-in phase of CREST, a stage that involved nearly 1,600 patients who underwent carotid stenting in the early 2000s as operators in the study established their stenting expertise. The problem has been attributed to the increased difficulty and danger of placing stents and embolic protection devices through elderly patients' tortuous and atherosclerotic arteries.

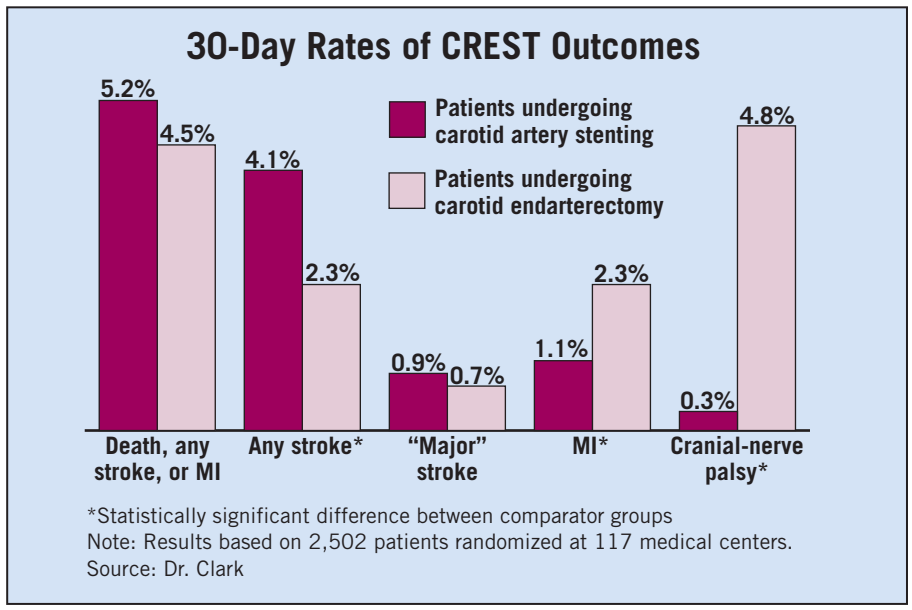
"I think it's likely that putting in the embolic protection device sets off strokes. Until we have more data to show whether or not the age effect is real, I will take it into account in my patients," commented Dr. J. Donald Easton, a neurologist at the University of California, San Francisco. Dr. Clark reported the age effect as a continuous variable, without specifying any point estimates of the effect. But based on the line graph he showed, patients who underwent stenting at age 65 had a roughly 20% reduced risk for an adverse perioperative or long-term outcome compared with those who underwent surgery, whereas at age 60 the relative benefit from stenting was about 35%, and at age 50, the rate of adverse outcomes after stenting was less than half the rate after endarterectomy.

The primary adverse-event measure used in CREST was the composite rate of any stroke, myocardial infarction, or death during the 30 days following treatment plus the rate of any ipsilateral stroke during long-term follow-up of up to 4 years. This rate was 7.2% for stenting and 6.8% for endarterectomy, with similar rates of ipsilateral strokes occurring from 31 days to 4 years (2.0% vs. 2.4%, respectively).

In contrast to younger patients, at age 75, the rate of adverse outcomes after stenting rose by about 35% compared with surgery; at age 80, the adverse-outcome rate was more than 50% higher with stenting than with surgery; and at age 85, the adverse event rate was roughly doubled by stenting in comparison with endarterectomy. In patients who were 70 years old, the adverse event rates were essentially identical regardless of which procedure was used.

The CREST results reported so far gave no details on how endarterectomy and stenting fared in asymptomatic patients compared with patients who already had symptoms of carotid disease. In the absence of these data, several experts cautioned that the findings should not be taken as an endorsement of aggressive carotid interventions for asymptomatic patients, especially at a time when medical therapy has become very effective.

CREST was funded by the National Institute of Neurological Disorders and Stroke. Dr. Clark and Dr. Easton had no disclosures relevant to the study. ■



Endovascular Tx of Acute Stroke Benefits Octogenarians

BY MITCHEL L. ZOLER

SAN ANTONIO — Octogenarians with acute stroke underwent intracerebral clot retrieval as safely and effectively as did younger patients in a retrospective review of 186 patients aged 80 or older.

Results from a prior study identified advanced age as a strong predictor of bad outcomes in patients with acute ischemic stroke treated with thrombectomy, but this new study showed that "the risk of symptomatic intracerebral hemorrhage did not appear significantly increased in the elderly," Dr. Raul G. Nogueira said at the International Stroke Conference.

"Age is an imperfect surrogate for functional status. Treatment individualization is therefore required," said Dr. Nogueira, a neurologist and radiologist at Massachusetts General Hospital, Boston.

His study combined data from three separate series of acute stroke patients who underwent endovascular clot removal using the Merci retriever: the MERCI trial, with 141 patients, the Multi MERCI trial, with 164 patients, and the first 814 patients in the MERCI registry. Of these 1,119 patients, 186 were aged 80 or older and had a modified Rankin scale score of 0 or 1 before their stroke.

The average age of the 80 and older subgroup was 85, with a range of 80-96. Their average NIH Stroke Scale score before treatment was 19; two-thirds were women. They were treated an average of 5 hours after stroke onset, with a range of 2-21 hours. Treatment involved an average of three passes of the Merci device. It began with an intravenous infusion of tissue plasminogen activator (TPA) in 21% of patients, and 47% received intra-arterial TPA.

In the 73 elderly patients culled from the MERCI and Multi MERCI trials, the incidence of symptomatic intracranial hemorrhage following treatment was 10%, with a 3% rate of parenchymal hematoma type II (data on these outcomes were not available from the MERCI registry). These adverse event rates were similar to those reported for the entire MERCI and Multi MERCI studies, Dr. Nogueira said at the conference, sponsored by the American Heart Association.

Recanalization of the blocked artery occurred in 69% of the 186 elderly patients, compared with 65% for all patients in the MERCI and Multi MERCI studies, showing that clot retrieval was as effective in the elderly as it was in all patients.

Of the 305 patients in the combined MERCI and Multi MERCI studies, 63 were aged 80 or older, which meant that this analysis in part compared the same octogenarian patients to themselves. But most of the octogenarian patients in the analysis came from the MERCI registry, and nearly 80% of patients in the combined MERCI and Multi MERCI group were younger than 80.

At 90 days after treatment in the 128 elderly patients successfully recanalized by clot retrieval and TPA treatment, the modified Rankin scale score reached 0-2 in 24%, and 48% of the patients had died. In contrast, among the 58 elderly patients who failed to achieve recanalization with treatment, 2% had a modified Rankin scale score of 0-2, and 75% died.

In a multivariate analysis, achievement of good blood flow through the previously occluded cerebral artery was a major determinant of a good 90-day outcome and 90-day survival. The findings show the key role of recanalization in producing a good outcome in elderly patients, Dr. Nogueira said.

"This is not a controlled study, but it is good as you can get," he said in an interview. "It seems like the elderly can benefit. An 80- or 90-year-old with good [pre-stroke] function can do better than a 70-year-old with bad function." ■