

# To Dx Carotid Stenosis, Start With Duplex Ultrasound

BY ROBERT FINN

FROM RADIOLOGY

**T**he most cost-effective strategy to diagnose carotid artery stenosis for most patients with recent transient ischemic attacks or minor strokes is duplex ultrasound, followed (if the results are positive) by CT angiography.

Patients with 70%-99% stenosis should then undergo carotid endarterectomy, according to a study based on a meta-analysis, a review of the literature, and a prospective diagnostic cohort study.

## VITALS

**Major Finding:** In the work-up of a patient with a recent transient ischemic attack or minor ischemic stroke, the most cost-effective strategy is duplex ultrasonography as the initial test, followed by CT angiography if the results are positive. Patients with 70%-99% stenosis should then undergo carotid endarterectomy. For the average 60-year-old man, this strategy had the lowest cost (\$51,730) and yielded the largest number of quality-adjusted life years (14.38).

**Data Sources:** Meta-analysis of 41 studies, review of the literature, and a prospective diagnostic cohort study involving 351 patients.

**Disclosures:** The study was supported by the National Healthcare Insurance Board of the Netherlands and the Revolving Fund of Erasmus University Medical Center. The investigators stated that they had no financial relationships to disclose.

This strategy yields the lowest costs and the largest number of quality-adjusted life-years (QALY) for the average patient, according to analysis by Aletta T.R. Tholen, M.Sc., and colleagues from Erasmus University Medical Center, Rotterdam, the Netherlands (Radiology 2010;256:585-97).

For the typical 60-year-old man, this strategy would cost 39,826 euros (roughly US \$51,730 at current exchange rates) and would yield 14.38 QALY. For the typical 60-year-old woman, it would cost 45,911 euros (US \$59,634) and would yield 16.46 QALY.

The optimum strategy would differ somewhat for patients with higher risk profiles or a high probability of carotid artery stenosis,

or for those who can undergo surgery without delay. In those cases, the duplex ultrasonography can be dispensed with in favor of CT angiography and surgery for 50%-99% stenosis.

For both men and women, the least cost-effective diagnostic strategy was duplex ultrasonography performed as a solo test. Duplex ultrasonography followed by contrast-enhanced MR angiography was intermediate in cost effectiveness, but was clearly dominated by duplex ultrasound followed by CT angiography.

The investigators used a decision-tree model to assess all feasible strategies in normal practice. They based their estimates of the prior probability of carotid artery stenosis on the results of a cross-sectional prospective diagnostic cohort study of 351 patients with a transient ischemic attack or minor stroke who were admitted to Erasmus University Medical Center between November 2002 and January 2005.

Of those patients, 9.8% of the males and 2.2% of the females had 70%-99% stenosis. Another 2.1% of the male patients and 1.4% of the female patients had 50%-69% stenosis.

In estimating the performances of the diagnostic tests, investigators relied on a meta-analysis that included 2,541 patients in a total of 41 studies published between January 1987 and April 2004. They based their information of the disadvantages of the various tests on their diagnostic cohort study and from a review of the literature.

"Our results suggest that if the patient cannot undergo surgery in a timely fashion, an initial duplex US examination and a 70%-99% stenosis criterion for surgery is indicated. On the other hand, if the patient can undergo surgery in a timely fashion, immediate CT-angiography and the use of a lenient criterion (50%-99% stenosis) as the surgery indication is beneficial," the researchers concluded. ■

# Post-CABG Risk of AF Is Low in African Americans

BY BRUCE JANCIN

FROM THE ANNUAL MEETING OF THE HEART RHYTHM SOCIETY

**DENVER** — Several recent studies have shown that the prevalence of atrial fibrillation in the general population is considerably lower in African Americans than in whites. New evidence indicates this is also the case in the setting of post-coronary artery bypass graft.

"It's counterintuitive because of the fact that African Americans have a lot more of the risk factors that lead to atrial fibrillation, like high blood pressure, heart failure, and diabetes. There's something fundamentally different that alters the risk for atrial fibrillation in African Americans," Dr. Marc K. Lahiri observed at the meeting.

He presented a retrospective study involving 270 African Americans and 731 whites with no prior atrial fibrillation (AF) who underwent CABG at Henry Ford Hospital in Detroit. Post-operative AF occurred in 29% of the white patients compared with 19% of African Americans.

In a multivariate analysis adjusted for age, gender, heart failure, hypertension, and diabetes, black race remained a highly significant independent predictor of reduced risk of postop AF, with a 47% lower risk than in whites, according to Dr. Lahiri, senior staff physician at Henry Ford.

"Since it appears that Caucasians are at an increased risk of developing postoperative atrial fibrillation, clinicians may want to use this information in deciding when to take measures to prevent

its occurrence," Dr. Lahiri added.

Some have argued that the reported lower prevalence of AF among African Americans in the general population could be an artifact of underdiagnosis due to reduced access to health care. That explanation, however, would not



**'There's something fundamentally different that alters the risk ... in African Americans.'**

DR. LAHIRI

explain the lower incidence of post-CABG AF in African Americans, since that arrhythmia occurs when patients are still hospitalized and closely monitored following their cardiac surgery.

Also at the meeting, Dr. Gerald V. Naccarelli presented a retrospective cross-sectional study involving nearly 6.3 million adult Medicaid enrollees in eight states, of whom 1.3% carried a diagnosis of nontransient AF.

After the researchers controlled for established AF risk factors in a multivariate logistic regression analysis, the odds of having AF were 40% lower in African Americans and 17% lower in Hispanics than in whites, according to Dr. Naccarelli, professor of medicine and chief of the division of cardiology at Milton S. Hershey Medical Center in Hershey, Pa. ■

**Disclosures:** Dr. Naccarelli's study was supported by Sanofi-Aventis. He disclosed receiving significant research support from and serving as a consultant to the company. Dr. Lahiri reported no conflicts.

# Consensus Issued on End-of-Life Cardiac Device Deactivation

BY BRUCE JANCIN

FROM THE ANNUAL MEETING OF THE HEART RHYTHM SOCIETY

**DENVER** — The first-ever consensus statement on management of cardiovascular implantable electronic devices in patients requesting treatment withdrawal near the end of life has been released by the Heart Rhythm Society in collaboration with other medical groups.

The expert consensus document provides physicians with practical guidance on how to effectively and proactively communicate with patients and families regarding device switch off,

a situation many clinicians are uncomfortable with.

"Most clinicians and industry-employed allied professionals who primarily interact with patients with CIEDs [cardiovascular implantable electronic devices] have cared for dying patients and have participated in device deactivations. However, the understanding of device deactivation varies, and studies show that many physicians report uneasiness with conversations addressing device management as patients near the end of their lives," Dr. Rachel Lampert explained in introducing the new document at the meeting.

The consensus document, created by a multidisciplinary panel, delves into the legal, ethical, and religious principles underlying the withdrawal of life-sustaining cardiac devices, added Dr. Lampert, lead author and an electrophysiologist at Yale University, New Haven, Conn.

Co-lead author Dr. David L. Hayes, professor of medicine at the Mayo Clinic, Rochester, Minn., noted that the document spells out the logistics involved in device deactivation in a way that's meant to serve as a template. Every hospital and all physicians who implant CIEDs ought to have in place a clear

process for device withdrawal.

Among the key points made in the document were:

► A patient has the legal right to refuse or request withdrawal of any medical treatment or intervention, even if not terminally ill.

► Carrying out a request to withdraw life-sustaining therapy does not constitute physician-assisted suicide or euthanasia in any ethical or legal sense.

► A physician who views device deactivation as incompatible with his or her personal values is not obligated to carry out the procedure, but should involve a colleague who is willing to do

so. Abandoning the patient is unacceptable.

Dr. Lampert noted that surveys indicate about 10% of physicians feel it's wrong to turn off a pacemaker. A smaller percentage feels similarly about switching off an ICD.

The expert consensus document was published in the July issue of HeartRhythm (2010;7:1008-26). ■

**Disclosures:** Dr. Lampert disclosed serving as a consultant to Boston Scientific Corp. and Medtronic Inc. Dr. Hayes is also a consultant to those companies, and to St. Jude Medical Inc. as well.