Ankle-Brachial Index Adds To Framingham Risk Score

BY MITCHEL L. ZOLER
Philadelphia Bureau

CHICAGO — The Framingham Risk Score failed to identify a substantial number of people who were at risk for cardiovascular disease events on the basis of their ankle-brachial index, in a review of more than 1,700 asymptomatic people.

An ankle-brachial index (ABI) of less than 0.9, a marker of peripheral artery disease, was found in 8.9% of randomly selected people who had low or moderate Framingham Risk Scores (FRSs) and were aged 50-69 years and smoked or who were 70 years or older.

"The [ABI] can identify people at risk of cardiovascular disease events beyond those identified by their Framingham Risk Score," Dr. Andrew D. Sumner said during a poster presentation at the annual meeting of the American College of Cardiology.

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DR. SUMNER

"If the ABIs hadn't been measured, we'd never know [they] were at high risk," he said in an interview.

Identifying people at high risk for cardiovascular events based on a low ABI determines their target serum cholesterol levels and other important elements of their preventive care. Existing guidelines from the American Heart Association and American College of Cardiology recommend screening asymptomatic people by measuring their ankle-brachial index, but guidelines from the U.S. Preventive Services Task Force have not endorsed ABI screening for determining risk for cardiovascular events, he noted.

"The [FRS] underestimates cardiovascular risk. Adding the ABI is useful for identifying patients who would otherwise be classified as low risk," said Dr. Sumner, medical director of the heart station and cardiac prevention at Lehigh Valley Hospital in Allentown, Pa.

He used data collected on 1,720 randomly chosen asymptomatic Americans in the National Health and Nutrition Examination Survey (NHANES) in 1999-2004. This subgroup of the survey population was restricted to people who were 50-69 years of age and who smoked and those aged 70 years or older, regardless of their tobacco use.

Dr. Sumner and his associates calculated an FRS for each person, which categorized them into three risk strata: 30% were low risk, with an FRS that projected a less than 10% risk of a cardiovascular event over the next 10 years; 53% were moderate risk, with an FRS that projected a 10%-20% risk of an event over the same period; and 17% were high risk, with an FRS that projected a greater than 20% risk of having a cardiovascular in that period.

Using blood pressure readings, the researchers also calculated an ABI for each person. A low ABI (less than 0.9) was found in 10% of those in the low-FRS group (3.0% of the total group), 11% of those with a moderate FRS (5.9% of the total group), and in 15% of the high-FRS group (2.6% of the total group).

The prevalence of peripheral artery disease in people with low or moderate FRS was highest in women, 11.0% of whom had a low ABI. The prevalence of a low ABI in men with a low or moderate FRS was 6.3%, they reported. ■

Home Defibrillators Failed to Cut Deaths in Post-MI Patients

BY PATRICE WENDLING
Chicago Bureau

CHICAGO — Placing an automated external defibrillator in the homes of patients with a previous anterior-wall MI did not reduce mortality in a large randomized, multicenter trial.

The primary end point of death from any cause was not significantly different between patients who were randomized to the control response of calling emergency medical services and performing CPR, and patients who were randomized to use of an automated external defibrillator (AED), followed by calling emergency services and performing CPR.

With a median follow-up of 37 months, 228 of the 3,506 (6.5%) patients in the control group died, compared with 222 of the 3,495 (6.4%) patients in the AED group (hazard ratio 0.97), Dr. Gust H. Bardy and his associates reported at the annual meeting of the American College of Cardiology.

Of the 450 deaths in the Home Automated External Defibrillator Trial (HAT), cardiac death occurred in 129 patients in the control arm and in 138 patients in the AED group (HR 1.07); noncardiac death occurred in 89 control patients and 81 AED patients (HR 0.91); and tachyarrhythmia occurred in 84 control patients and 85 AED patients (HR 0.91). Thirteen deaths could not be classified because of incomplete data.

Patients enrolled in HAT were not candidates for implantation of a cardioverter-defibrillator. In addition, unlike standard care, they were advised about the risk of sudden cardiac arrest, said Dr. Bardy of the Seattle Institute for Cardiac Research. The patients' median age was 62 years, and their median left ventricular ejection fraction was 45%.

AEDs were used in 32 patients, of which 14 received an appropriate shock. Of those 14 patients, 9 died within 48 hours, 1 died 48 hours after shock was delivered, and only 4 (28.6%) survived to the study's end. There were no inappropriate shocks in the study, which was sponsored by the National Heart, Lung, and Blood Institute and performed at 178 clinical sites in seven countries. Of note, AEDs were used by neighbors or visitors in seven patients in cardiac arrest, and two of those patients survived long term, he said.

With the exception of diabetes, there was no significant interaction between AED use and any outcome with regard to age (65 years or older vs. younger than 65 years), gender, Q-wave versus non–Q-wave MI status, heart failure class, revascularization, or nationality (United States vs. all other countries).

The lack of benefit observed with home AED therapy in HAT is likely attributable to the lower than expected rate of overall mortality and sudden cardiac arrest, Dr. Bardy explained. This likely reflects the participants' excellent adherence to pharmacologic therapies, such as beta-blockers, ACE inhibitors, and statins; their high rate of previous revascularization (72%); and their increased awareness of the risk of sudden cardiac death.

In addition, the study was based on the assumption that patients would be at home and in the presence of their spouses or partners more than 50% of the time. In reality, only 117 events occurred at home, and only 58 of those were witnessed. About one-third of deaths started at night, and many of the daytime patients were in asystole, said Dr. Bardy, who disclosed relationships with Cameron Health Inc.

Purchasing a home AED, which costs about $1,275, may be based on emotion rather than on success rates or cost efficacy, noted the authors of an editorial on HAT published in the New England Journal of Medicine simultaneously with the findings (doi:10.1056/NEJMoa0801651). "The results of the HAT study suggest that future efforts should turn away from improbable resuscitation efforts and toward education, modification of risk factors, and other methods for primary prevention of heart disease," wrote Dr. David J. Callans of the University of Pennsylvania, Philadelphia. ■

Appropriateness of Stress Echocardiology Testing Updated

BY KERRI WACHTER
Senior Writer

The American College of Cardiology Foundation and key specialty societies have released new appropriateness criteria for the use of stress echocardiography to help physicians keep abreast of rapidly changing imaging technology.

The indications in the "2008 Appropriateness Criteria for Stress Echocardiography" are intended to identify common scenarios encompassing most of current practice and are part of a systematic evaluation of the utility of diagnostic imaging tests in common clinical situations (Circulation 2008;117:1478-97).

In all, 51 indications were considered. Of these, stress echocardiography was found to be appropriate for 22, uncertain for 10, and inappropriate for 19. The use of stress echocardiography for the detection of coronary artery disease (CAD) in symptomatic patients was generally deemed appropriate. Routine repeat testing, general screening, and postrevascularization risk assessment were generally viewed less favorably.

All indications were assumed to apply only to adult patients (18 years or older). It was also assumed that the test is performed and interpreted by qualified individuals in facilities that are proficient in the imaging technique. Panelists were also instructed to make several assumptions specifically for stress echocardiography.

▶ All standard echocardiographic techniques for image acquisition are available for each indication; and stress echocardiography has a sensitivity and specificity similar to those found in the published literature.

▶ The mode of stress testing is assumed to be exercise, unless the patient is unable to do so. For those patients who cannot exercise, it is assumed that dobutamine is used.

▶ Preoperative evaluation includes procedures such as organ transplantation. Panelists also were asked not to consider other imaging modalities or other appropriateness criteria while rating indications.

An imaging study was deemed appropriate if the expected incremental information, combined with clinical judgement, "exceeded the expected negative consequences by a sufficiently wide margin for a specific indication that the procedure is generally considered acceptable care and a reasonable approach for the indication," they wrote. "Inappropriate use may be costly and may prompt potentially harmful and costly downstream testing and treatment such as unwarranted coronary revascularization or unnecessary repeat follow-up."

Appropriateness was indicated by a score from 7 to 9. The test is generally acceptable and is a reasonable approach for the specific indication. Inappropriateness was indicated by a score of 1-3. The test is generally not acceptable and is not a reasonable approach for the indication. Tests scoring from 4 to 6 were considered uncertain for specific indications. The test may be generally acceptable and may be a reasonable approach for the indication; more research and/or patient information is needed for definitive classification.

"Although the appropriateness ratings reflect a general expert consensus of when stress echocardiography may or may not be useful for specific patient populations, physicians and other stakeholders should understand the role of clinical judgment in determining whether to order a test for an individual patient." For example, an inappropriate rating does not rule out the use of stress echocardiography when there are patient- and condition-specific data to support that decision. ■