

Consider Imaging in Heart Failure Tx Decisions

Assessments of left ventricular size and systolic function can demonstrate myocardial viability.

BY ROBERT FINN
San Francisco Bureau

SAN FRANCISCO — Studies show that about 70% of patients with heart failure also have coronary artery disease, and the decision on whether to intervene surgically or medically is a complex one, Patrick T. O’Gara, M.D., said at a cardiovascular imaging conference sponsored by the American College of Cardiology.

Imaging can assist in making the decision, said Dr. O’Gara of Harvard Medical School, Boston.

“Imaging should provide detection of the disease that we suspect and should characterize it further,” he said. “It should also provide us with an assessment of long-term prognosis and the risks that our patients face for adverse events in the intermediate term. It should then clarify the way for the treatment options that are available to us, [and] we should rely on imaging to assess the response to therapy when it is otherwise not clear to us from a clinical perspective.”

Cardiac imaging is useful only to the extent that it provides information not readily available by more conventional means, such as a history, a physical exam, an ECG, or a chest x-ray.

Of the data that cardiac imaging can provide, assessments of left ventricular size and systolic function are the most im-

portant. This information allows the clinician to separate patients whose heart failure arises from systolic function from patients whose heart failure arises from valvular, pericardial, or intramyocardial causes.

The issue of viability is particularly salient, Dr. O’Gara said. A metaanalysis of studies involving 3,088 patients with comorbid heart failure and coronary artery disease indicated that patients with viable but hibernating myocardium have a significantly lower mortality rate after revascularization than do patients with nonviable myocardium (*J. Am. Coll. Cardiol.* 2002;39:1151-8).

On the other hand, patients with viable myocardium appear to have a much higher mortality rate with medical therapy than do those with nonviable myocardium.

This metaanalysis has come under a good deal of criticism, Dr. O’Gara acknowledged.

Some of the included studies were observational, nonrandomized, and unblinded. They had varying patient-selection criteria, varying methodologies, and varying definitions of viability. Nevertheless, he said, the message that emerges is that the demonstration of viability seems to be important.

Most clinicians would say that patients need to have viability in at least 25%-30%

of the myocardial mass to be good candidates for revascularization, but this has never been evaluated prospectively.

Other studies have shown that the survival advantages of coronary artery bypass grafting (CABG) are greatest for those patients with the most extensive coronary disease, the greatest degree of left ventricular systolic dysfunction, and the greatest degree of ischemia.

The 2001 heart failure guidelines from the American College of Cardiology and the American Heart Association say that

Most clinicians would search for coronary artery disease in patients with heart failure and a left ventricular ejection fraction of less than 40%.

either angiography or non-invasive assessments of ischemia and viability is appropriate for a patient with both coronary disease and left ventricular systolic dysfunction, usually defined by a left ventricular ejection fraction of 35% or less.

The 2005 guidelines, released within days of Dr. O’Gara’s talk, say that coronary angiography should be performed on heart failure patients with angina or ischemia unless they are not candidates for revascularization of any kind (class I recommendation). Coronary angiography is reasonable for patients with chest pain that may or may not be of cardiac origin or those who have known or suspected coronary artery disease without angina, unless the patient is not eligible for revascularization of any kind (class IIa recommendation).

Separate CABG guidelines from the same organizations state that there is good evidence that left main stenosis or two- or three-vessel disease in the left anterior descending artery are indications for CABG.

There is somewhat less evidence in favor of CABG for “significantly viable non-contracting revascularizable myocardium.” The problem is that the term “significantly viable” is not defined precisely, he said.

“The heart failure panel looked at it differently, and they warned us that coronary revascularization of patients who have

heart failure and coronary disease but do not have a history of angina has never been demonstrated to be useful,” Dr. O’Gara said. This statement is unchanged in the 2005 guidelines.

In practice, most clinicians would consider it mandatory to search for coronary artery disease in patients with heart failure and a left ventricular ejection fraction of less than 40%. Either angiography or non-invasive assessment of ischemia and viability would be appropriate.

“Some would prefer coronary angiography to settle the issue as to whether or not appropriate targets are available for revascularization, if the patient is shown to have demonstrable ischemia,” he said.

“You need to have the targets and you need to have the conduits before you can move ahead with revascularization,” he noted.

Beyond that, the clinician must ask a series of questions to determine whether the patient is a good candidate for revascularization. Among the considerations are the patient’s general health status, whether he or she will have adequate support at home during the recovery period, whether the patient has a history of angina, and the experience level of the surgeon and the hospital.

“These are not the kind of patients who should be operated on by low-volume operators in low-volume institutions,” he said.

Dr. O’Gara offered no strong recommendations on which specific imaging tests would be best, except to say that in practice clinicians should rely on the modality that has the greatest degree of reproducibility and accuracy in the local community.

Finally, he recommended counseling the patient and the family on the basis of widely available risk calculators, such as the one that can be found on the Web site of the Society of Thoracic Surgeons (www.sts.org/sections/stsnational-database/riskcalculator/).

Contrast Echocardiography Can Identify Underlying CAD

BY DIANA MAHONEY
New England Bureau

BOSTON — For acute heart failure patients with neither a history of coronary disease nor evidence of acute MI, myocardial contrast echocardiography can distinguish ischemic from nonischemic etiology, a study has shown.

The ability to identify underlying coronary artery disease in such patients has therapeutic as well as prognostic implications, reported Rajesh Janardhanan, M.D., in a poster presentation at the annual meeting of the American Society of Echocardiography.

A noninvasive bedside technique for evaluating acute coronary syndromes, myocardial contrast echocardiography (MCE) provides a simultaneous assessment of regional wall motion and myocardial perfusion using microbubble contrast agents.

To assess the sensitivity and specificity of the imaging tool in the evaluation of acute heart failure, Dr. Janardhanan of Brigham and Women’s Hospital in Boston, and investigators at Northwick Park Hospital in Harrow, England, reviewed the imaging results from 52 consecutive patients with acute heart failure with no pri-

or history of coronary artery disease (CAD) and no clinical evidence of acute MI on hospital admission.

All the patients in the study underwent echocardiography and MCE at rest and following dipyridamole stress. Additionally, all patients underwent coronary arteriography prior to hospital discharge. On coronary arteriography, 22 of the 52 patients had evidence of CAD, defined as more than 50% luminal diameter narrowing, Dr. Janardhanan said.

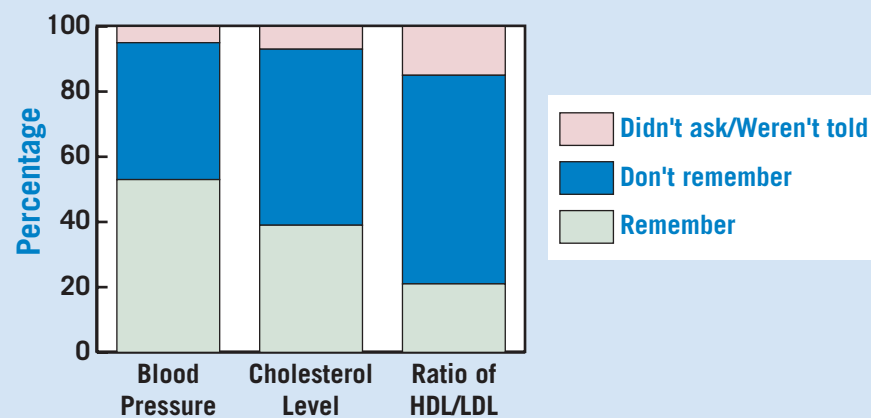
The sensitivity and specificity of MCE for detecting CAD in the 22 patients was 82% and 97%, respectively, with a positive predictive value of 95% and a negative predictive value of 88%.

Among the various markers of coronary artery disease, including MCE, clinical variables, ECG, biochemical measures, and resting echocardiographic results, MCE “was the only [statistically significant] independent predictor of CAD,” Dr. Janardhanan said.

Both myocardial blood flow reserve and myocardial blood velocity reserve decreased relative to increasing CAD severity, suggesting quantitative MCE data may be an effective tool for stratifying risk in patients with acute heart failure, Dr. Janardhanan concluded.

DATA WATCH

Many Americans Don’t Remember Results of BP, Cholesterol Tests



Note: Based on a nationwide survey of 2,288 adults conducted April 22-26, 2004.
Sources: Harris Interactive, Wall Street Journal Online