

Multivessel PCI in STEMI Linked to More Risks

BY MITCHEL L. ZOLER

ATLANTA — One in seven U.S. patients undergoing percutaneous coronary intervention for an ST-elevation myocardial infarction received multivessel revascularization, despite society guidelines that recommend revascularizing only the culprit coronary artery, according to a retrospective review of more than 24,000 Medicare beneficiaries.

VITALS

Major Finding: ST-elevation myocardial infarction patients who underwent multivessel percutaneous coronary intervention had an 11% rate of shock, 9% rate of renal failure, and 7.5% rate of in-hospital mortality. In patients with single vessel PCI, the rates were 8%, 7%, and 6.2%, respectively.

Data Source: Retrospective analysis of 24,106 Medicare beneficiaries who underwent primary PCI for STEMI during fiscal year 2007.

Disclosures: Dr. Kugelmass had no financial disclosures relevant to this study.

question is needed to identify the best PCI strategy for STEMI patients with multivessel coronary artery disease.”

The retrospective nature of his study, and hence its inability to gather information on what prompted operators to perform multivessel PCI, created a major limitation, said Dr. Kugelmass, chief of the division of cardiology at Baystate Medical Center in Springfield, Mass.

“There is potential for a lot of confounding [in the current study], and I think the biggest confounder is that we don’t know what we’re dealing with,” that is, what were the clinical characteristics of patients that led operators to perform PCI on more than one coronary vessel? “The advantage of a prospective registry is that you can ask questions about operator intent. Randomizing patients to single-vessel versus multivessel PCI at the time of primary PCI for STEMI may be ambitious. But a prospective registry may not be bad for identifying exactly which patients” get multivessel PCI, he said.

“Most operators have a pretty good idea of what they’re doing. In real-world practice, they can often discriminate which patients are likely to benefit and which ones won’t. Operators usually get it right. But to extrapolate from this to changing the ACC/AHA guidelines, when we see no advantage and without prospective information, would be a bold move.”

Dr. Kugelmass speculated that several different circumstances probably prompt an operator to perform multivessel primary PCI in patients with a STEMI: One scenario involves patients with multiple sites of plaque rupture, defined by angiography, in whom the culprit lesion



‘Some operators believe that complete revascularization should be done’ during primary PCI.

DR. KUGELMASS

was not immediately identified and who were quite sick and did not improve following initial revascularization, prompting the operator to treat a second vessel. Another situation involves patients in whom the first candidate vessel contains a total chronic occlusion, which leads to treatment of a second coronary artery. A third case includes patients who had rapid reperfusion of a “straightforward” lesion, but despite that the operator decided to treat another vessel at the same time.

“Some operators believe that complete revascularization should be done, and that it should be done” during the primary PCI, Dr. Kugelmass said.

His study used data collected in the Medicare Provider Analysis and Review file, an administrative database for Medicare patients, during fiscal year 2007, covering patients treated during

October 2006–September 2007. The database included 24,106 evaluable beneficiaries who underwent primary PCI for a STEMI, with 20,828 patients (86%) who underwent single-vessel PCI and 3,278 (14%) who received multivessel PCI.

Patients who underwent multivessel PCI had a significantly higher rate of shock associated with their STEMI, 11% compared with 8%, and a significantly higher prevalence of acute renal failure, 9% compared with 7%.

The multivessel PCI patients also had a significantly higher mortality rate while hospitalized following PCI, 7.5% compared with 6.2%. In a risk-adjusted analysis that took into account 31 potential demographic and clinical confounders, the multivessel-PCI patients had a higher than expected mortality rate, and the single-vessel PCI patients had a slightly lower than expected mortality rate.

Despite this, in a multivariate model, multivessel PCI was not a significant determinant of in-hospital mortality, nor did it confer a survival advantage. The strongest mortality predictor in the analysis was cardiogenic shock. Other significant determinants included older age, end-stage renal disease, prior coronary bypass surgery, and a ventricular arrhythmia.

“At first pass, the multivessel PCI patients appear to be sicker, but there is potential for a lot of confounding,” Dr. Kugelmass said.

Dr. Kugelmass said that he had no disclosures relevant to this study. ■

“Based on this retrospective analysis, continuing to follow the American College of Cardiology/American Heart Association recommendations that ST-elevation myocardial infarction patients undergo percutaneous coronary intervention of only the culprit vessel at the time of initial reperfusion therapy is prudent,” Dr. Aaron D. Kugelmass said at the annual meeting of the American College of Cardiology. But, he added, “We feel that a prospective assessment of this

Cardiac Catheterization Rate Is Now Higher in Women

BY BRUCE JANCIN

ATLANTA — Campaigns aimed at increasing awareness among physicians and the public that heart disease is underdiagnosed and undertreated in women appear to be paying off.

In a new report from a large contemporary national registry, women with chest pain were twice as likely as were men to be referred for cardiac catheterization following a noninvasive imaging study, Dr. Marcelo Di Carli said at the annual meeting of the American College of Cardiology.

That’s a dramatic turnaround from the situation just a few years ago, when an abundance of studies documented that cardiac catheterization was significantly underused in women. This major shift is most likely a consequence of campaigns such as the American Heart Association’s “Go Red For Women” as well as other programs designed to increase public and physician understanding of how serious a problem heart disease is in women, according to Dr. Di Carli, director of the noninvasive cardiovascular imaging program at Brigham and Women’s Hospital, Boston.

“It seems the pendulum has swung in the opposite direction,” he said. “The results of this study suggest that it is possible, through widespread public awareness campaigns, to change well entrenched practice by

reaching a diversity of physicians who, based on this information, altered their practice patterns.”

Dr. Di Carli reported on 891 women and 812 men at 40 diverse academic and nonacademic U.S. sites who participated in the Study of Myocardial Perfusion and Coronary Anatomy Imaging Roles in CAD (SPARC) registry. All had chest pain and underwent noninvasive cardiovascular imaging with coronary CT angiography, positron-emission tomography (PET), and/or single-photon emission computed tomography (SPECT). Thereafter, physicians referred 13% of the women but only 6% of men for cardiac catheterization within the next 90 days.

Widespread public awareness campaigns can alter ‘well entrenched’ practice patterns among physicians.

DR. DI CARLI

an independent predictor of referral for cardiac catheterization, with a twofold increased likelihood.

It is impossible to say with certainty whether the increased rate of referral of women for catheterization documented in this study represents overuse of the procedure, appropriate use, or simply underutilization in men, he said. That’s because there are no practice guidelines addressing when it is appropriate to send patients for catheterization. However, he believes there was a reasonably high rate of appropriate catheterization, because two-thirds of the 163 angiograms ordered

in the SPARC participants showed obstructive coronary disease resulting in a revascularization procedure. Moreover, this rate was similar in women and men.

This 66% rate of revascularization in patients referred for cardiac catheterization is glaringly at odds with a widely publicized study published by other investigators only a few days before Dr. Di Carli’s Atlanta presentation. In the National Cardiovascular Data Registry study of nearly 400,000 patients undergoing cardiac catheterization at 663 U.S. hospitals, slightly over one-third were found to have obstructive coronary disease (N. Engl. J. Med. 2010;362:886-95).

The most likely explanation for these discordant findings, in Dr. Di Carli’s view, lies in the fact that the National Cardiovascular Data Registry study covered the years 2004-2008, while SPARC is a more recent series reflective of current practice. It is his impression that cardiac catheterization practices were different in the early and middle years of the decade.

In an interview, Dr. Janet Wright, ACC senior vice president for science and quality, said she agrees with Dr. Di Carli’s assessment that the awareness campaigns are the probable explanation for the recent sharp uptick in cardiac catheterization in women.

“I can’t think of any other driver for that dramatic a shift in what had already been documented as a pattern of practice,” she added.

Dr. Di Carli is co-principal investigator of SPARC, which is supported by the National Heart, Lung, and Blood Institute and four medical companies. He indicated he has no relevant financial interests. ■

