CT Angiography Efficient for Initial Screening

Patients who underwent CT as an initial diagnostic test had lower coronary disease–related costs.

BY KERRI WACHTER
Senior Writer

WASHINGTON — Coronary CT angiography appears to be a less expensive alternative to myocardial perfusion SPECT imaging as an initial diagnostic screen for coronary artery disease, according to an analysis of data from two large regional health plans presented at the annual meeting of the Society of Cardiovascular Computed Tomography.

The average 12-month downstream coronary artery disease–related cost for patients who underwent coronary CT angiography (CTA) as an initial screen for coronary artery disease (CAD) was $1,716 lower per patient than for those who underwent SPECT, said Dr. James K. Min of Cornell University, New York. The average cost of a nuclear study ranged from $3,000 to $4,000.

"CT may be a potential, cost-efficient alternative to SPECT for the initial evaluation of patients with suspected coronary artery disease," Dr. Min said.

The researchers analyzed private payer data from two large regional health plans with more than 6.5 million members from 2002 to 2005. The database included membership information, pharmacy claims, and inpatient and outpatient service claims.

The researchers identified patients who underwent CTA or MP SPECT imaging as an initial diagnostic screen for CAD. Information was collected for 1 year prior to and 1 year after the test.

Only patients without known CAD were included. These were patients who did not have any CAD-related procedure codes for the previous 12 months. CT and MP SPECT claims included only those with coronary heart disease codes.

For each patient, the researchers calculated a cardiac risk score. The score was a weighted average of several risk factors, including use of digitalis, anticoagulant agents, antiplatelet agents, ACE inhibitors, β-blockers, antihypertensive medication, and antidiabetic medications, as well as the presence of other clinical cardiac conditions.

The researchers also assessed each patient's overall health status using the Charleston Comorbidity Index.

Each patient in the CTA group was matched with four patients in the SPECT group based on age, gender, and cardiac risk score. Both groups had an average age of 51 years. Roughly two-thirds of the patients in each group (68%) were women. The average cardiac risk score was 0.20 in the CTA group and 0.19 in the SPECT group.

A total of 1,833 patients were identified who had an initial diagnostic screen with CTA; they were matched with 7,332 patients who had SPECT imaging.

In addition to a cost difference for the two modalities, the researchers noted that the use of antiplatelet therapy was greater among SPECT patients after the initial diagnostic test. There was also a trend toward greater use of ACE inhibitors and statins in the SPECT group, although this did not achieve significance.

Courtesy Dr. James K. Min

CT shows calcified plaque in left anterior descending and right coronary arteries.

"In terms of follow-up diagnostic tests, patients who initially underwent CT angiography were more likely to undergo nuclear stress testing in the follow-up period, while patients who underwent nuclear stress testing were more likely to undergo invasive coronary angiography," Dr. Min reported. Looking at any diagnostic test, there was an 18% relative risk reduction in the patients who underwent initial coronary evaluation with CT angiography.

The researchers also looked at clinical outcomes. Patients who underwent initial SPECT imaging had a higher rate of surgical or percutaneous interventions in the follow-up period compared with those who had CTA—1.2% compared with 0.4%, respectively. "CTA patients experienced lower rates of both hospitalization as well as angina or myocardial infarction," Dr. Min said.

"From this we tentatively conclude that compared to MP SPECT patients, patients who underwent CT as an initial diagnostic test incurred lower 12-month total coronary disease–related costs," he said.

Dr. Min disclosed that he receives research support from GE Healthcare. ■

Treatment for Acute Coronary Syndrome Veers Off Guidelines

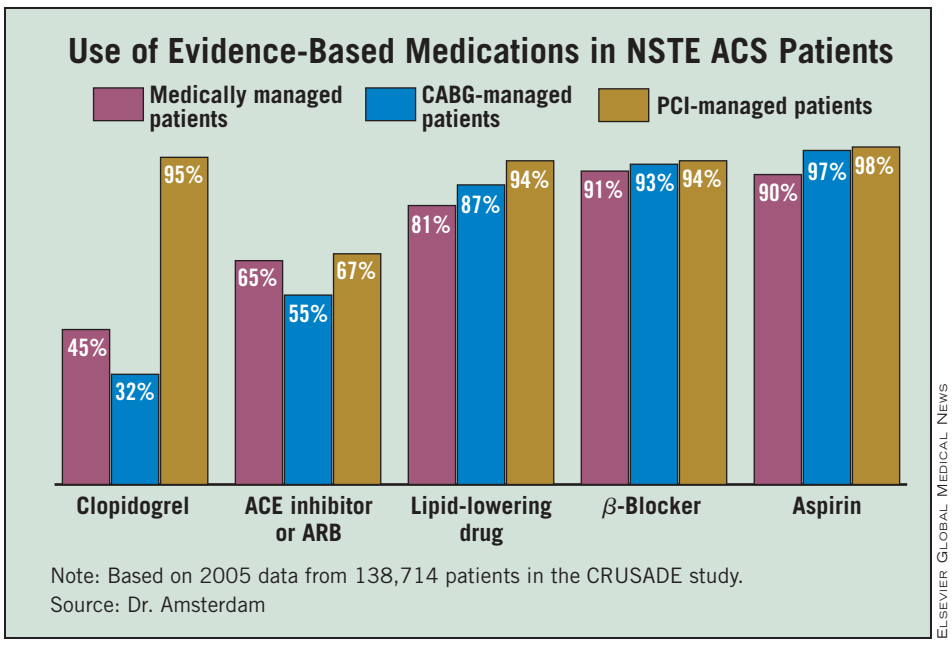
BY BRUCE JANCIN
Denver Bureau

NEW ORLEANS — A large proportion of patients with non–ST-elevation acute coronary syndrome get medical management without coronary angiography despite contemporary guidelines emphasizing an invasive strategy—yet this highest-mortality group of patients is paradoxically least likely to receive evidence-based pharmacotherapy, Dr. Ezra A. Amsterdam reported at the annual scientific session of the American College of Cardiology.

He presented an analysis of CRUSADE quality improvement registry data involving 138,714 patients with non-ST-elevation acute coronary syndrome (NSTE ACS) treated at 547 U.S. hospitals during 2002-2005. Overall, 21% underwent cardiac catheterization without revascularization, 39.5% received percutaneous coronary revascularization, 10.9% had bypass surgery, and 28.6% received medical management only.

During the study period, the use of solely medical management declined from 30.6% of all patients in 2002 to 25.6% in 2005, while percutaneous coronary intervention (PCI) rose from 36.2% to 42.1% in accord with current guideline recommendations.

The guidelines also call for routine use of certain evidence-based drugs in NSTE ACS patients regardless of whether the patients are managed invasively or noninvasively. But while there was an encouraging trend for greater use of these evidence-based medications over the years in medically managed patients, their usage remained significantly less than in patients who received PCI or bypass surgery (see box), noted Dr. Amsterdam, professor of medicine and director of the cardiac care unit at the University of California, Davis.



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In tandem with the more intensive use of evidence-based medications during the study period, unadjusted in-hospital mortality in patients managed solely medically declined from 8.0% to 6.6%, he added.

Discussant Dr. Robert A. Harrington described patients with NSTE ACS who are managed solely medically as "almost a forgotten population."

"There's been so much emphasis in contemporary cardiology placed on the role of the invasive management strategy and coronary revascularization that we often forget that upwards of one-third of patients presenting with an ACS will ultimately be treated medically," said Dr. Harrington, director of cardiovascular clinical trials at the Duke Clinical Research Institute, Durham, N.C.

With NSTE ACS patients accounting for more than 1 million hospital admissions per year in the United States, the CRUSADE evidence for often-suboptimal management of the large portion managed solely medically is an "incredibly important" concern, he added.

The key unanswered question raised by the CRUSADE findings is why these medically managed patients, who are at such high risk, are being treated less aggressively than those undergoing revascularization in terms of the use of evidence-based medications?

Part of the answer may lie in the fact that these patients tend to be older and have more comorbid conditions, Dr. Harrington observed.

"Should these CRUSADE results change practice today? I think absolutely they should because what they're telling us is we need to have an ongoing continuing emphasis on understanding evidence-based prescribing," the cardiologist said. "We know we're doing a good job of caring for these patients, but we clearly can do better."

CRUSADE (Can Rapid Risk Stratification of Unstable Angina Patients Suppress Adverse Outcomes with Early Implementation of the ACC/AHA Guidelines) was sponsored by grants from Schering Plough Corp., Millenium Pharmaceuticals, Bristol-Myers Squibb, and Sanofi.

As of January, CRUSADE merged with the Genentech-sponsored NRMI (National Registry for Myocardial Infarction) to form the ACTION (Acute Coronary Treatment and Intervention Outcomes Network) registry. ■