Financial reimbursement increases cardiac stress tests

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Patients treated by physicians who billed for both technical (practice/equipment) and professional (supervision/ interpretation) components of nuclear and echocardiographic stress imaging tests were more likely to undergo such tests after coronary revascularization compared with patients of physicians who did not bill for these services, according to a study in the Nov. 9 issue of *JAMA*.

"Cardiac stress testing procedures performed in the office setting can enable more rapid, efficient diagnostic testing and use of these procedures has increased significantly during the past decade. However, physician ownership of imaging equipment also could potentially induce testing in more discretionary situations, because the capital outlay for equipment is high and these investments must be recouped via procedure-related 'technical fees,' which cover associated equipment and practice costs. Similar concerns have been raised regarding whether physicians who bill for the professional fees covering test interpretation might more often refer their own patients for these tests than those who do not bill for these services. However, little is known about how these reimbursement incentives might affect the routine use of cardiac stress testing," according to background information in the article.

The American College of Cardiology Foundation (ACCF) has published the appropriateness utilization criteria (AUC) to provide guidance to clinicians for appropriate testing. Current AUC guidelines do not recommend routine testing within 2 years for patients undergoing percutaneous coronary intervention (PCI; procedures such as balloon

angioplasty or stent placement used to open narrowed coronary arteries) or within 5 years for patients having coronary artery bypass graft (CABG) surgery, unless the need for stress testing is provoked by symptoms or events.

Bimal R. Shah, M.D., M.B.A., of Duke University Medical Center, Durham, N.C., and colleagues examined whether there was an association between patients undergoing cardiac stress imaging after coronary revascularization and the pattern of stress imaging billing of the physician practice providing their follow-up care. Using data from a national health insurance carrier, 17,847 patients were identified who between November 2004 and June 2007 had coronary revascularization and an index cardiac outpatient visit more than 90 days following the procedure. Based on overall billings, physicians were classified into 3 categories: physicians who routinely billed for technical and professional fees; physicians who routinely billed for professional fees only; and physicians who did not routinely bill for either service. Analytic models were used to evaluate the association between physician billing and use of stress testing, after adjusting for patient and other physician factors.

During the study period, the overall 30-day incidence of either nuclear stress testing or stress echocardiography testing associated with the index cardiac-related outpatient visit was 12.2 percent, with an overall incidence of 10.4 percent for nuclear stress testing and 1.8 percent for stress echocardiography. The incidence of nuclear stress testing among clinicians who billed for both technical and professional fees, professional-only fees, and neither fee for nuclear stress testing was 12.6 percent, 8.8 percent, and 5.0 percent, respectively. The incidence of stress echocardiography testing among physicians who billed for both technical and professional fees, professional-only fees, and neither fee for stress echocardiography was 2.8 percent, 1.4 percent, and 0.4 percent, respectively.

Analysis of the data indicated that physicians who billed for technical and professional fees for nuclear stress testing and those who billed for professional fees only were more likely to perform nuclear stress tests following revascularization than those not billing (13.3 percent and 9.4 percent vs. 5.3 percent). Physicians who billed for technical and professional fees for stress echocardiography testing or professional fees only were more likely to perform stress echocardiography testing following revascularization than those not billing (3.1 percent and 1.5 percent vs. 0.5 percent).

The authors write that although current ACCF AUC do not recommend routine use of early stress testing following coronary revascularization, they found that 12 percent of patients with a cardiac-related outpatient visit at least 3 months after revascularization underwent a stress test within 30 days of their visit. Also, up to 1 in 10 patients who were not coded as having symptoms at their outpatient visit still underwent stress testing.

"Our study highlights the need for application of the ACCF AUC in clinical practice and augments findings of other studies that have explicitly examined application of ACCF AUC for nuclear stress and stress echocardiography. The ACCF AUC provides guidance to clinicians regarding when to pursue cardiac stress testing to assist in narrowing variation in testing among clinicians and practices. Discretionary stress testing after revascularization has potential financial and clinical disadvantages for patients, including the costs of the tests, the exposure to ionizing radiation as well as potential down-stream costs, and consequences from following up false-positive test results," the researchers write.

"These data suggest the need for broader application of AUC to minimize the possible influence of financial incentives on the decision to perform cardiac stress testing after revascularization."

Brent K. Hollenbeck, M.D., M.S., and Brahmajee K. Nallamothu, M.D., M.P.H., of the University of Michigan, Ann Arbor, Mich., write in an accompanying editorial that despite the implementation of measures such as the Stark laws, which were designed to remove the financial conflicts of interest from physician decision making for clinical laboratory tests and a variety of other ancillary services, the findings of this study are an example of how the problem persists.

"The study by Shah et al highlights the principal risk of in-office imaging. By examining this phenomenon in a clinical context generally considered to be 'inappropriate' -- namely, routine cardiac stress imaging after coronary revascularization—the investigators have demonstrated the persistence of financial conflicts of interest as a driver of utilization. The truism 'if you provide a service, you're more likely to provide a service' apparently has not changed over the years."

More information: *JAMA*. 2011;306[18]:1993-2000.

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