Coronary angioplasties classified as inappropriate reduced since guidelines published

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Nihar R. Desai, M.D., M.P.H., of the Yale School of Medicine, New Haven, Conn., and colleagues examined trends in percutaneous coronary intervention use, patient selection, and procedural appropriateness following the introduction of Appropriate Use Criteria. This *JAMA* study is being released to coincide with its presentation at the American Heart Association's Scientific Sessions 2015.

In 2009, the American College of Cardiology and the American Heart Association, along with other professional societies, released Appropriate Use Criteria for Coronary Revascularization to critically examine and improve patient selection for percutaneous coronary intervention (PCI; commonly known as coronary angioplasty, a non-surgical procedure used to open narrow or blocked coronary arteries) as well as address concerns about potential overuse. Prior studies demonstrated that 1 in 6 nonacute PCIs were classified as inappropriate, indicating that the benefits of the procedure were unlikely to outweigh the risks. National trends in the appropriateness of PCI have not been examined since the introduction of the Appropriate Use Criteria, according to background information in the article.

This analysis included patients undergoing PCI between July 2009 and Dec. 2014 at hospitals continuously participating in the National Cardiovascular Data Registry CathPCI registry over the study period. The researchers determined the proportion of nonacute PCIs classified

as inappropriate at the patient and hospital level using the 2012 Appropriate Use Criteria for coronary revascularization.

A total of 2.7 million PCI procedures from 766 hospitals were included. Annual PCI volume of acute indications was consistent over the study period, but the volume of nonacute PCIs decreased from 89,704 in 2010 to 59,375 in 2014. The proportion of nonacute PCIs classified as inappropriate decreased from 26 percent to 13 percent, and the absolute number of inappropriate PCIs decreased from 21,781to 7,921. Hospital-level variation in the proportion of PCIs classified as inappropriate persisted over the study period (median, 13 percent in 2014).

Among patients undergoing nonacute PCI, there were significant increases in angina severity, use of antianginal medications prior to PCI, and high-risk findings on noninvasive testing, but only modest increases in multivessel coronary artery disease.

"This analysis provides details about changes in the clinical profiles of patients undergoing PCI and suggests that the observed reductions in inappropriate PCI in part reflect improvements in patient selection and clinical decision making as well as better documentation of the key elements used to determine procedural appropriateness," the authors write. "These findings may indicate that clinicians are doing a better job of identifying and limiting nonacute PCI procedures to those patients most likely to benefit from revascularization."

"Collectively, these findings suggest that the practice of interventional cardiology has evolved since the introduction of Appropriate Use Criteria in 2009."

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