

# **CCTA: Cost-effective, noninvasive alternative to invasive cardiac catheterization for the evaluation of significant CAD**

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Non-invasive coronary computed tomography angiography (CTA) is a cost-effective alternative to invasive cardiac catheterization in the care of patients who have positive stress test results but a less than 50 percent chance of actually having significant coronary artery disease (CAD), according to a study in the May issue of the *American Journal of Roentgenology*. CAD is a narrowing of the blood vessels that supply blood and oxygen to the heart. If left untreated, it can lead to a heart attack.

"Patients with positive stress test results but no heart-related symptoms, as well as patients with a positive stress test and atypical chest pain, often receive referrals for [cardiac catheterization](#) for the evaluation of CAD," said Ethan J. Halpern, MD, lead author of the study. Coronary CTA is an alternative, non-invasive diagnostic imaging test that can help physicians effectively triage these patients.

The study, performed at Thomas Jefferson University in Philadelphia, PA, compared the false-negative rates, false-positive rates, costs, and [radiation exposure](#) of direct referral of patients for cardiac catheterization with the values associated with performing coronary CTA before catheterization.

"At a 50 percent prevalence of CAD, we found that performing coronary CTA before cardiac catheterization results in an average cost saving of

\$789 per patient with a false-negative rate of 2.5 percent and average additional radiation exposure of 1-2 mSv, which is minimal," said Halpern.

"According to our results, when a patient with an expected CAD prevalence less than 85 percent is found to have a positive stress test result, coronary CTA is a less expensive alternative to direct performance of cardiac catheterization," he said.

"Recent studies have demonstrated that diagnostic cardiac catheterization of patients with atypical symptoms will reveal significant CAD less than half of the time. If the pretest probability of CAD is low the coronary CTA findings are more likely to obviate cardiac catheterization and thereby reduce both the cost and effective radiation dose of the workup," said Halpern.

**More information:** [www.ajronline.org](http://www.ajronline.org)

Provided by American College of Radiology

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