

Initial diagnostic test in ED for chest pain did not affect low rate of heart attack

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Patients seen in the emergency department (ED) for chest pain who did not have a heart attack appeared to be at low risk of experiencing a heart attack during short- and longer-term follow-up and that risk was not affected by the initial diagnostic testing strategy, according to a study published online by *JAMA Internal Medicine*.

About 6 million patients are seen in EDs annually for chest pain or other symptoms suggestive of myocardial ischemia (decreased blood flow to the heart). Patients without objective evidence of ischemia have been shown to have low risk for a major cardiovascular event, and most patients do not have a cardiac cause for their symptoms.

Andrew J. Foy, M.D., of the Penn State Milton S. Hershey Medical Center, Hershey, Penn., and coauthors compared chest pain evaluation with no noninvasive testing and outcomes for patients in EDs. The study analyzed health insurance claims data for a national sample of privately insured patients in 2011. The patients with chest pain diagnoses were classified into 1 of 5 testing strategies: no noninvasive testing, exercise electrocardiography (EE, evaluates the heart's electrical activity), stress echocardiography (SE, ultrasound), myocardial perfusion scintigraphy (MPS, scan of heart) or coronary computed tomography angiography (CCTA, CT imaging).

The authors measured the proportion of patients in each group who received cardiac catheterization, a coronary revascularization procedure or future noninvasive [test](#), as well as those hospitalized for [heart attack](#)

(acute myocardial infarction, MI).

In 2011, there were 693,212 ED visits with a chest pain diagnosis, which accounted for 9.2 percent of all ED encounters, according to the study. The final study analysis included 421,774 patients, of which 293,788 did not receive an initial noninvasive test and 127,986 did undergo testing. MPS was the most frequently used test among those who underwent initial noninvasive testing.

The study found that the percentage of patients overall who were hospitalized with heart attack was very low during both seven-day and 190-day follow-up at 0.11 percent and 0.33 percent, respectively. Patients who did not undergo initial noninvasive testing were no more likely to experience MI than those who did not receive testing.

The study showed that compared with no testing, EE, MPS and CCTA were associated with higher odds of undergoing cardiac catheterization and revascularization procedures without an accompanying improvement in the odds of having a heart attack.

"More studies need to be conducted to clarify the best testing strategy for low-risk patients being evaluated for chest pain in the ED. ... Given today's concerns regarding health care cost growth, especially the portion attributable to noninvasive cardiac imaging, and patient safety issues related to radiation exposure as well as overdiagnosis, performing such a study should be a priority," the study concludes.

In a related editor's note, *JAMA Internal Medicine* Editor-in-Chief Rita F. Redberg, M.D., M.Sc., writes: "These findings suggest that the current practice of performing a stress test on low-risk patients in the ED is unnecessary and prolongs the length of stay in EDs as well as increases unnecessary medical imaging, with significant associated radiation risk for tests that include nuclear imaging. It is time to change our guidelines

and practice for treatment of [chest pain](#) in low-risk patients. Such [patients](#) should be given a close follow-up appointment with a primary care physician who can determine, based on the patient's condition, whether further evaluation is necessary."

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