

Cardiac CT is faster, more effective for evaluating patients with suspected heart attack

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Cardiac computed tomography angiography scans (CT scans that look at the heart) can provide a virtually instant verdict on whether chest pain is from blockage of the coronary arteries. When used early to evaluate chest pain, the scans save patients and hospitals time and money by allowing doctors to quickly determine who should be admitted for treatment for a heart attack and who can be safely sent home, according to research presented today at the American College of Cardiology's 61st Annual Scientific Session. The Scientific Session, the premier cardiovascular medical meeting, brings cardiovascular professionals together to further advances in the field.

The ROMICAT II study involved 1,000 patients at nine hospitals across the United States. The results showed that using CT scans to evaluate patients with chest pain in the [emergency room](#) (ER) reduced their average time spent in the hospital by 18 hours. Half of the patients receiving the CT scan were safely discharged within nine hours compared to only 15 percent of patients receiving standard care. The use of CT resulted in 10 percent to 20 percent cost savings to the ER over standard care.

"These data suggest that doing a CT scan early benefits both patients and physicians," said Udo Hoffmann, MD, MPH, director of [cardiac imaging](#) at Massachusetts General Hospital and the study's lead investigator. "Physicians benefit because they can discharge many

patients from the overcrowded ER very quickly, with solid reassurance that they're not having a [heart attack](#), while the standard evaluation takes much longer to assess whether the symptoms stem from [blockages](#) in their arteries. Patients benefit from an earlier diagnosis and can safely go home from the ER earlier."

About 6 million people come to hospital ERs in the United States each year complaining of chest pain, but only a fraction are actually having a heart attack or other major cardiac problems. Under the current standard of care, most individuals are observed in the hospital for one or two days and may be given one of several cardiac stress tests to assess their heart's health. Cardiac CT scans allow doctors to quickly use X-ray images of the heart to identify whether a patient has blocked arteries or other [cardiac problems](#).

The study enrolled patients who arrived in the ER with chest pain and who were at intermediate risk for a heart attack based on their symptoms and initial ER evaluation, which included blood tests and electrocardiogram results. Patients were randomly assigned to receive either a CT scan as their first diagnostic test or standard care, which could include a cardiac stress test or no tests at all, depending on the patient's situation and physician preference.

Because healthy patients were discharged much earlier and often needed just a CT scan and a single blood test, their [health care](#) costs were lower. "It looks like CT saves time and money for the health care system in those who have no blockages in their coronary arteries. Though only a modest amount of money is saved per patient, it may save a lot of money considering the millions of [patients](#) affected across the country," Dr. Hoffmann said. "CT allows you to spend your health care dollars focusing on the people who are actually sick. One could argue that this is a better use of health care resources."

CT scans also provide useful prognostic information that doctors can refer back to if the patient experiences chest pain again. "If their CT scan shows clear heart arteries, we know from our previous ROMICAT I study that their prognosis over the next two years is really good, which can be useful farther down the road," Dr. Hoffmann said.

Other studies have offered somewhat conflicting assessments of the efficiency and effectiveness of using CT scans as the first diagnostic test for chest pain. This trial is unique because the CT scan was done much earlier in the evaluation process compared to other studies and was used in a real-life setting. Moreover, this was the first trial to show that physicians could act on the information from the [CT scan](#) in a way that improved a measure of care – safe earlier discharge – after ER presentation for [chest pain](#). "It shows that cardiac CT is ready for use in a pragmatic health care setting, as it is more effective than the standard ER evaluation," said Dr. Hoffmann.

More information: Dr. Hoffmann will present the study "Multicenter Randomized Comparative Effectiveness Trial of Cardiac CT vs. Alternative Triage Strategies in Acute Chest Pain Patients in the Emergency Department: Results from the ROMICAT II Trial" on Tuesday, March 27 at 8 a.m. in McCormick Place North: Main Tent.

Provided by American College of Cardiology

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