

## New techniques help rule out and predict heart attacks



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Researchers in the U.S. have developed a new protocol to rule out myocardial infarctions (MIs), or heart attacks, in emergency departments using a recently approved high-sensitivity troponin t test. The new protocol was found to be safe, ruling out more patients for heart attack and doing so faster than the traditional protocol, according to a study published in *Circulation*.

Lead study author Rebecca Vigen, MD, a cardiologist at the University of Texas Southwestern Medical Center in Dallas, said her team developed the protocol for using the new troponin assay based on published studies and European guidelines, which endorse it for ruling out MI.

In the study involving 536 patients in the Parkland Health and Hospital System emergency department, the existing protocol using the conventional assay ruled out 80.4 percent of patients for MI at 3 hours. By contrast, the new protocol ruled out 54.8 percent of patients by 1 hour, and an additional 28.9 percent at 3 hours. Neither protocol missed any heart attacks.

Vigen cautioned that the study was small and only evaluated the protocol in one population. “We need to study this algorithm in other populations and examine how this may affect healthcare utilisation and costs,” she said.

### New imaging biomarker for predicting MIs

A different team of researchers, meanwhile, have introduced a new method to predict heart attacks using routine coronary computed tomographic (CT) angiography to noninvasively detect coronary inflammation. They recently tested a new imaging biomarker called the perivascular fat attenuation index (FAI) to quantify inflammation-induced changes in fat around the coronary arteries.

Data were collected from two patient cohorts undergoing standard coronary CT angiography: 1,872 patients at the Erlangen University Hospital in Germany from 2005 to 2009 (derivation cohort) and 2,040 patients at the Cleveland Clinic from 2008 to 2016 (validation cohort). Perivascular fat attenuation was mapped around the three major coronary arteries, and the prognostic value of the perivascular FAI was assessed for all-cause and cardiac mortality over a median follow-up of 72 months in the derivation cohort and 54 months in the validation cohort.

In both cohorts, perivascular FAI values around the proximal right coronary artery and left anterior descending artery were predictive of all-cause and cardiac mortality.

Study co-author Milind Y. Desai, MD, a cardiologist and imaging specialist at the Cleveland Clinic Heart and Vascular Institute, said the perivascular FAI potentially identifies patients who are at heart attack risk due to atherosclerotic plaques that may be not be severe enough to cause anginal symptoms but are highly inflamed and potentially unstable.

Future studies will explore if intensifying existing therapies or developing newer therapies to target the perivascular FAI could help to modify the risk of future coronary events.

Source: [JAMA](#)

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