

# Study shows emergency physicians have good first instincts in diagnosing heart attacks

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A study out of Wake Forest University Baptist Medical Center demonstrates emergency room doctors are correctly identifying patients who are having a heart attack, even when laboratory tests haven't yet confirmed it.

The study used data from a registry called i\*trACS, and analyzed patients with heart attack symptoms who were admitted to emergency departments (EDs) in eight participating U.S. centers.

The findings were released today in the *Emergency Medicine Journal*.

"One of the most common complaints we see in the Emergency Department is chest pain," said Chadwick Miller, M.D., lead author and assistant professor of emergency medicine at Wake Forest Baptist.

"That's why it is so important to figure out if we're doing a good job of diagnosing and treating heart attacks, or if there's a better way to do it."

The patients in the registry were divided into three groups: no myocardial infarction (No MI), non-ST segment elevation myocardial infarction (NSTEMI), or evolving myocardial infarction (EMI).

The groups were determined by a blood test that measured levels of the protein troponin, which increases when the heart muscle is damaged from a heart attack.

Patients classified as No MI may have had symptoms but, according to

the troponin levels throughout their hospital stay, did not actually have a heart attack. Patients classified as NSTEMI showed elevated troponin levels when first admitted, usually because their heart attack happened several hours or even days before coming to the ED. Patients classified as EMI did not initially show elevated troponin levels when presenting to the ED, but showed evidence of heart damage up to 12 hours later.

The study focused primarily on EMI patients. When a patient was admitted into the ED with heart attack symptoms, doctors at centers participating in the i\*trACS registry would record their initial impressions of the symptoms exhibited by the patient. According to the results, the initial impression of the physicians showed that a higher percentage of them assigned a higher risk of heart attack to the EMI (76 percent) and NSTEMI (71 percent) patients, than the No MI (52 percent) group. As a result, the EMI patients were triaged to higher levels of care than the no MI group, despite the initial negative troponin results.

"There has been a lot of concern that clinicians either aren't spending enough time getting clinical history from patients or are not using the information they obtain," said Miller. "Patients with EMI are at particular risk for being evaluated less aggressively because their initial troponin result is normal, even though they have had a heart attack. This study suggests that although we are relying on better medical technology to diagnose patients, the clinical impression is still very important."

"It is reassuring to see that the admission patterns among the EMI patients were more aggressive than with the No MI patients, even though in both groups the patients' troponin results were not elevated. This suggests that clinicians are not allowing the non-elevated troponin results to overshadow their clinical impression."

The i\*trACS registry was compiled over a period of 26 months. More

than 17,000 patients were enrolled. However, only 4,136 of those patients were included in the analysis, primarily because patients had to have two troponin results within 12 hours to be included. Patients were also excluded from the i\*trACS registry if they were pregnant, or under 18 years old.

Source: Wake Forest University Baptist Medical Center

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