

Simple score to diagnose heart attacks is safer, faster than current methods

August 20 2018



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An international team of researchers has developed a simple laboratory score that is safer and faster at diagnosing patients who visit the emergency department with heart attack symptoms. The score, published in *CMAJ* (*Canadian Medical Association Journal*), can also identify patients at risk of subsequent heart issues after discharge.

"We have developed a simple lab score that is superior to using cardiac troponin alone for the identification of [patients](#) at low and high risk for [heart attack](#) or death at emergency department presentation," say Dr. Peter Kavsak, McMaster University, Hamilton, Ontario. According to Professor Andrew Worster, also from McMaster University, "This lab score may reduce both the number of blood tests and time spent in the emergency department for chest pain patients."

Patients with chest pain symptoms require multiple blood tests over several hours before a diagnosis is reached. Previous studies using high-sensitivity cardiac troponin alone to rule out and rule in heart attacks have not consistently demonstrated sufficient safety to use in clinical practice.

In this international study, researchers from Canada, Australia, New Zealand and Germany combined common laboratory blood tests available at many hospitals around the world to create a single laboratory score, or clinical chemistry score, to diagnose heart attack. These blood tests are part of the World Health Organization's list of essential in vitro diagnostics tests for health care facilities with clinical laboratories.

The researchers validated the clinical chemistry score as a predictor of heart attack or death within 30 days using data on 4245 patients from emergency department studies in the four countries. Within one month of the emergency department visits, 727 heart attacks or death in patients occurred. A negative (or low-risk) clinical chemistry score at emergency department presentation missed only one of these events compared with up to 25 missed heart attacks/death when using a high-sensitivity cardiac troponin test alone. A positive (or high-risk) clinical chemistry score also identified about 75% of patients at high risk of [heart](#) attack or death when positive compared with a low of 40% detected when the high-sensitivity cardiac troponin test alone was positive. The clinical chemistry score worked equally well in men and

women.

The authors suggest the score can be useful for standardizing diagnoses and improving safety.

"Adoption of the clinical chemistry [score](#) algorithm would standardize reporting of high-sensitivity cardiac troponin [test](#) results, how the tests are interpreted in the normal range, and represent an option less susceptible to both analytical and preanalytical errors. This could result in the safest laboratory approach for physicians to use at presentation in the [emergency department](#)," says Dr. Kavsak.

More information: Peter A. Kavsak et al. Clinical chemistry score versus high-sensitivity cardiac troponin I and T tests alone to identify patients at low or high risk for myocardial infarction or death at presentation to the emergency department, *Canadian Medical Association Journal* (2018). [DOI: 10.1503/cmaj.180144](https://doi.org/10.1503/cmaj.180144)

Provided by Canadian Medical Association Journal

Citation: Simple score to diagnose heart attacks is safer, faster than current methods (2018, August 20) retrieved 4 May 2024 from <https://medicalxpress.com/news/2018-08-simple-score-heart-safer-faster.html>

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