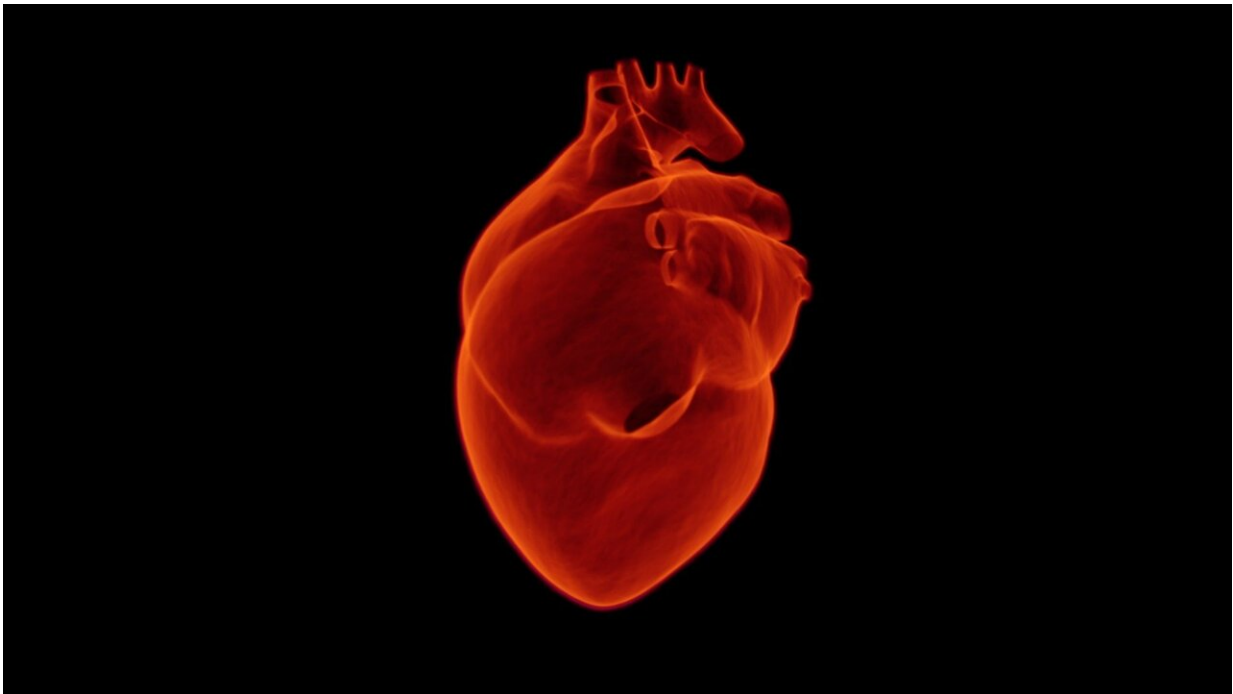


New troponin test improves heart attack diagnostics

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A new test has been developed in Turku, Finland, that helps in separating heart attack patients from those whose cardiac troponin values are elevated due to renal insufficiency.

Blood sample tests for cardiac troponins are an important cornerstone in the diagnostics of heart attack, but the result may be elevated also due to

other transient or [chronic conditions](#), such as renal insufficiency, [atrial fibrillation](#) or strenuous physical exercise. The [new test](#) may help in identifying [myocardial infarction](#) (MI) faster and more specifically and thus improve the treatment of MI patients.

Cardiac troponins are proteins which are normally found in the body only in cells of the heart muscle. According to earlier studies, troponins are released to the circulation in MI as [large molecules](#), while in other conditions troponins are found in the blood as small fragments.

A significant problem in current diagnostics is that the commercial troponin tests currently being used at hospitals recognize the combined amount of both large and small troponin molecules.

In a collaboration study between the Heart Center of Turku University Hospital and the Biotechnology unit of the Department of Life Technologies of the University of Turku, a new simple immunoassay test was developed that detects solely the large troponin molecules. A troponin ratio was calculated by dividing the level of large troponin molecules, determined by the new test, by the level of all troponin molecules, determined by the test currently at use in hospitals. This troponin ratio was remarkably higher in MI patients than in [renal insufficiency](#) patients, although the results of the current commercial troponin test were similar in these groups.

"More than half of the small troponin elevations detected in emergency department patients are due to causes other than heart attack. The developed test seems to separate very well the small troponin elevations caused by threatening MI from more benign transient troponin elevations," says Professor Emeritus Juhani Airaksinen from the Heart Center of Turku University Hospital.

"A special feature of the test we have developed is that it would be

possible to implement it in automated analysis systems in the hospital laboratories, similarly as the commercial troponin tests currently at use in the hospital laboratories," says Assistant Professor Saara Wittfooth from the Department of Life Technologies, University of Turku.

The results of this study have been published in *Circulation*.

More information: K.E. Juhani Airaksinen et al, Novel Troponin Fragmentation Assay to Discriminate Between Troponin Elevations in Acute Myocardial Infarction and End-Stage Renal Disease, *Circulation* (2022). [DOI: 10.1161/CIRCULATIONAHA.122.060845](https://doi.org/10.1161/CIRCULATIONAHA.122.060845)

Provided by University of Turku

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