

Circulating endothelial cells potential biomarker for myocardial infarction

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(HealthDay) -- Circulating endothelial cell (CEC) counts are elevated among patients with myocardial infarction (MI), and the cells have distinct morphological features, according to a study published in the March 21 issue of *Science Translational Medicine*.

Samir Damani, M.D., Pharm.D., from the Scripps Translational Science Institute in La Jolla, Calif., and colleagues used an automated and clinically feasible CEC three-channel [fluorescence microscope](#) assay to characterize CECs in 50 consecutive patients with ST-segment elevation MI and 44 healthy controls.

The researchers found that, in MI cases, CEC counts were significantly elevated, with a median number of 19 cells/mL versus 4 cells/mL in healthy controls. The area under the receiver-operating characteristic

curve was 0.95, indicating near-dichotomization of MI cases versus controls. No correlation was seen between CECs and typical markers of myocardial necrosis. Compared with normal CECs and CECs from patients with [peripheral vascular disease](#), CECs from MI patients had a 2.5-fold increase in cellular area and a two-fold increase in nuclear area seen on morphological analysis of microscopy images. Patients with MI were the only subject group that had CECs with more than three nuclei per image.

"We show that there is a clear excess of CECs and that these cells have discrete antigenic and morphological signatures. These distinctive cell characteristics may be useful in developing a refined [biomarker](#) for arterial injury," the authors write. "Our findings may ultimately support the development of an assay to help predict imminent risk of a heart attack."

One of the study authors is listed as an author on a patent associated with this work.

More information: [Abstract](#)
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