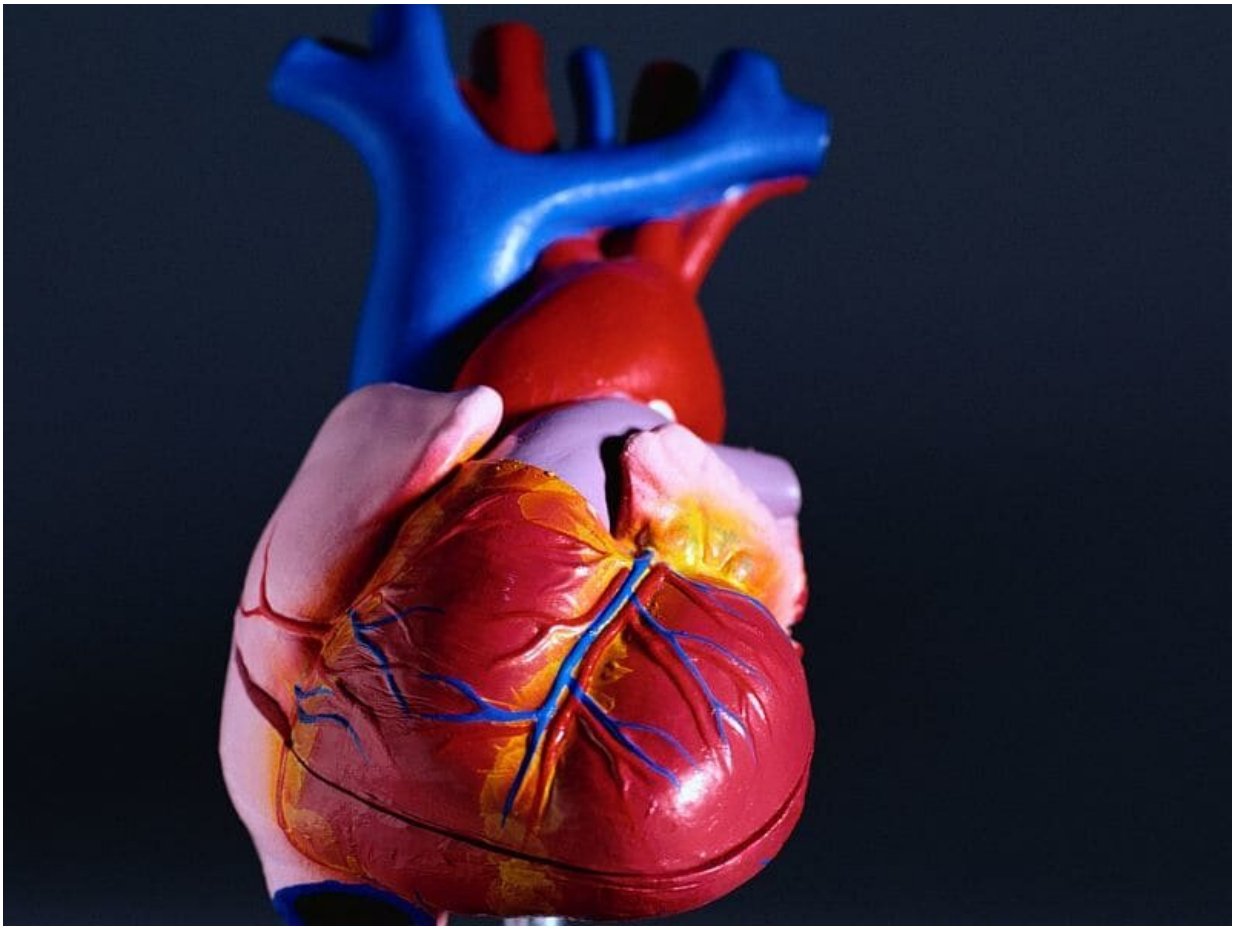
AI imaging analysis prognostic in coronary artery disease

February 21 2020



(HealthDay)—Reduced myocardial blood flow (MBF) and myocardial

perfusion reserve (MPR) are prognostic for patients with coronary artery disease, according to a study published online Feb. 14 in *Circulation*.

Kristopher D. Knott, M.B.B.S., from University College London, and colleagues examined the prognostic significance of MBF and MPR in 1,049 patients with suspected and known coronary artery disease. A novel artificial intelligence approach deriving global and regional stress and rest MBF and MPR was used to perform cardiovascular magnetic resonance image analysis automatically.

The researchers identified 42 deaths (4.0 percent) and 188 major adverse cardiovascular events (MACE) in 174 (16.6 percent) patients. Independent associations were seen for stress MBF and MPR with both death and MACE. After adjustment for age and comorbidity, each 1-mL/g/min decrease in stress MBF was associated with a hazard ratio of 1.93 and 2.14 for death and MACE, respectively. The adjusted hazard ratios for death and MACE were 2.45 and 1.74, respectively, for each 1-unit decrease in MPR. MPR remained independently associated with death and MACE, while stress MBF remained associated with MACE only in patients without regional perfusion defects on clinical read and no known macrovascular coronary artery disease.

"The predictive power and reliability of the artificial intelligence was impressive and easy to implement within a patient's routine care," Knott said in a statement. "As poor blood flow is treatable, these better predictions ultimately lead to better patient care."

One author disclosed financial ties to a medical device company.

More information: Abstract/Full Text (subscription or payment may be required)