

Version 2.0



Abstract

[Back to Hit List](#)**Grant Number:** 1Z01HL004607-03**PI Name:** ARAI, ANDREW E.**PI Email:****PI Title:****Project Title:** MRI Evaluation Of Acute Cardiovascular Disease

Abstract: Managing chest pain in the emergency department remains a challenge with current diagnostic strategies. We hypothesized that MRI assessment of cardiac function, perfusion, and viability could accurately triage patients with potential acute coronary syndrome. In this prospective study of 161 consecutive patients, enrollment required 30 minutes of chest pain compatible with myocardial ischemia but an ECG not diagnostic of acute myocardial infarction. MRI was performed at rest and included perfusion, left ventricular function, and gadolinium-enhanced myocardial infarction detection. MRI was interpreted qualitatively but also analyzed quantitatively. The sensitivity and specificity for detecting acute coronary syndrome was 84% and 85% by MRI, 80% and 61% by ECG, and 20% and 97% for initial troponin-I. For detection of the subset of patients with acute non-ST elevation myocardial infarction, the sensitivity and specificity of MRI was 100% and 81% compared with 70% and 57% for ECG, and 50% and 97% for initial troponin-I. Receiver operator characteristic analysis and multivariate logistic regression analysis showed an abnormal MRI was the strongest predictor of acute coronary syndrome and had independent diagnostic value over clinical parameters including ECG, initial troponin-I, and the TIMI risk score. The resting MRI scan exhibited diagnostic operating characteristics suitable for triage of patients with chest pain in the emergency department. Performed urgently in the evaluation of chest pain, MRI accurately detected a high fraction of patients with acute coronary syndrome including patients that were troponin-I negative

Thesaurus Terms:

diagnosis design /evaluation, heart disorder diagnosis, heart imaging /visualization /scanning, magnetic resonance imaging, myocardial infarction, myocardial ischemia /hypoxia

angina pectoris, heart circulation, heart dimension /size, inflammation, intracardiac volume bioimaging /biomedical imaging, clinical research, electrocardiography, human subject, patient oriented research

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