Cardiac study evaluates prevalence of unrecognized heart attacks among older adults

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Using cardiac magnetic resonance imaging among older adults in Iceland, researchers estimated the prevalence of unrecognized heart attacks, which was associated with an increased risk of death, according to a study in the September 5 issue of *JAMA*.

"The prevalence and prognosis of unrecognized myocardial infarction [MI; heart attack] in older people with and without diabetes may be higher than previously suspected in population studies. Advances in MI detection, such as cardiac magnetic resonance (CMR) imaging with late gadolinium enhancement (LGE), are more sensitive than prior methods. Ascertaining the prevalence of unrecognized MI (UMI) in these groups is relevant because age and diabetes increase the risks of coronary heart disease. Pathologic studies indicate that subclinical coronary plaque rupture occurs frequently, particularly in diabetic individuals, which may culminate in a high prevalence of UMI," according to background information in the article.

Erik B. Schelbert, M.D., M.S., of the National Institutes of Health, Bethesda, Md., and colleagues conducted a study to compare the prevalence and prognosis of recognized and unrecognized MI diagnosed with CMR vs. electrocardiography (ECG) in older diabetic and nondiabetic participants. ICELAND MI is a cohort substudy of the Age, Gene/Environment Susceptibility-Reykjavik Study (enrollment January 2004-January 2007) using ECG or CMR to detect UMI. From a

community-dwelling group of older individuals in Iceland, data for 936 participants ages 67 to 93 years were analyzed, including 670 who were randomly selected and 266 with diabetes. The median (midpoint) age was 76 years, and 52 percent of the participants were women.

A total of 91 of 936 participants (9.7 percent) had recognized myocardial infarction (RMI), and the prevalence of UMI by CMR was 17 percent (157/936). Those with diabetes had a higher prevalence of UMI by CMR than those without diabetes (n=72; 21 percent, vs. n=85; 14 percent). Cardiac magnetic resonance detected 157 UMI, which was more than the 46 UMI detected by ECG (prevalence by CMR, 17 percent; vs. ECG, 5 percent, respectively). "In the randomly sampled cohort (n=670), 61 participants (9 percent) had RMI and 97 (14 percent) had UMI by CMR whereas only 35 (5 percent) had UMI by ECG, significantly less than UMI by CMR," the authors write. Unrecognized MI by CMR was associated with atherosclerosis risk factors, coronary calcium, coronary revascularization, and peripheral vascular disease.

Over a median follow-up of 6.4 years, 30 of 91 participants with RMI died (33 percent), and 44 of 157 with UMI by CMR died (28 percent), which were both significantly higher rates than the 17 percent with no MI who died (119/688). After adjusting for age, sex, diabetes, and RMI, UMI by CMR remained associated with mortality (absolute risk increase, 8 percent), but UMI by ECG was not associated with mortality (absolute risk increase, -2 percent).

The researchers add that they observed more use of aspirin, β-blocker, and statin medications in those with UMI by CMR compared with those without MI. "Yet the use of cardiac medications was significantly less in those with UMI compared with those with RMI. Roughly half of those with UMI were taking aspirin, whereas less than half were taking statins or β-blockers."

The authors suggest that several factors may contribute to the high prevalence of UMI. "First, subclinical coronary plaque rupture occurs frequently, particularly in diabetic individuals. Cardiac magnetic resonance may detect the myocardial sequelae of coronary plaque rupture or coronary plaque erosion that either spontaneously reperfused or were nonocclusive. Second, symptom variation in acute MI may lead patients or their clinicians to attribute MI symptoms to noncardiac causes. Third, given their propensity to be clinically detected, RMI may be more severe than UMI and impart greater lethality."

"This investigation also suggests limitations in current prevention strategies. Herein we report a burden of MI in community-dwelling older individuals that is higher than previously appreciated. The burden of UMI was higher than the total burden of recognized MI, and prescription of cardioprotective medications was less than for participants with RMI. The high prevalence of MI specifically in individuals with diabetes confirms their increased vulnerability. Less than one-third of those with UMI by CMR had prior revascularization to establish coronary disease and trigger secondary prevention strategies. Detection of UMI by CMR may provide an opportunity to optimize treatment for these vulnerable individuals, but further study is needed to assess this."

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