

Coronary artery calcium scans may help lower heart disease risk without increasing tests and costs

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A new study of coronary artery calcium scanning - a simple, noninvasive test that gives patients baseline information about plaque in their coronary arteries-has shown that the scan helps them make heart-healthy lifestyle changes and lower their heart disease risk factors.

The study, the EISNER trial (Early Identification of Subclinical Atherosclerosis by Noninvasive Imaging Research), was headed by researchers at Cedars-Sinai Heart Institute and Cedars-Sinai's S. Mark Taper Foundation Imaging Department and published in the April 12, 2011 issue of the *Journal of the American College of Cardiology*.

The large, clinical trial of volunteers with coronary risk factors but no known heart disease randomized patients to either have or not have a coronary calcium scan and then followed the patients for their risk- factor changes over four years. The final trial result demonstrated that early screening does not increase subsequent tests and their associated costs.

"In our study, patients who knew their coronary calcium scores improved their coronary heart disease risk compared with those with no scan, and those with high calcium scores were motivated to take even more aggressive steps to reduce their risk," said Daniel S. Berman, M.D., the study's principal investigator and chief of Cardiac Imaging and Nuclear Cardiology at the Cedars-Sinai Heart Institute and Cedars-Sinai's S. Mark Taper Foundation Imaging Department.

[Coronary artery calcium](#) scanning shows plaques in coronary arteries long before symptoms develop, and has been consistently shown to effectively identify patients with silent [heart disease](#) and those at risk for a heart attack or sudden death. The test is rarely covered by insurance

although numerous, consistent studies show that it detects these patients more accurately than standard blood tests.

The current study found that patients who were screened had better long-term risk profiles than those who were not. All 2,137 study volunteers in the EISNER trial had an initial, private risk factor counseling session and assessment of seven modifiable risk factors: blood pressure, cholesterol and triglyceride profiles, blood sugar, weight, waist circumference, exercise and smoking.

Of the total participants, 1,424 were selected at random to have a coronary artery calcium scan. The remaining 713 were assigned to a no-scan group. Four years later, all available participants were reevaluated in the clinic and both groups had coronary artery calcium scans.

Compared to the no-scan group, patients who underwent initial scanning had significant improvement in several risk factors after four years: systolic blood pressure (the top number on a blood pressure reading); LDL ("bad" cholesterol) levels; waist size among those with large abdominal circumference; and weight among those who were overweight.

An important outcome was that the Framingham Risk Score, the widely used assessment tool that calculates a person's overall risk of having a heart attack or dying within 10 years, increased in the no-scan group, but remained unchanged in those who had initial scans. Individual risk factor profiles, based on the seven modifiable risk factors, improved in both groups, but the degree of improvement was greater in the scan group.

There was no difference between the groups in the costs or use of invasive or noninvasive diagnostic

and treatment procedures. Patients who had normal baseline scans had fewer tests and procedures in the subsequent four years, compared to patients who did not have scans. Drug costs were 7 percent higher in the scan group because more of these patients started taking blood pressure and cholesterol medications.

Berman noted, "A large number of studies has consistently shown that coronary calcium scanning adds to standard risk factor assessment in predicting heart attacks and cardiac death. By showing improved patient outcomes with scanning - without increasing the need for subsequent tests -- the EISNER study will be very helpful in our quest to prevent heart attacks." He added "The test isn't for everyone, but should be considered in patients with risk factors for [coronary artery](#) disease who are in the right age group."

More information: *Journal of the American College of Cardiology*, "Impact of Coronary Artery Calcium Scanning on Coronary Risk Factors and Downstream Testing: A Prospective Randomized Trial." April 12, 2011.

Provided by Cedars-Sinai Medical Center

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