

Coronary calcium testing predicts future heart ailments

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Calcium deposits in coronary arteries provide a strong predictor for possible future heart attacks and cardiac diseases, and detecting such deposits can be valuable for promoting overall cardiac health, according to a study led by the University of California, Irvine and appearing in the March 28 issue of the *New England Journal of Medicine*.

Supported by the National Institutes of Health, the study is the largest involving CT scanning to date – testing some 6,700 people nationwide – and is the first to include racially and ethnically diverse participants. Previous coronary calcium studies featured only small enrollments of white patients.

"The results prove that coronary calcium detection is a strong predictor of heart attack and disease for African Americans, Hispanics and Chinese Americans as well," said Dr. Robert Detrano, professor of radiological sciences at UC Irvine and study leader. "It wasn't known before whether this would be effective for other racial and ethnic groups, and this study answers that important question."

Coronary calcium is detected by CT scanning, a noninvasive procedure that, for calcium detection, does not require injected contrast. The procedure focuses on the coronary arteries, which supply blood to the heart and are especially susceptible to calcium buildup.

The researchers found that participants with moderate deposit amounts had more than a seven times greater risk of cardiac heart disease



compared to people with no coronary calcium buildup. Participants with large deposit amounts faced a 10 times greater risk.

Coronary calcium is a marker for a diseased artery. It builds up like atherosclerotic plaque and is caused by the same primary factor – high blood lipid levels. Detrano said that calcium screening can be recommended for people who are at moderate risk.

"This is a very practical and effective method for cardiac disease and heart attack prevention," said Detrano, who had proposed the investigation of calcium screening as early as 1989. "One of the factors we need to address is cost; it behooves the imaging industry to bring the cost down and make this procedure available to everyone."

Detrano said the current cost for a CT scan is between \$300 and \$600 per exam. However, he believes that fees can be lower. In his work diagnosing and treating cardiac diseases in rural China, Detrano performs CT research scans for as little as \$30.

Detrano added that these results also contribute to his clinical efforts in China. Before the study, he said, it had not been established that coronary calcium detection could predict future cardiac diseases and heart attacks in Chinese people. Through UC Irvine and China-California Heart Watch, a not-for-profit organization of which he is president, Detrano leads clinical efforts in poor rural regions of southern China where cardiac care is deficient or nonexistent.

For the study, Detrano and his colleagues performed coronary calcium scanning on 6,722 men and women at sites in Los Angeles, New York City, Baltimore, Chicago, St. Paul, Minn., and Forsythe County, N.C. Thirty-nine percent of the participants were Caucasian, 28 percent African-American, 22 percent Hispanics and 12 percent Chinese. Participants entered the study without cardiovascular disease and were



followed for an average of 3.8 years.

Source: University of California - Irvine

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