Medical Xpress

A better way to predict heart attacks

April 27 2010

Every year thousands of people get heart scans that provide pictures of calcium deposits in their coronary arteries. Studies have shown that the coronary artery calcium score (CACS) can point to signs of atherosclerosis and predict future heart attacks.

A new Northwestern University Feinberg School of Medicine study shows for the first time that using the CACS while also considering traditional risk factors for heart disease is a better method than using traditional predictors alone to predict future heart attacks.

"Almost one-quarter of the people in the study who had heart attacks were considered intermediate risk based on traditional risk factors alone, but were considered high risk once we included their CACS," said lead author Tamar Polonsky, M.D., post-doctoral fellow in cardiovascular epidemiology and prevention at Feinberg.

Polonsky, senior author Philip Greenland, M.D., the Harry W. Dingman professor of cardiology at Feinberg, and a team of researchers explain their discovery in a paper to be published April 28, 2010, in the Journal of the American Medical Association.

Beginning in July 2000, more than 6,000 volunteers from the Multi-Ethnic Study of Atherosclerosis (MESA), a population-based cohort, were evaluated for heart disease risk using traditional risk factors and the CACS test. The volunteers, between the ages of 45 and 84, identified themselves as white, black, Hispanic or Chinese. The volunteers had no known cardiovascular disease.

Researchers tried to predict the risk of future coronary heart disease events in the volunteers in two ways. They predicted who would have an event by using their traditional risk factors alone: age, gender, tobacco use, blood pressure, antihypertensive medication use, cholesterol levels and race/ethnicity. Then, they predicted who would have an event by evaluating traditional factors plus CACS, and compared which method did a better job of predicting who would experience a heart attack or serious chest pain.

Nearly six years later, 209 of the participants had some type of coronary heart disease event. When looking at the risk levels of those who experienced an event, researchers found that the CACS was key in classifying people in the most extreme categories.

"Ours is the first study to show that the CACS test, applied in a large population, actually puts more people who experience events in the high-risk category and more people who do not have events in the low-risk category," said Greenland. "So the test is effective. It sorts people properly."

Getting your CACS is not without additional cost -- it is rarely covered by insurance -- and there are risks.

"It is a test that has radiation exposure -- about the same as two mammograms," Greenland said. "It is not a test your family doctor can do in the office when you do your blood work. You would have to go to a separate radiology clinic."

While the study suggests that a CACS could help doctors better identify people who would benefit from more aggressive treatment of their risk factors or who might be able to hold off on starting medication, Greenland said more research needs to be done before the test is routinely recommended.

Provided by Northwestern University