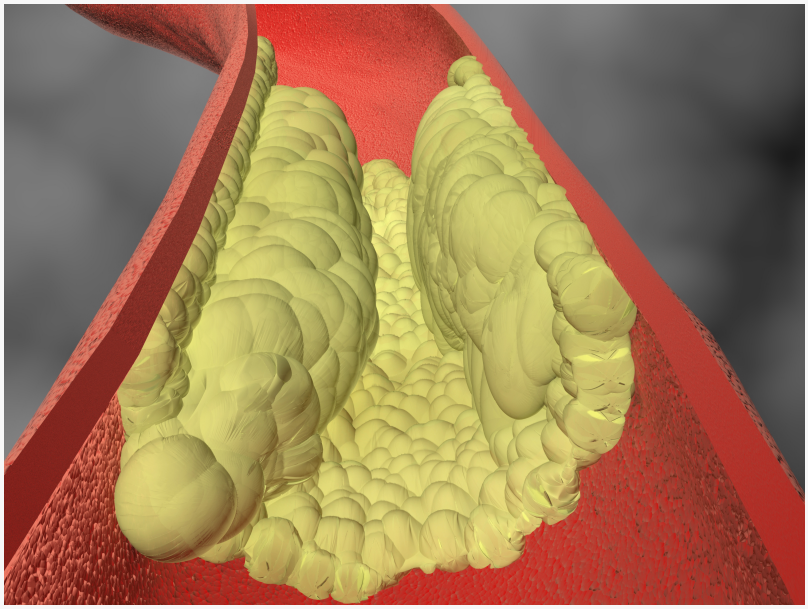
Testing for Calcium in the Coronary Arteries Provides Better Way to Predict Heart Attacks Than Stress Testing Alone

SALT LAKE CITY, UT, USA, March 27, 2018 /EINPresswire.com/ -- Researchers at the Intermountain Medical Center Heart Institute in Salt Lake City have found that incorporating underused, but available, imaging technologies, such as PET/CT scans, more precisely predicts who's at risk for heart attacks and similar threats — in time to prevent them.



Researchers have found that incorporating underused, but available, imaging technologies, such as PET/CT scans, more precisely predicts who's at risk for heart attacks and similar threats — in time to prevent them.

Researchers measured the level of calcium in the coronary arteries of patients during stress testing using two common diagnostic tests: positron emission tomography, or PET, and computed tomography, or CT — to determine a patient's risk of heart disease.

Coronary artery calcification is highly prevalent in patients with coronary artery disease and is associated with major adverse cardiovascular events.
Atherosclerosis – or hardening of the arteries – is the main cause of heart disease. It occurs because of calcium build-up in the blood vessels, resulting in hard and narrow arteries. This then leads to problems such as blood flow obstruction and other heart issues.

> Conducting a PET/CT test to measure coronary artery calcium means clinicians can tell the difference between the potential risk of heart disease and actually having disease."
> *Viet Le, PA-C, Intermountain Medical Center Heart Institute*

More than 8,000 patients with no history of coronary artery disease, heart attack, or known restricted blood flow to the heart, were part of the study. They were treated at a physician clinic or the hospital with symptoms of suspected heart disease, and underwent PET/CT imaging between 2013 to 2016.

Of those patients, researchers found that 53.2 percent had no calcium in the coronary arteries, while 46.8 percent did. Within 60 days, they found:

Six percent of patients with no calcium underwent coronary angiography, compared to 10.8 percent who had calcium.

8 percent of patients with no calcium went on to receive revascularization to restore blood flow to the heart, compared to 6.5 percent of patients who had calcium in their coronary arteries.
9 percent of patients with no calcium had a major adverse coronary artery event, such as a heart attack, compared to 6 percent of patients with calcium.
4 percent of patients with no calcium died, compared to 4.2 percent of patients with calcium

“Conducting a PET/CT test to measure coronary artery calcium means clinicians can tell the difference between the potential risk of heart disease and actually having disease,” said Viet Le, PA-C, lead author of the study, and a physician assistant and cardiovascular researcher in the Intermountain Medical Center Heart Institute. “High blood pressure, diabetes, high cholesterol, and smoking are all risks of heart disease, yet many people who have those risks never have the disease or suffer an event. Coronary artery calcium is the disease — and to an extent, it shows just how much of the disease is present.”

Results of the study were presented during at the 2018 American College of Cardiology Scientific Session in Orlando earlier this month. More than 13,000 cardiologists and cardiovascular clinicians from around the world attended the scientific meeting.

Typically, if a person has chest pain, they come into the emergency department or see their doctor. They may undergo a stress test to determine if they’re suspected of having a blockage in their coronary arteries,” said Le.

“If you look at your coronary arteries like a hallway, the stress test essentially allows you to throw a ball down the hall, and if it makes it from point A to point B, there’s no significant blockage,” Le said. “If the hall is blocked and the ball doesn’t roll all the way through, significant heart disease is likely.”

However, it’s typically more complicated than that, notes Le.

“Even if the ball makes it all the way down the hall, there may be boxes stacked up in the hallway, so the path is partially blocked, and if the boxes fall, you’re in danger of a complete blockage. That’s what testing for calcium does: it identifies existing disease. If we find calcium in your arteries, you’re more likely to suffer a major adverse event, such as a heart attack or death, or you may require a stent or bypass surgery.”

The result of assessing calcium during a PET/CT stress test means care can be more precise while providing patients more incentive and motivation to improve their lifestyles.

“After a negative stress test, we may be likely to tell a patient, ‘You’re good, your symptoms today are not from your heart — there’s no coronary blockage,’ and patients walk away feeling like Superman,” Le said. “The coronary artery calcium PET/CT test allows us to recommend therapy sooner, if necessary. We can say, ‘Well, the ball may have made it all the way down the hallway, but there’s an obstruction lying in wait there, which means you’ve got heart disease. This isn’t theoretical; you’re at risk. You need to be more vigilant about exercise, diet, and your symptoms. We may need to initiate medical therapy’. We then can monitor those patients more aggressively to reduce their risk.”

The PET/CT test also has the potential to proactively reduce healthcare costs — since preventing a heart attack or similar event is the best, and least expensive, way to treat it.

“Avoiding a heart attack is a huge economic benefit,” Le said. “A similar benefit comes as clinicians prescribe medications more efficiently by identifying precisely who needs them.”

The study is one of a series of studies being conducted at the Intermountain Medical Center Heart

Institute on the effects of coronary artery calcium on heart disease.

Other participants in the study include: Stacey Knight, PhD; David Min, MD; Kurt Jensen, MS; Donald Lappé, MD; Ritesh Dhar, MD; Kent Meredith, MD; Steve Mason, MD; Jeffrey Anderson, MD; Brent Muhlestein, MD; and Kirk Knowlton, MD.

The Intermountain Medical Center Heart Institute, part of the Intermountain Healthcare system based in Salt Lake City, is one of the premier cardiovascular centers in the country.

###

Jess Gomez
Intermountain Medical Center
801-507-7455
email us here
