UT SOUTHWESTERN MEDICAL CENTER NEWS

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Atherosclerosis in abdominal aorta may predict adverse cardiovascular events, UTSW scientists report

DALLAS – June 18, 2013 – Magnetic resonance imaging (MRI) of aortic atherosclerosis can predict the risk of heart attacks and other cardiovascular events in otherwise healthy individuals, researchers at UT Southwestern Medical Center have found.

The investigation, published in the June issue of *Radiology*, is the first large-scale study to evaluate the predictive value of MRI measures of aortic atherosclerosis for future cardiac events.

Using MRI, researchers at UT Southwestern were able to measure in thousands of participants very subtle but highly significant differences in two distinct measures of aortic atherosclerosis: aortic plaque buildup and thickness of the aortic walls. Individuals with a thicker aortic wall have almost a twofold higher risk of a future adverse event, said Dr. Amit Khera, associate professor of internal medicine and senior author of the paper.

"Both measurements are predictors of cardiovascular events, but there's an important difference between accumulation of plaque and the thickness of the aortic walls," Dr. Khera said.

"Accumulation of plaque tells us there is increased risk for peripheral vascular occlusion, stroke, and abdominal aortic aneurysms, but not all forms of cardiovascular events, including heart attacks and death from cardiovascular disease," he said. "In contrast, thickening of the aortic walls is more likely to be predictive of all forms of cardiovascular disease."

Dr. Christopher Maroules, a resident in diagnostic radiology at UT Southwestern and first author of the new investigation, said, "The relationship between coronary atherosclerosis and adverse cardiovascular events has long been established, but much less is known about atherosclerosis in the aorta."

The size of the aorta also contributes to the ease of using MRI as a predictive tool for cardiovascular events.

"The aorta is the largest artery of the body and is in a relatively fixed position, making this vessel an ideal target to interrogate with MRI," Dr. Maroules said. "Coronary arteries, in contrast, are a fraction of the size of the aorta and undergo constant respiratory and cardiac motion, making them more challenging to image."

In addition, the abdominal aorta is often inadvertently imaged during routine MRI exams of

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the spine and abdomen.

"Radiologists may be able to infer prognostic information from these routine exams that could benefit patients by identifying subclinical heart disease," Dr. Maroules said.

More than 2,200 healthy adults from the Dallas Heart Study, a groundbreaking multiethnic investigation of cardiovascular disease in Dallas County residents, underwent abdominal aortic MRI as part of the research study.

Although the findings are novel and relevant, Dr. Khera cautioned that they don't necessarily mean that health care providers should use aortic MRIs routinely to screen for cardiovascular event risks.

"While we are not ready to recommend MRI screening for atherosclerosis yet, in patients currently undergoing these exams, findings of a thicker aorta or plaque in the aorta could provide important information," he said.

Other UT Southwestern researchers involved are Dr. Ronald Peshock, assistant dean and professor of radiology and internal medicine; Dr. Eric Rosero, assistant professor of anesthesiology and pain management; and Colby Ayers, faculty associate in the department of clinical science.

Visit UTSW Medicine to learn more about UT Southwestern's clinical services in cardiology.

About UT Southwestern Medical Center

UT Southwestern, one of the premier academic medical centers in the nation, integrates pioneering biomedical research with exceptional clinical care and education. The institution's faculty has many distinguished members, including five who have been awarded Nobel Prizes since 1985. Numbering more than 2,700, the faculty is responsible for groundbreaking medical advances and is committed to translating science-driven research quickly to new clinical treatments. UT Southwestern physicians provide medical care in 40 specialties to nearly 90,000 hospitalized patients and oversee more than 1.9 million outpatient visits a year.

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