

Simple new bedside screening effectively identifies patients with acute aortic dissection

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The most lethal and sudden cardiovascular event can be the toughest for doctors to diagnose.

But a study by the University of Michigan Cardiovascular Center shows new guidelines are effective for determining who's most likely suffering from an aortic dissection, which is tearing in the lining of the body's largest blood vessel.

Aortic dissection led to the sudden death of award-winning TV actor John Ritter in 2003, and brought the world's attention to a heart condition that few survive.

The U-M study shows that with the help of an aortic dissection detection [risk score](#), generated by a simple, bedside [screening tool](#), doctors can usually identify signs or symptoms of acute aortic dissection, which include abrupt, intense pain.

The study was published online ahead of print May 24 in the American Heart Association's journal *Circulation*.

"The results from this study suggest that the risk score, with the use of only information that is available at the bedside, can identify the vast majority of patients presenting with acute aortic dissection," says study senior author and [cardiologist](#) Kim A. Eagle, M.D., a director of the U-M Cardiovascular Center.

Nearly 10,000 Americans suffer aortic dissections each year, and nearly one in three dies before leaving the hospital despite recent advances in diagnostic tools and surgical treatment.

The U-M is the coordinating center for the largest-ever study of aortic dissection patients and the study results were compiled from the International Registry of Acute Aortic Dissection.

Of the 2,538 IRAD patients examined, 95 percent had one or more of the 12 proposed clinical risk markers and 86 percent had at least two of the risk markers.

Patients with acute aortic dissection frequently had an abrupt onset of pain, severe intensity of pain and pain described as ripping or tearing, according to the study.

U-M radiology and cardiology experts helped the [American Heart Association](#), American College of Cardiology and other professional societies create the 2010 thoracic aortic disease guidelines.

The ADD risk score was created from these guidelines to provide doctors with a fast, simple and systematic method for screening large volumes of patients at the bedside.

"Because of its symptoms, aortic dissection is often mistaken for other cardiovascular conditions," says study co-author Adam M. Rogers, M.D., also of U-M.

Those who have lived through aortic dissection describe it as the most painful thing that ever happened to them. Blood, surging from the heart into the main artery, forces open a tiny rip in the aorta's lining that grows and threatens to burst like a dam in a flood.

While tears in the lining of the body's largest blood vessel are rare, occurring in 5,000 to 10,000 patients a year, they have long been known to be deadly. Without emergency attention and treatment — and even, often with it — the torn lining can continue to rip, block blood flow to key arteries in the body, cause the heart to fail, or make the aorta swell into an aneurysm or rupture entirely.

Aortic dissections are the leading cause of death among people with Marfan syndrome, a genetic disorder that weakens the aorta.

Also at risk are people with other heart valve and aorta problems, high blood pressure, or a family history of aortic dissections. Some people with aortic dissection can achieve a stable state with their condition, at least for a while, but most cases are acute and must be treated quickly.

Aortic dissection's symptoms often mimic those of other cardiovascular conditions — resulting in delayed diagnosis. Symptoms include instantaneous onset of severe chest or back pain, sharp drops in blood pressure, altered consciousness, and even limb paralysis.

Only when patients reach an emergency room and undergo tests and scans can the cause be spotted. The two best imaging techniques for finding a dissection are computed tomography, or CT, or trans-esophageal echocardiography.

After diagnosis, ER staff may decide to send the patient to an aortic center that has specialized staff and equipment to handle the condition - such as U-M and the other IRAD participating hospitals.

More information: "Sensitivity of the aortic dissection detection risk score, a novel guideline based tool for identification of acute aortic dissection at initial presentation: Results from the International Registry of Acute Aortic Dissection," *Circulation*, May 24, 2011.

Provided by University of Michigan

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