

Column: Coronary heart disease part 2 – CT angiography

Dr. Arthur L. Zerbey

How do doctors diagnose angina and heart attacks? Electrocardiograms, or EKGs, test the electrical activity in the heart, showing if there is injury to the heart muscle. There are blood tests that can evaluate the heart for damage. There are also nuclear medicine tests that can show damage to the heart. In some cases an angiogram, an invasive dye test through a catheter placed in the groin, may need to be performed. All of these tests work, and work well, but they all have a problem: They most often show damage to the heart after it has already occurred.

Now there is a new test to look at the arteries. It can show narrowing before damage to the heart occurs, and can show signs of coronary artery disease missed by EKG, stress testing and even coronary angiograms. This test is called coronary CT angiography, and it is available now through the Department of Radiology at Merrimack Valley Hospital.

Until recently, CT scanners weren't able to show the coronary arteries clearly, because the small size of the arteries, and their movement with the heart, made them blurry on CT scans. But new CT machines called 64-slice scanners have been introduced. These scanners are so fast and take images that are so thin, the coronary arteries can be seen with ease. The images are so good that coronary CT scans can show plaque in the coronary arteries before chest pain or heart attacks occur. This means that coronary CT angiograms can be used to find coronary artery disease in patients who are symptom-free, when medication and lifestyle changes can do the most to help. Merrimack Valley Hospital is the first hospital in the area to have this highly sophisticated 64-slice CT scanner.

There is another benefit to coronary CT angiography: It is the only noninvasive test that can show noncalcified as well as calcified plaque. There are other tests (actually a kind of CT scan) that can show calcified plaque. This kind of plaque is often seen in long-standing, stable heart disease. Non-calcified or soft plaque can be more dangerous since it is the kind that can cause heart attacks and sudden death. Before coronary CT scans became available, patients would have had to have an invasive coronary angiogram in order to see this plaque, and it may not have been visible even then. Now we can see this soft plaque with coronary CT angiography.

Coronary CT angiography isn't only for patients without current heart problems. It can also help patients with known heart disease by showing how much plaque is present and by showing where it is in the heart vessels. This can help guide cardiologists in making decisions about further treatment. It can even help patients who have had heart surgery or heart stents placed. The images are so good that we can even see inside bypass grafts or coronary artery stents to be sure they're still working correctly.

Who is an appropriate candidate for coronary CT angiography? You need to talk to your doctor about this, but if you have a history of coronary artery disease or are at high risk, you may be a candidate.

The test is performed in the Radiology Department at Merrimack Valley Hospital. You would not be able to eat or drink for four hours before the procedure and you would take an oral medication called a beta-blocker at the time of the procedure to temporarily lower your heart rate. An injection of iodine contrast, which is used in many other radiology exams, is part of the test. You can leave within a half-hour after the test, and you can go to work afterward. Coronary CT angiography is an exciting addition to the testing for coronary heart disease.

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