

Non-Invasive Technology Used to Detect and Treat Heart Disease

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Dedicated to clinically validating and expanding the use of non-invasive cardiovascular imaging technologies, the Florida Institute for Advanced Diagnostic Imaging (FIFADI) offers coronary computed tomography angiography (CTA) procedures. In addition, FIFADI is one of the 3 original US medical facilities designated in 2001 as an official luminary site contributing to ongoing research and development of CTA applications and technologies.¹

Located in Port Richey, FL, the institute's staff has performed more than 1,700 coronary CTA procedures. Relying on multidetector computed tomography (CT) technology to perform the advanced CTA applications, FIFADI presently utilizes an upgraded 16-slice cardiac CT system with optimized 3-dimensional (3D) reconstruction of the heart.

While it is a relatively new procedure, coronary CTA delivers a comprehensive 3D colorized visualization of the heart's anatomy, without the risk of the more invasive steps associated with traditional cardiac catheterization.² When compared to invasive coronary angiography procedures, coronary CTA delivers clinically comparable images while being performed more quickly, comfortably, affordably, and safely. A CTA procedure only requires an IV line, contrast, and minimal lab tests, which offers less risk for the patient.³ No hospitalization is required, and the entire procedure usually takes about 10 minutes.

Coronary CTA Benefits

Coronary CTA provides a number of benefits:

- The procedure reduces unnecessary cardiac catheterization. Nationally, in approximately 35%-50% of cardiac catheterizations performed, no further procedures are required—ie, stents or bypass surgery.⁴
- It identifies coronary artery disease early so medical therapy can be instituted.
- Exceptional scanning speed makes it possible to scan the entire heart in one breath hold.
- A decreased mortality and morbidity rate is achieved when compared to cardiac catheterization. The risk of major complications with cardiac catheterization, including myocardial infarction, cerebral vascular accident, arrhythmia, distal embolism and vascular perforation, is 1.7% (or 1.7 patients out of 100), and mortality is 0.11%. Coronary CTA eliminates these risks and only has documented complications directly related to contrast reaction. Intuitively, these reactions occur at the same rate as any CT scan with IV contrast.⁵

Collaboration is Key

In addition to employing medical imaging technologies to perform non-invasive diagnostic imaging and coronary CTA procedures, the institute was founded on a cooperative partnership between its radiologists and cardiologists to ensure success. By creating a good working relation-

ship between the disciplines, the center is able to build on its collective experience to provide patients with complete cardiac diagnostic services, as well as to conduct joint clinical research.

Typically, patients are educated and then encouraged to visit the institute by their physicians to undergo a coronary CTA procedure. Some patients elect to receive a CTA as an alternative to immediate invasive cardiac catheterization. Collaboration and dialog between the interpreting radiologist and cardiologist is critical.

In fact, radiologists and cardiologists in association with FIFADI have reached an understanding that coronary CTA procedures are cardiology exams and that the cardiologists should have the first opportunity to interpret results. Cardiologists typically interpret angiograms, echocardiograms and nuclear stress tests associated with their patients, and should, in turn, be able to interpret the angiogram portion of the CTA.

The radiologist is then needed to interpret the chest CT portion of the exam. The referring physician then receives the cardiologist's interpretation of the CTA as well as the radiologist's report of the chest CT. Of the coronary CT studies done to date, the institute has documented in 5% of coronary CTAs performed abnormal lesions or abnormalities such as lung masses, fractures, or aneurysms not related to the cardiac structures.