

Diagnosing Coronary Artery Disease

D-SPECT Next Generation Technology in Nuclear Cardiology now at NCH Heart Institute

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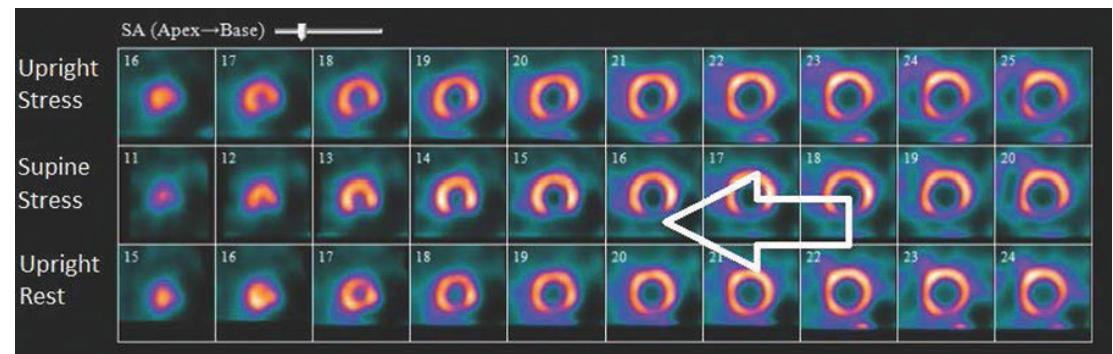
Heat disease is the leading cause of death in both men and women. Coronary artery disease (CAD), narrowing of the arteries that supply blood to the heart muscle by cholesterol plaques, is the most common type of heart disease. CAD causes approximately 370,000 deaths annually in the United States but also leads to non fatal heart attacks, angina pectoris, a pressure or tightness in the chest and cardiomyopathy, a weakness of the heart.

There are a variety of tests that can diagnose CAD, including nuclear myocardial perfusion imaging but 'Single Photon Emission Computed Tomography'(SPECT) has been the "work horse" of nuclear cardiology for many years. During this test, a small amount of a radioisotope, or tracer, is injected to evaluate the blood flow to and function of the heart muscle. This is performed at rest and during a stress test, and the two pictures are compared. In the past, the SPECT "camera" has utilized sodium iodide detector technology to capture the pictures of the heart.

However, new technology, the D-SPECT, provides the latest innovations for advanced imaging in nuclear cardiology. The D-SPECT utilizes cadmium-zinc-telluride (CZT) detectors. This cardiac imaging system has 10 times the sensitivity (detection) and 2 times the resolution (clarity) than the older technology, providing the most accurate SPECT perfusion images for diagnosing CAD. In addition, the D-SPECT can be equipped to precisely quantify myocardial blood flow. This is particularly beneficial for patients with severe multi-vessel CAD. These enhancements provide the cardiologists with the most advanced tools to diagnose CAD leading to the best treatment strategy for their patients.

This D-SPECT is very patient friendly. In essence, the patient sits comfortably, the camera is placed over the chest, and the chair can be adjusted easily from an upright to a semi-upright to a lying down position. The combination of the ability to adjust the patient's position easily with the enhanced sensitivity of the D-SPECT detectors results in minimal artifacts (artificial shadows) from breast or abdominal tissue. This leads to pristine images of the heart. In addition, the enhanced sensitivity allows for lower doses of the radioisotope to be used during the test.

Dr. David Stone, Medical Director of Nuclear Cardiology at NCH, states, "The D-SPECT is more accurate, more comfortable, faster and allows a lower dose to the patient. We are very excited to bring this advanced nuclear cardiac imaging for the detection and management of CAD to the community."



Arrow shows image of decreased blood flow to the heart using DSPECT camera.

For more information contact the NCH Heart Institute at (239) 624-4200.