Cardiac Imaging Has Dramatically Evolved
Imaging – Key to Diagnosis

Deborah’s reputation for cardiac expertise is backed by its expert, accurate, and timely diagnostic imaging capabilities. Cardiac imaging has dramatically evolved over the past few years, driven by the need to provide the highest-quality images in the shortest possible time, and with the least amount of radiation to patients. Deborah remains in the forefront of this revolution, with state-of-the-art technologies and work in cutting-edge research. As an example, the Hospital’s Echocardiography Lab has participated in research for patients with left ventricular systolic dysfunction. Experience gained from this research participation is being used daily at Deborah in assessing and following patients with cardiovascular disease.

This issue of Clinical Update shares some of these new breakthroughs.

Low Dose SPECT Imaging

Providing Enhanced Sensitivity and Resolution in Nuclear Imaging

Deborah’s use of wide-beam reconstructive (WBR™) technology results in significantly better image quality with half the scan time and/or half the radiation dose, allowing Deborah’s specialists to complete gated stress myocardial perfusion studies in as little as six minutes and a rest SPECT acquisition in less than eight minutes, providing images with superior contrast and resolution levels. The reduced scan time also results in improved patient comfort and less patient motion, adding to better diagnostic images.

PROTECTION-VI

Prospective Registry to Analyze Radiation Dosing in CCTA

Deborah’s Non-Invasive Cardiac Imaging Department, in conjunction with its Clinical Research Department, has enrolled the Hospital in the “Prospective Multicenter Registry Of Radiation Dose Estimates of Cardiac CT Angiography IN Daily Practice in 2017,” the PROTECTION-VI study. The site principal investigator at Deborah Heart and Lung Center is Dr. Renée Bullock-Palmer. This international multicenter study will look at radiation dose estimates of cardiac CT angiographies in daily practice. A decade ago the average overall estimated effective dose from cardiac CT angiographies was 12 mSv; since then a variety of new techniques have been developed, reducing radiation exposure to patients undergoing cardiac CTA.

“The greatly reduced radiation dose with WBR™ is welcomed in our Nuclear Cardiology Lab at Deborah Heart and Lung Center, and is in line with the 2014 goal set by the American Society of Nuclear Cardiology (ASNC) of having the total radiation exposure for patients referred for SPECT/PET myocardial perfusion imaging (MPI) to be < 9 millisievert (mSv) in fifty percent of studies. Additionally, the enhanced image quality is of great importance to pinpoint accurate diagnoses in our patients.”

Renee Bullock-Palmer, MD, Director, Non-Invasive Cardiac Imaging

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The PROTECTION-VI study will collect real-life data of Cardiac CTA dosing currently in use, to understand if lower-level radiation dose exposure can be achieved in clinical routine while maintaining diagnostic image quality.

“Participating in this study registry underscores our deep commitment to providing excellent diagnostic quality cardiac imaging services with the least radiation exposure to our patients. As we continue to bring new technologies onboard, our ability to reduce dose exposure to our patients increases. If our experiences and data can contribute to an international database that might lead to new recommendations, we are excited to be a part of this,” stated Renée Bullock-Palmer, MD.

Strain-Rate Imaging

Shows Changes in Myocardial Performance Over Time
Deborah’s innovative integration of strain rate imaging into its diagnostic repertoire over the past several years, takes conventional echocardiography to the next step of assessing myocardial shortening and twisting. Strain rate imaging (or deformation imaging) provides a more comprehensive and reliable assessment of myocardial function. The strain rate (SR) – positive and negative – describes thickening and shortening of a specific myocardial segment related to its original length, offering more useful data and assessment of myocardial mechanics than just motion analysis (velocity and displacement) in detecting myocardial dysfunction, assessing systolic function, and being able to follow progression and treatment of left ventricular dysfunction.

“It is exciting to have strain rate imaging available as part of our diagnostic armamentarium. Strain rate imaging allows us to objectively observe changes in myocardial performance over time. This enhanced diagnostic tool offers an unparalleled opportunity for detecting heart disease which might have previously gone unnoticed. For example, we are now able to detect myocardial toxicity earlier in cancer patients undergoing chemotherapy and thereby make appropriate changes in therapy, preventing permanent myocardial dysfunction.”

Allen Mogtader, MD, Director, Noninvasive Cardiology

3D Echocardiography

On Par with MRIs
The echocardiography laboratory at Deborah routinely uses three-dimensional echocardiography in the investigation of valvular heart disease. Three-dimensional echocardiography provides the spatial resolution for assessing cardiac valves and chambers not afforded by routine two-dimensional echocardiography. In the operating room and interventional cardiac catheterization laboratory, three-dimensional imaging allows for precise localization, quantification, and assessment of valvular insufficiency and stenosis not available by any other imaging modality. It gives a unique view of the heart as would be
seen by the surgeon in the operating room. Three-dimensional echocardiography also gives a more precise assessment of left ventricular systolic function than two-dimensional echocardiography and is on par with magnetic resonance imaging (MRI) in the assessment of cardiac function, but costing much less and being more comfortable for the patient.

“Deborah is a known imaging leader, continually demonstrating its commitment to excellent care,” stated Allen Mogtader, MD.

**PYP Imaging**

**Diagnosing Cardiac Amyloidosis ATTR Type**

Deborah’s Nuclear Lab is pioneering cardiac imaging, whose early detection of transthyretin-related cardiac amyloidosis (ATTR) can potentially spare patients from having to undergo a biopsy for diagnosis. Cardiac ATTR type amyloidosis is an often under-diagnosed cause of heart failure.

With the use of 99mTechnetium-pyrophosphate (99mTc-PYP) imaging, Deborah specialists are able to detect and distinguish between myocardial amyloid deposits, as 99mTc-PYP imaging specifically detects transthyretin (TTR) proteins deposited in the myocardium, which is important for prognosis, therapy and genetic counseling. ATTR type cardiac amyloidosis can result in a restrictive cardiomyopathy, particularly among elderly African-American males who present with heart failure. Deborah, with this cutting-edge imaging, offers a novel approach for evaluation of cardiac amyloidosis (ATTR) type.
Does your patient have asymptomatic carotid disease?

Deborah Heart and Lung Center is currently recruiting patients with asymptomatic carotid stenosis.

CREST-2 is comparing intensive medical therapy alone vs. intensive medical therapy plus either carotid endarterectomy or carotid stenting.

To qualify, your patient must:

• Be at least 35 years old
• Have severe narrowing of at least one carotid artery
• Not have other serious medical conditions

TO ENROLL YOUR PATIENT call Sarah Muchowski, BS, Research Coordinator, at 609.893.1200 ext. 5019

This is an NIH study.
Did You Know?

Widest Range of Echo Technologies Available

- Deborah is one of a very few hospitals in New Jersey whose Echocardiography Laboratory is nationally accredited in all three modalities of echocardiography: transthoracic, transesophageal, and stress echocardiography.
- Deborah has a separate Pediatric Echocardiography Laboratory for children, adolescents, and adults with complex congenital heart disease.
- Each year, the Echocardiography Laboratory at Deborah trains 24 cardiology fellows in all aspects of adult echocardiography.

“This combination of imaging not only is a lure for the next generation of doctors, but it is also of great benefit to patients,” said Allen Mogtader, MD.

SAVE THE DATE

Women’s Heart Center Cardiac Imaging Symposium

On October 14, 2017, at the Double Tree Hilton Hotel in Mt. Laurel, NJ, Deborah -- in partnership with the Cardiovascular Institute of Philadelphia (CVI) -- will host its 4th annual “The Role of Cardiac Imaging in the Female Patient” CME Symposium. Several nationally renowned cardiologists will present a wide range of topics in the field of cardiac imaging and heart disease in women, including Emory University's Nanette Wenger, MD, keynote speaker, who is internationally recognized as an expert in women's cardiovascular health.

For more information, visit
www.demanddeborah.org
Register online at cviphiladelphia.org