

Q & A
 featuring:
Scott H. Fertels, D.O., F.A.C.C.
 Cardiologist, Cardiovascular
 Associates of the Delaware Valley

Has the COURAGE study changed what we should tell patients about coronary artery stents?

This study indicated that coronary intervention (angioplasty with stenting) did not improve survival compared to conventional medical therapy for patients with CAD and stable angina. However, such intervention does have survival benefit for patients with acute myocardial infarction and high-risk, acute coronary syndrome.

Thus, coronary intervention remains an essential treatment for acute episodes of ischemia. For patients whose symptoms are relatively stable, the intervention decision is based on whether or not the patient is experiencing a gradual worsening of symptoms or is becoming progressively refractory to medical therapy.

Is there a connection between heart disease and radiation therapy for breast cancer?

A link between these conditions was established after radiation therapy (RT) gained widespread use in the 1960s and 1970s. This year, a study in the *Journal of the National Cancer Institute* unfortunately found that breast cancer treatment with RT as late as the 1980s continues to increase risk of heart disease. Women who received internal mammary chain RT were shown to have a relative risk of congestive heart failure of 2.55 compared to the general population (median follow-up = 18 years).

The increase in cardiac risk is not seen to outweigh the benefit these women received from the RT. The effect is presumed lower today due to improved techniques.

More Aortic Aneurysms Treated Less Invasively; Screening is Key

With its endovascular-graft program for treating aortic aneurysms (AA) in the abdomen underway for more than five years, Lourdes physicians have now provided this nonsurgical treatment to hundreds of patients. Recently, with the development of uniquely designed devices, it is also able to perform more complicated endovascular repair on AAs in the thoracic aorta (descending portion), a procedure known as TEVAR or thoracic endovascular aortic repair.

These types of minimally invasive AA repairs allow patients to leave the hospital in a matter of days rather than weeks and to return to normal activities much more quickly. For the healthcare system to take advantage of this opportunity, however, physicians must carefully examine patients who might be at risk and order an ultrasound test or CT scan when an AA is suspected.

“Aortic aneurysm is a dangerous condition that is under diagnosed and under treated,” says Lourdes interventional cardiologist **Richard Kovach, M.D., F.A.C.C.**, of Associated Cardiovascular Consultants PA. He notes that the number of individuals with aortic aneurysms is rising steadily due to the aging of the “Baby Boomers” who are now entering their 60s. Diagnosis is also on the upswing, due to increased awareness on the part of primary doctors. Guidelines already identify males over 65 who have smoked at least ten years and are hypertensive (or have other risk factors, such as family history of AA) as candidates for screening. If a small aneurysm is found, it should be re-tested on a regular basis, since aneurysms that become larger than 5.5 centimeters require treatment.

AAs that occur in the thorax are more difficult to repair, in part because of circulatory

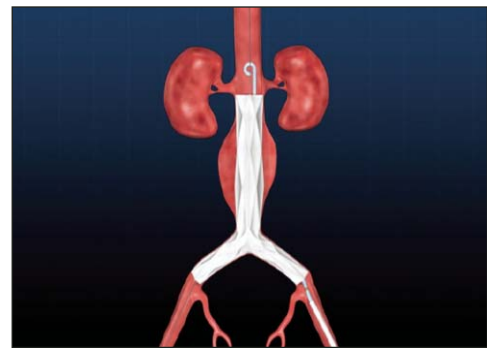


Image courtesy Endologix

Illustration shows placement of bifurcated endovascular prosthesis within an abdominal aortic aneurysm.

side branches in this upper portion of the aorta. “Aneurysms in the upper aorta or aortic arch pose complicated treatment targets because of branch vessels such as those that provide blood to the spine,” explains Dr. Kovach.

To guard against neurologic complications during and after thoracic procedures, each TEVAR team includes a neurologist who monitors neurologic status of extremities. In addition, the team anesthesiologist places a CSF drain and tracks CSF pressure.

The specialists are also decreasing the invasiveness of AA procedures through such improvements as finer catheters that minimize the need to cut open femoral arteries for access. Experienced groups such as those at Lourdes have reduced operative and anesthesia times to as little as one-to-two hours.

“Many patients who need AA repair have other medical problems as well, but with our ability to make this treatment less intrusive – and as safe or safer than open surgery – we can offer repair to a much larger group,” says Dr. Kovach.

■ *For more information, or to refer a patient, contact the New Jersey Heart Institute: 856-365-4072.*



Nearly 100 cardiologists and cardiovascular surgeons staff the New Jersey Heart Institute at Lourdes, one of the largest providers of cardiac services in the Delaware Valley. The NJHI team diagnose cardiac problems using a comprehensive array of innovative interventions. NJHI staff also provide cardiac catheterization at labs at Kennedy Memorial Hospital in Cherry Hill and at Our Lady of Lourdes Medical Center. NJHI's full array of treatment options includes medications, coronary angioplasty and open-heart surgery. The Institute also provides comprehensive care for heart-rhythm disorders.

For more information or to find a Lourdes cardiologist, call the NJHI at 856-365-4072 or go to www.lourdesnet.org.

CardiologyLog

A PUBLICATION OF THE NEW JERSEY HEART INSTITUTE AT LOURDES

New System Defeats Afib

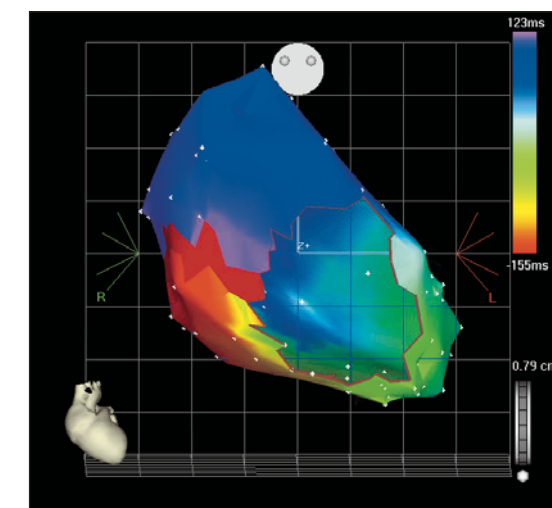
In recent years, a variety of catheter ablation techniques have been highly effective in eliminating errant electrical pathways that are responsible for cardiac arrhythmias. Until recently, though, this has been an uncertain treatment approach for atrial fibrillation (Afib). Estimates are that nearly a quarter of the population will develop transient or sustained Afib after the age of 40. And, the condition is believed to cause about 25 percent of strokes in the United States.

Fortunately, the recent capability to integrate electroanatomical information and radiologic scans now makes it possible for electrophysiology (EP) specialists to treat this complex condition with an unprecedented improvement in both short- and long-term success. The specialist inserts a liquid-cooled catheter into the femoral artery and guides it to the right atrium, where it crosses the interarterial septum via a patent foramen ovale or a small hole produced by a specially designed device (Brockenbrough needle). In the areas identified, the cardiologist delivers radiofrequency (RF) energy to locations conducting aberrant signals.

“Afib is a tricky type of arrhythmia,” explains **Steven Levi, M.D.**, Director of the Cardiac EP Laboratory at the NJHI, “and only recently has RF ablation been adapted for treating it.”

The NJHI is the only center in South Jersey offering this capability.

Medications have not been adequately effective in terminating atrial fibrillation or preventing recurrences. With great success, though, advanced cardiac centers are taking advantage of new EP lab systems, such as that at NJHI, that produce digital, three-dimensional images of the heart's electrical patterns. Highly accurate positioning of the catheter within the heart is made possible through continuous visualization of known magnetic fields of the body, data received from the catheter and information generat-



CARTO® XP image courtesy BioSense Webster

Lourdes new navigation system permits EP specialists to visualize the anatomy of abnormal signal patterns in the heart. With the detailed imaging, the electrophysiologist can locate and destroy tissue that conducts debilitating arrhythmias. This image shows a mapped reconstruction of the right atrium.

ed by the scanner – a coordinated system that allows adjustments of the catheter position as fine as one millimeter. The system assigns locations to its activation and voltage inputs to create a color-coded, real-time “map” of the flow of electrical signals.

“We can observe activity at any place in the heart's anatomy to determine the most effective points for ablation,” explains Dr. Levi. “Candidates for atrial ablation are usually nonelderly patients suffering fatigue or other symptoms of chronic Afib for less than a year.”

Patients stay at least one night in the hospital after the procedure. NJHI, which operates one of the busiest EP programs on the East Coast, is one of the few centers in the Delaware Valley – and the only center in southern New Jersey – offering the new capability.

■ *For more information, or to refer a patient, call Lourdes' Cardiac Electrophysiology Laboratory at: 856-757-3790.*

LOURDES *CardiologyLog*
 is published by
LOURDES
 HEALTH SYSTEM
 1600 Haddon Avenue, Camden, NJ 08103
 888-LOURDES (888-568-7337)
www.lourdesnet.org

Medical Editor: Jan Weber, M.D., F.A.C.C.
 Editor: Josh Bernstein
 Writer: Russ Allen

CardiologyLog is intended to provide physicians with news and information that will assist them in their everyday practice.

Please direct any comments or suggestions to our Marketing Director at the above address or to: dalyc@lourdesnet.org.



1600 Haddon Avenue
 Camden, NJ 08103

NON-PROFIT ORG
 U.S. POSTAGE
PAID
 PERMIT #36
 BELLMAR, NJ 08031

clinical pearls

Toward an HDL Elevator

Hopes for a drug that could safely increase levels of HDL were shattered at the end of 2006 when a 15,000-person, phase III trial of an HDL-raising drug was halted due to increased deaths and heart problems in subjects taking the drug. But researchers are continuing their efforts to identify the genes and biochemical mechanisms responsible for cholesterol transport as well as for the manufacture of lipoprotein particles and their conversion between high-density and low-density forms. This tedious process involves searching for variations between people with naturally high HDL and those with low HDL.

Source: The Scientist, January 1, 2007.

CV Risk from Automobile Emissions

Evidence continues to accumulate about the dangerous relationship between air quality and heart disease. Evidence has shown the ability of fine particulate matter in air – from car, bus and truck tailpipes (“non-point” sources), as well as from fuel-burning factories, plants and generators (stationary sources) – to trigger heart attacks and stroke. It now appears, though, that breathing these tiny particles in the air from mobile sources can also lay the groundwork for eventual cardiovascular events by significantly increasing the risk of atherosclerosis in individuals who live in air quality compromised by this very common type of pollution.

Looking at incidence of high coronary artery calcification among 4,500 adults, a recent German study showed that, compared to those living more than 200 meters from a major source of automobile traffic, those living:

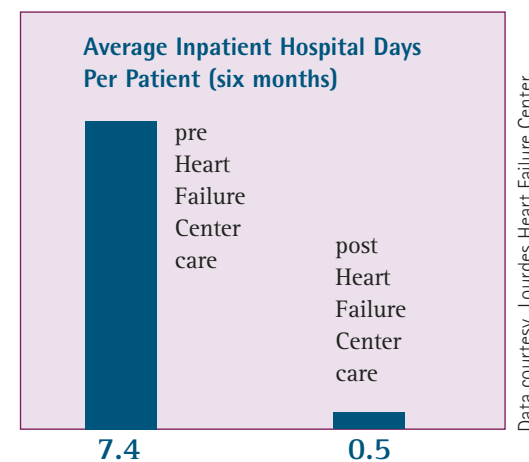
- within 50 meters of heavy traffic had a 63 percent higher incidence;
- between 51-100 meters had 34 percent higher incidence;
- between 100-200 meters had eight percent higher incidence.

Sources: Harvard Heart Letter, July 2007 & Circulation, July 16, 2007.

A Model for Ongoing CHF Care

The Lourdes Heart Failure Center (HFC) opened in January 2007, and dramatic results are already apparent in the center’s initial group of patients. Analysis of the first 11 patients to complete six months of care at the center reveals a dramatic decrease in hospitalized days (see chart below). Achieving this reduction required an average of nine outpatient visits to the center per patient. However, such visits are thousands of dollars less expensive and far less disruptive to the lives of patients than unplanned admissions to the hospital.

Each visit includes a cardiovascular history and physical, noninvasive assessment of hemodynamic status (BioZ impedance cardiography), measurement of BNP level and other tests.



When necessary, diuretics are administered orally, by I.V. bolus or by infusion. When assessment of any of the patient’s usual medications is necessary, the referring physician is contacted by phone to discuss the reasons.

Nationwide, heart failure patients typically tend to avoid hospital care when their symptoms begin to increase because of the high probability that admission will be required. As symptoms worsen, patients often require evaluation in the emergency room. With proper maintenance, education, vigilance and access to services at Lourdes HFC, this population can substantially decrease its acute hospital visits and can gain improvements in quality of life.

■ For more information, or to refer a patient, call Lourdes’ Heart Failure Center at: **856-668-8888**.

Toward Correcting Heart Defect Commonly Connected to Stroke

Patients who experience a cerebrovascular accident (CVA) normally undergo a battery of tests to determine if a possible cause can be identified. Commonly, an etiology cannot be found. However, recent studies have demonstrated a higher prevalence of atrial septal defects (ASD) or a patent foramen ovale (PFO) in those presenting with a CVA or TIA, compared to similar patients who have never had a neurological event.

“PFO in particular is detected in a significant number of patients with unexplained stroke,” says Lourdes cardiologist **Manoj Khandelwal, M.D.** “We believe that correcting it will clarify the relationship between PFO and stroke and establish the best treatment.”

To scientifically pursue this question, Khandelwal’s group is now participating in the Randomized Evaluation of Recurrent Stroke Comparing PFO Closure to Established Current Standard of Care Treatment (RESPECT) trial. The study randomizes half of patients with PFO (and recent cryptogenic cerebral infarction) to catheter repair of the atrial defect and half to standard anticoagulant therapy. The trial will track incidence of subsequent strokes in these patients for two years after treatment.

A PFO or ASD can permit venous emboli to pass into the left atrium and enter the arterial circulation, thus bringing risk of stroke. The Amplatzer occluder (a recently approved device from AGA Medical Corporation, the sponsor of the trial) allows the cardiologist to clamp the PFO defect shut from each side of the common atrial wall with fine mesh discs, over which tissue grows – and to accomplish this in a percutaneous, catheter-based procedure.

“Patients prefer the Amplatzer closure option over medical treatment because it seems more definitive, and over surgery because it’s a straightforward, low-risk, minimally invasive treatment,” notes Khandelwal. “If RESPECT results are positive, I can foresee a second stage to this research in which we will attempt to determine whether pre-emptive closure of a PFO will be effective in decreasing the incidence of a first stroke. This could lead to the conclusion that it’s reasonable to close a PFO in anyone found to have one.”

■ For more information, or to refer a patient to the trial, call: **856-482-4100**.

CASE STUDY

Highly Targeted Procedure Cures Afib

A 35-year-old police officer recently sought care at Lourdes for atrial fibrillation (Afib), from which he had suffered for several years. This patient had been experiencing three-to-four episodes of Afib per week and had been hospitalized for the condition several times within the past few years.

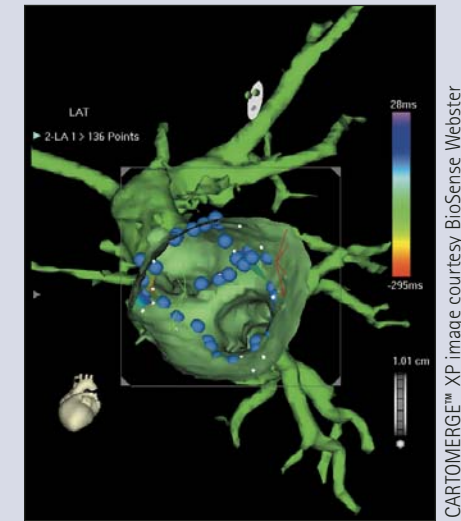
The officer’s job involved patrol and other physical activity, during which he noted irregular heartbeat and shortness of breath. To make matters worse, physical exertion was a frequent trigger for his atrial fibrillation, reducing his ability to exert himself with strength and endurance at critical times. The patient was overweight and gaining weight as a result of the inactivity that his condition forced upon him.

In reviewing these symptoms and his EKGs from previous hospitalizations, the Lourdes team suspected that the patient was experiencing not only left atrial fibrillation but also flutter of the right atrium. The patient’s physicians had been treating him with max-

imal doses of antiarrhythmic medication and a beta-blocker. However, the drug therapy had little effect. The patient’s primary risk was stroke, and he was taking Coumadin to reduce this possibility.

At Lourdes, the patient’s stress test and echocardiogram were normal, but a sleep study confirmed the presence of sleep apnea. Because apnea can promote Afib, this study is standard in evaluating such patients. Treatment with CPAP was initiated, but managing this patient’s nighttime oxygenation had little impact on the frequency of his Afib. At this point, the EP team recommended catheter ablation, and the patient and his referring physicians concurred.

The pulmonary veins are often the source of rhythm disturbance in Afib. Using advanced mapping techniques in the electrophysiology lab at Lourdes, the EP team indeed isolated this location as the source of this patient’s arrhythmia. The specialists made two distinct punctures across the septum,



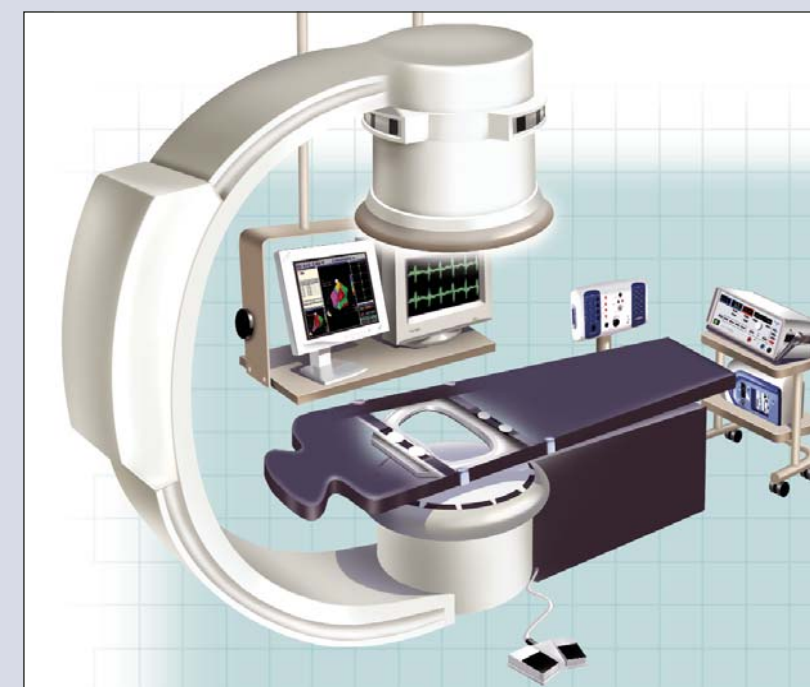
The new Lourdes system can import pre-acquired CT scan data and overlay it with conduction-pathway information to further validate positioning during the procedure. Here, an integrated image of the left atrium of a patient shows system mapping points indicated in blue.

electrically isolated each of the PV veins separately, and made a series of “burns” to the areas where these veins meet the heart.

The procedure went very well, and the patient was restarted on blood thinner that night in the hospital. He was able to return home the next day and was monitored via a portable EKG monitor for about ten days, which confirmed the absence of Afib. Follow-up care found no evidence that he has had any such episodes since the procedure.

The Lourdes team was able to take the patient off of his antiarrhythmic medication and eventually off of his Coumadin. Very likely, he is permanently cured of his Afib and will not require further treatment. He is very pleased with the result and has returned to his job, no longer concerned about loss of endurance when he needs it most.

■ For more information, or to refer a patient, call Lourdes’ Cardiac Electrophysiology Laboratory at: **856-757-3790**.



A location pad, built into the procedure table, is critical for acquiring the position of the treatment catheter within the heart, relative to the maps of electrical variations in the heart chamber walls created by computerized reading of ECG data.