The Johns Hopkins Heart and Vascular Institute

JOHNS HOPKINS MEDICINE

CardiovascularReport

NEWS FOR PHYSICIANS FROM JOHNS HOPKINS MEDICINE

Summer 2013

A Patient Remembers His Heart Transplant Almost 30 Years Ago

While the field has advanced, some challenges remain

Orlando DeFelice and his wife, Pam, enjoy a springtime stroll as they look forward to celebrating the 30th anniversary of his heart transplant.

When Orlando DeFelice received a new heart at Johns Hopkins in 1983, heart transplantation was in its infancy. Cyclosporine was approved that same year by the FDA. Many patients stayed in the hospital for up to three months after a heart transplant before going home. To treat a post-transplant infection, surgeons would place tubing around the heart and flush the area with a diluted form of Betadine.

There were no left ventricular assist devices (LVADs) to support a critically ill patient until a new heart became available. And only younger patients typically were considered good candidates.

In 1982, DeFelice was diagnosed with idiopathic cardiomyopathy. His condition deteriorated to the point that he lost 92 percent of his heart function.

"My cardiologist, **Thomas Traill**, gave me medicines to keep me alive but I became jaundiced and so weak that I could hardly get out of bed," he remembers. "I spent four months in the hospital until my prayers were answered—a new heart became available."

DeFelice was the second patient to undergo heart transplantation at Johns Hopkins. The operation, on August 6, 1983, was performed by chief of cardiac surgery **Bruce Reitz**. Cardiac surgeon **William Baumgartner** had just been recruited to Johns Hopkins to develop and lead the heart transplant program.

DeFelice didn't wake up until six days after surgery but then noticed a big difference. "I felt tremendously better right away. I was able to get out of bed and walk around—even up and down steps." While his doctors had given him only a 50 percent chance of living past five years, he is now one of the nation's longest surviving heart transplant patients.

"There has been a great deal of progress since those early days," says Baumgartner, who became chief of cardiac surgery at Johns Hopkins in 1992. He served in that post until 2009 and is now the vice dean for clinical affairs at the Johns Hopkins University School of Medicine.

"Back then, there was a lot of discussion about who should be eligible. Age was an important consideration since we were aware that an older recipient's other medical issues could decrease their post-transplant survival," says Baumgartner.

"While age is not as big a factor for eligibility today, it's still true," he adds, "that you have to be selective about recipients because there are still too few donor hearts. The annual number of heart transplants performed today is no different from 10 years ago."

> "I feel very lucky," DeFelice says. "I credit the entire team at Johns Hopkins for my recovery."

Cardiothoracic surgeon **Ashish Shah** says the profile of recipients today is much more complicated with co-morbidities. "We've learned how to manage higher risk patients. We're now offering transplants to older patients—even in their 70s—as well as those who have had multiple surgeries including the placement of an LVAD. Those factors make the surgery and post-operative management more difficult. Despite this, outcomes are excellent."

Three decades after his pioneering heart transplant, DeFelice is still working and living an active life. His only major setback was kidney failure a few years ago brought on by the same drugs that were preventing rejection. He received a kidney transplant from a living donor in 2010.

"Orlando is a remarkable man who has exceptional courage, perseverance and equanimity," says cardiologist **Edward Kasper**, who has cared for DeFelice since 1993.

Looking back on what helped motivate him to recover from his heart transplant, DeFelice says it was a question from Baumgartner. "He asked me, 'What is your short-term goal?' I thought for a moment and answered that I wanted to dance at my sister's wedding in two months. Sure enough, I did that." ■

Shifting Gears: When the Intended Treatment Needs Rethinking

Joseph Marine and Alan Schneider had collaborated to provide Mark Olkon with the best treatment option. Here, Schneider interrogates Olkon's defibrillator as Marine watches.

When Mark Olkon, 61, entered The Johns Hopkins Hospital in preparation for a complex ablation last January, he had been coping with hypertrophic cardiomyopathy for more than 25 years. In spite of medical therapy, a pacemaker/defibrillator implantation and an ablation for atrial flutter four years earlier, his condition continued to deteriorate to the point that, in 2011, he was in late-stage cardiomyopathy with atrial fibrillation and congestive heart failure.

"I was retaining a lot of fluid," says Olkon. "I was short of breath and very weak."

Olkon's long-time cardiac electrophysiologist, **Alan Schneider**, who practices at Suburban Hospital in the Washington, D.C. suburbs of Maryland, referred Olkon to Johns Hopkins heart rhythm specialist **Joseph Marine** for consideration of a complex catheter ablation for atrial fibrillation.

"Mark is one of the most complex patients out there," says Schneider. "His heart was badly out of rhythm. We thought that if we could get his heart back into a normal rhythm with the ablation, he would feel much better."

However, during testing at Johns Hopkins prior to the ablation, Olkon was found to be anemic and edematous, and his kidneys were not functioning properly. He was admitted to the hospital for more tests and treatment to improve his hemoglobin and heart failure symptoms. While his condition improved, his doctors began to reconsider whether the ablation was the right course of action.

"We thought that there was less than a 50 percent chance that the ablation would be successful and since Mark's heart was so weak, we knew that the procedure would present greater risk. So after thorough discussion, we made a shared decision that the ablation was not the best course of treatment," says Marine.

Schneider and Marine then considered another option—to upgrade his device to a biventricular pacemaker/defibrillator to pace his left ventricle, as well. Schneider performed that procedure for Olkon at Suburban Hospital, and it proved to be a good decision.

"With cardiac resynchronization therapy, we were able to improve his forward flow and cardiac output," says Schneider. "His atrial fibrillation is here to stay, but at least now his bottom chamber is pumping stronger and he is feeling better."

"While I'm still limited in my activities," Olkon says, "I no longer feel any chest discomfort or shortness of breath, and so it worked out well."

Olkon says he is pleased with the coordinated care he received. "My care at Johns Hopkins was very good and the doctors there were in constant touch with Dr. Schneider." ■

A Closer Collaboration

In early 2012, Alan Schneider's cardiology group, Maryland Heart, P.C., a 17-physician group practicing in Montgomery County, Maryland, joined the cardiology practice of Johns Hopkins Community Physicians (JHCP). Maryland Heart, now known as JHCP Heart Care, had been practicing primarily at Suburban Hospital, which has become part of the Johns Hopkins Health System.

"Our goal is to work together to provide the highest quality, coordinated and streamlined care for patients at the right place and the right time," says Joseph Marine, who serves as the cardiology section chief for Johns Hopkins Community Physicians. "Mr. Olkon's case is a good example of how our collaboration works to improve the care process and provide the appropriate expertise to help patients with complex sets of problems."

Cardiologist **Harry Bigham**, who is the Greater Washington-area regional director for JHCP Heart Care, says the close interaction of his group with Johns Hopkins faculty physicians has facilitated collaboration and communication in handling complicated and unusual patient cases.

"We have immediate access to subspecialists at Hopkins with expertise in areas such as transplant, transcatheter aortic valve replacement and genetic evaluations, not just to refer patients but also to keep up with their care. And then we have all the information we need to follow up with our patients once they return home," Bigham says. ■

Your Vital Links

Cardiovascular Access Team
To refer patients for cardiovascular services
443-997-0270

Cardiac Surgery
410-955-2800

Vascular Surgery and Endovascular Therapy
410-955-5165

Pediatric Cardiology
410-955-9714

Interventional Radiology
410-502-2835

Hopkins Access Line (HAL)
Your 24/7 connection with Johns Hopkins full-time faculty in any specialty
410-955-9444 or 800-765-5447

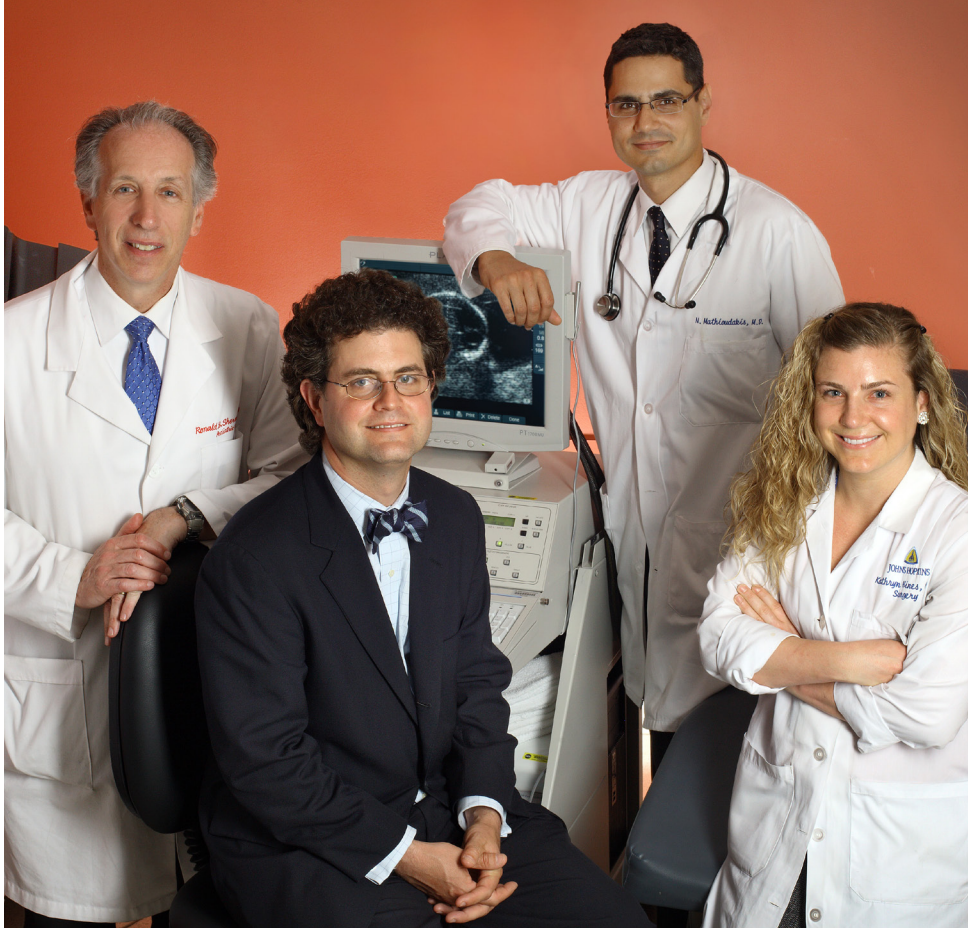
Online Referral Directory
hopkinsmedicine.org/doctors

www.hopkinsmedicine.org/heart

CareLink

Johns Hopkins Medicine is pleased to introduce Johns Hopkins CareLink, a free Web-based portal that enables you to have real-time access to your patients' electronic medical records, lab results and imaging reports; provides CareLink in-box notification of your patients' outpatient visits and hospital admissions and discharges; and also enables you to send/receive secure messages with Johns Hopkins providers and order consults with Johns Hopkins specialists. Enroll starting May 13, 2013, and begin accessing your patients' information on July 1, 2013. For more information on Johns Hopkins CareLink and enrollment instructions, please visit www.hopkinsmedicine.org/carelink. Enrollment is quick and easy. Once you have enrolled, you and your office colleagues can take brief online training and receive technical support by calling 855-284-5465.

Three Appointments in One: Providing Coordinated Care to Prevent Amputations



The Diabetic Foot and Wound Clinic team includes podiatrist Ronald Sherman, vascular surgeon Christopher Abularrage, endocrinologist Nestoras Mathiodakis, physician assistant Katy Hines and podiatrist Alex Kor (not pictured).

When vascular surgeon **Christopher Abularrage** came to Johns Hopkins three years ago, he noticed that many patients were presenting with severely advanced vascular disease. They were admitted to the hospital with advanced foot ulcerations or gangrene that might have been prevented, but they had never been seen by a podiatrist or an endocrinologist.

In order to provide early, coordinated care for the growing number of patients with diabetes-related vascular and wound complications, Abularrage and colleagues developed a multidisciplinary diabetic foot and wound clinic that enables patients to see three specialists in one visit for consultation, education and treatment.

"Our goal is to catch problems early and intervene in order to prevent hospitalizations and amputations, says Abularrage, the clinic's medical director. "Of course, we also care for patients who present with more advanced, complex problems."

Donna Brown, 53, is one such patient. Even though she was diagnosed with diabetes more than 20 years ago, she says, "I didn't understand it or take it that seriously until I started having a funny feeling in my legs that turned out to be a blockage."

With the lack of blood flow to her right foot, her big toe became gangrenous and required an amputation. Her primary care doctor referred her to the clinic, where she was seen by a team of specialists who could address her foot and vascular problems, help her get her blood sugar under control and provide coordinated care.

"Ms. Brown came to us with wet gangrene, multiple ulcers, and blood sugar levels that were out of control," says Abularrage." "She was exactly the type of patient that our multidisciplinary clinic is designed to help."

Abularrage opened the blockage in her leg with angioplasty to immediately restore blood flow. However, she had a lingering wound in her foot in spite of the angioplasty, multiple debridement procedures, and negative pressure wound therapy at the clinic.

Abularrage enlisted the help of plastic surgeon **Justin Sacks**, who performed an adjacent tissue transfer to close the wound, as well as multiple skin grafts for Brown's ulcers. Those steps, in combination with bypass surgery to detour the blood around a recurrence in the blockage, allowed her foot to heal.

"Ms. Brown is typical of patients who need the services of all of us—not just vascular surgery but also podiatry, plastic surgery and endocrinology," says Abularrage.

Brown says the clinic's endocrinologist, **Nestoras Mathiodakis**, has helped her understand her disease and learn how to monitor and control her blood sugar.

"When I came in distressed and scared, they really helped me through it. They explained exactly what was going on, told me all of the options and gave me a chance to make up my mind," Brown explains. "I am very grateful for this clinic."

Brown also is pleased with being able to see several specialists in one clinic visit. "Patients like me have a hard time getting around, and this saves us from making multiple trips."

"It's too much to ask them to see different specialists on different days. It delays their care," Abularrage says. ■

An Eye-Opening Assessment of the Commonly Used LDL Calculation

After examining samples from 1.3 million Americans, Seth Martin and Steven Jones found inaccuracies in LDL using the Friedewald equation.

Although the Friedewald equation has been used for more than 40 years to estimate LDL cholesterol and see if our high-risk patients have achieved the desirable LDL goal, a closer look reveals that the formula is often inaccurate. Johns Hopkins researchers compared the lipid profiles of more than 1.3 million American adults obtained by ultracentrifugation with those same samples using the Friedewald equation.

"In nearly one out of four samples in the desirable range for people with a higher heart disease risk, the Friedewald equation had it wrong," says **Seth Martin**, a clinical fellow at the Johns Hopkins Ciccarone Center for the Prevention of Heart Disease. "As a result, many patients may think they achieved their LDL cholesterol target of less than 70 when, in fact, they may need more aggressive treatment to reduce their risk." Martin is the lead author of the study published in the *Journal of the American College of Cardiology*.

The lipid profiles came from a lab in Birmingham, Alabama. The researchers collaborated with the lab to develop the database for the study.

Steven Jones, director of inpatient cardiology at Johns Hopkins and senior author, says based on their findings, many patients—especially those with high triglyceride levels — may have a false sense of assurance that their LDL cholesterol targets have been met.

As an alternative to Friedewald, Jones suggests looking at non-HDL cholesterol as a more accurate way to assess risk. "It is a much better target for quantifying risk of plaques in coronary arteries. It would be simpler, more consistent, and would enable us to provide a better assessment."

The database used in the study is registered on the website www.clinicaltrials.gov and will be an important resource for ongoing scientific investigation. ■

An ICD Infection Caught In Time

A 63-year -old man arrived at Johns Hopkins last June with a bloodstream staph infection. He was in distress, severely ill with a high fever. The systemic infection, of unknown etiology, had migrated to his implantable cardioverter defibrillator, which had been put in four years earlier.

Alan Cheng, an expert in device extractions and director of the Arrhythmia Device Service, told the patient that he would need to have his infected ICD removed as soon as possible.

After receiving intravenous antibiotic therapy over two days in order to bring down the infection, the patient was taken to one of the state-of-the-art hybrid procedure rooms in Johns Hopkins' new hospital building.

When cardiologists perform difficult lead extractions and other challenging interventional procedures in the hybrid facility, cardiac surgeons are on standby to assist if needed.

Cheng made a 1½ inch incision in the upper left side of the patient's chest and began the delicate task of removing the ICD, using an excimer laser to melt away scar tissue around the lead that commonly builds up after a device has been in place for several years.

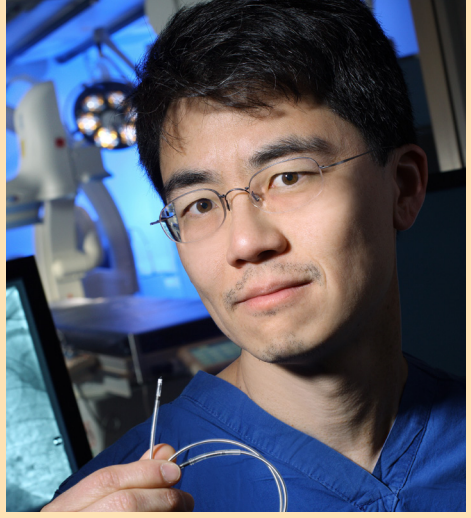
As Cheng was gently pulling the lead from the vein, he noticed that the integrity of the lead had been comprised and the 5-millimeter tip almost broke off. "It was hanging by a thread," says Cheng. "This is a rare occurrence. We knew that if we kept pulling, the tip may have broken off and it could have moved into the patient's lungs or elsewhere."

Cheng enlisted the help of a cardiac surgeon colleague to dissect a little deeper, still through the original small incision, to remove the tip along with the rest of the lead. That instantaneous backup from surgical colleagues, along with extensive experience in these types of procedures, Cheng says, makes it possible to safely handle difficult situations when problems arise.

Six days later, with confidence that the infection had cleared, the patient received a new device.

In all, the patient spent 10 days at Johns Hopkins, and told Cheng he was very thankful that the infection was caught in time, before it had gotten into his heart.

The world's first human ICD implantation was performed at Johns Hopkins in 1980. Today, many of the devices have been in place for decades and the need for complex extractions has increased substantially. "We now perform about 80 ICD removals each year," says Cheng. ■



Alan Cheng

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The Johns Hopkins Heart and Vascular Institute *Cardiovascular Report* is one of the many ways we seek to enhance our partnership with our thousands of referring physicians. Comments, questions and thoughts on topics you would like to see covered in upcoming issues are always welcome.

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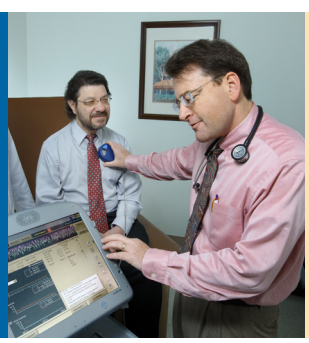

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