Aurora cardiac team among first in nation to use hybrid procedure for complex atrial fibrillation cases

Aurora St. Luke’s Medical Center is only site in Wisconsin offering new treatment option

Kress, Sra and Cooley have used the hybrid procedure to treat 18 patients of varying ages for whom previous treatments failed. “The patients we are able to treat with this hybrid procedure are those with longstanding, persistent atrial fibrillation who have had the least favorable results with traditional approaches alone,” Dr. Kress said. “I’ve tried just about every technique available for treating atrial fibrillation, and I can say with conviction that this procedure will offer these patients the best possible outcomes.”

The procedure is performed in the Aurora St. Luke’s Medical Center Electrophysiology/Surgical Hybrid Suite, which provides: simultaneous multichannel intracardiac and surface electrocardiographic monitoring; high-resolution fluoroscopy with three-dimensional computed tomography registration of the left atrium, esophagus and coronary sinus; CARTO atrial activation mapping ( Biosense-Webster Inc., Diamond Bar, Calif.) with both intra-atrial and epicardial data points; and full surgical capabilities, including laparoscopic monitors, carts and instruments.

The hybrid approach allows delivery of both epicardial and endocardial lesions. The pericardioscopy surgical approach provides access to the oblique sinus, which is not visualizable through a purely thoracic approach, via the central tendon of the

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Q & A: Understanding cardiovascular aging through NIH-funded research

Despite advanced age being recognized as the most important predictor of disability and death, the cellular mechanisms that increase the risk of heart disease in the elderly are not well understood. The Center for Integrative Research on Cardiovascular Aging (CIRCA) at Aurora HealthCare intends to clarify molecular mechanisms that lead to cardiovascular disease in the elderly and develop interventions to reduce such susceptibilities. Director Arshad Jahangir, MD, who leads a team of multidisciplinary researchers, described the center’s patient-centered approach to Vice President of Research and Academic Relations Randall Lambrecht, PhD.

RL: Now that you’ve been in Milwaukee for nearly a year, how has the transition gone?
AJ: We are conducting research in the Regenerative Medicine laboratories at Aurora St. Luke’s Medical Center. We will soon open an additional lab in the Milwaukee Heart Institute at Aurora Sinai Medical Center. The CIRCA team now includes eight researchers from all over the world, and we have been able to form collaborations with a number of academic institutions in the greater Milwaukee area and Madison.

RL: Can you describe the focus of your research?
AJ: The focus of CIRCA’s current research studies, which are supported by the National Heart, Lung and Blood Institute of the National Institutes of Health, are on understanding the biology of the aging heart and aging-associated heart diseases. By exploring the molecular mechanisms responsible for the aging heart’s decreased stress tolerance, the team seeks to develop novel strategies for early detection of disease susceptibility and new interventions to protect the heart – enabling health care providers to prevent, treat or treat abnormalities before conditions such as arrhythmias or heart failure appear. The biggest challenge our society faces is managing diseases that are associated with the aging process, which greatly utilizes health care resources.

RL: What do you see for the immediate future in cardiovascular research?
AJ: Our CardioGerontology Research Lab is working with cardiomyocytes, cardiac fibroblasts and stem cells. Approximately one to two small samples of cardiac tissue per day are collected from our operating rooms for research purposes. It is our intention to harness the potential for regenerative therapy and other reparative strategies for the management of cardiovascular diseases by integrating the knowledge of cardiac stem cell biology in delivering novel therapeutics for restoration of cardiovascular function.

Center for Integrative Research on Cardiovascular Aging: 414-649-5818

Clinical trial Aurora team performs first endovascular repair of juxtarenal abdominal aortic aneurysm in Wisconsin

Aurora St. Luke’s Medical Center is one of only 23 sites in the U.S., and the only site in Wisconsin, participating in a clinical research trial investigating an endovascular device for juxtarenal and pararenal abdominal aortic aneurysms (AAA).

Mark Mewissen, MD, ABVAM
Vascular Surgeon, Director of the Vascular Center
Richard Carballo, MD, FACS
Vascular Surgeon, Director of the Vascular Center
approved an investigational device exemption for the multicenter, prospective, single-arm Ventana clinical trial to evaluate the safety and effectiveness of the device. Open surgical and endovascular repair are the available treatment options for infrarenal AAA. However, 25-40% of infrarenal AAA are not suitable for endovascular repair as renal arteries are involved. In the U.S., only open surgical repair is available for juxtarenal and pararenal AAA.

“Surgical repair of aneurysms involving the renal arteries is complex and carries significant morbidity and mortality,” Dr. Carballo said. “Furthermore, prolonged and more difficult recovery is expected.”

For patients enrolled in the Ventana clinical trial, the device will be implanted using an endovascular approach, utilizing the fenestrated stent graft system with covered stents. The device is not commercially available in the U.S. and only available at select clinical study sites for investigational use.

Aurora Health Care 2011 vascular medicine volumes

1,973 peripheral vascular interventions (noncoronary angioplasty and stent insertion)
889 other operations on vessels
372 other endovascular procedures on vessels
286 carotid endarterectomies
241 surgical occlusions of vessels
188 open bypasses – lower extremities
173 open endarterectomies
135 endovascular abdominal aortic aneurysm repairs
112 precrural and intracranial/neurovascular percutaneous vascular interventions (noncoronary angioplasty and stent insertion)
112 below-knee amputations
83 open thoracic aortic aneurysm repairs
64 above-knee amputations
35 open abdominal aortic aneurysm repairs
18 other resections or replacements of vessels with anastomosis
15 endovascular thoracic aortic aneurysm repairs
Transcatheter therapies for both aortic and mitral valve diseases are available in Wisconsin only at Aurora St. Luke’s.

Aurora St. Luke’s Medical Center is among very few centers in the U.S., and the only center in Wisconsin, that offers transcatheter therapies for patients with aortic stenosis as well as patients with mitral regurgitation.

The Aurora St. Luke’s multidisciplinary team treating patients with valvular heart disease has performed 90 transcatheter valve procedures to date.

Aurora St. Luke’s was selected as one of 40 sites in the nation for the Medtronic CoreValve (Minneapolis, Minn.) clinical trial to test transcatheter aortic valve replacement (TAVR), which is an alternative to open-heart surgical aortic valve replacement for treatment of severe aortic stenosis. Since successfully performing the first TAVR procedure in Wisconsin one year ago, the team has implanted 46 CoreValves.

Additionally, Aurora St. Luke’s became the first center in Wisconsin to implant the first FDA-approved valve for TAVR (Edwards SAPIEN, Edwards Lifesciences, Irvine, Calif.) in January. To date, Aurora physicians have implanted 8 SAPIEN valves. This placed the medical center in a unique position of being able to offer both SAPIEN and CoreValve aortic valves to its patients with aortic stenosis who otherwise are at high risk of complications from open surgical replacement.

Aurora St. Luke’s also is the first and only center in Wisconsin where transcather repair of mitral valves is performed for patients with mitral regurgitation. Using the MitraClip system (Edwards Lifesciences, Irvine, Calif.), Aurora physicians are able to repair mitral regurgitation without open heart surgery. This less invasive mitral valve-repair therapy, adapted from the open surgical double-orifice technique, increases the treatment options for select patients with mitral regurgitation, and may reduce heart failure symptoms and improve quality of life. To date, Aurora physicians have implanted 36 MitraClip systems.

Aurora utilizes a multidisciplinary approach to evaluate patients with valve disorders and determine treatment options. The team involved in these minimally invasive procedures includes valvular heart disease specialists.

For information or to learn who may benefit from aortic valve therapy, contact clinical research coordinator Deb Seaton, RN, BSN, at 414-649-3929 or deborah.seaton@aurora.org, or contact clinical research trial manager Wendy Schmidt, RN, at 414-649-1512 or wendy.schmidt@aurora.org.

For information or to learn who may benefit from mitral valve therapy, contact clinical research coordinator Susan Oxborough, RN, BSN, at 414-385-2475 or susan.oxborough@aurora.org.
Left ventricular noncompaction: Article by Aurora cardiologists provides critical review, new criteria for diagnosis of LVNC

Timothy T. Patterick, MD, FACC, FASE
Cardiologist

A review of left ventricular noncompaction (LVNC) cardiomyopathy by Aurora Health Care physicians was featured in the April issue of the Journal of the American Society of Echo cardiography. The authors identify classic echocardiographic features of this distinct cardiomyopathy in “Left Ventricular Noncompaction: A 25-Year Odyssey.”

“Echocardiography is the diagnostic test of choice to identify LVNC,” said Timothy Patterick, MD. “Recognition is critical because this distinct cardiomyopathy has the potential to have adverse clinical consequences, including arrhythmias, syncope, heart failure and sudden death.”

Increased awareness of LVNC will lead to unified diagnostic criteria for clinical practice, and the use of evolving imaging technology, such as speckle tracking echocardiography, may continue to redefine the diagnostic criteria, Dr. Patterick said.

Using echocardiography, Aurora physicians calculate the ratio of compacted to noncompacted myocardium in the apical short-axis view at end diastole. A ratio >2 is diagnostic of LVNC, according to the authors.

“This calculated ratio must be integrated with multiple clinical and echocardiographic variables to make the diagnosis of LVNC both sensitive and specific,” Dr. Patterick said.

Accurately diagnosing LVNC requires a committed team of sonographers and physicians working together in real time, using optimal imaging techniques to obtain measurements that identify the entity is present while preventing overdiagnosis of this complex cardiomyopathy, Dr. Patterick said.

Aurora has highly trained specialists in all aspects of noninvasive cardiology. Noninvasive services, including advanced echocardiography, nuclear imaging and cardiac computed tomography scanning and magnetic resonance imaging, are provided in a dedicated outpatient suite as well as in the hospital setting.

Article coauthors specializing in imaging services at Aurora are technicans Matt M. Umland, RDMS, and Christopher Kramer, RDMS, and physicians M. Fuad Jan, MMBS, MD, Khawaja A. Ammar, MD, Bipjo K. Khandheria, MD, and A. Jamal Tajik, MD.

For information about Aurora’s imaging services, call 888-839-4433 or email cardiacvascular@aurora.org.

Aurora Cardiovascular Services
Medical education events
To request information or register, please email Lauren Lands at lauren.lands@aurora.org or call 414-219-7684, unless otherwise noted.

June 23, 2012 | Milwaukee
Milwaukee Atrial Fibrillation Surgery Symposium — David C. Kress, MD • david.kress@aurora.org

August 2 to 5, 2012 | San Diego, CA
ePIC: Excellence in the Practice of Cardiovascular Ultrasound — Denise Mczytol
414-649-5616 • Denise.mczytol@aurora.org

August 18 to 19, 2012 | Milwaukee, WI
Echo Milwaukee: Challenging, provocative and informative

October 4 to 6, 2012 | Lake Geneva, WI
Cardiology Update: A weekend review at Lake Geneva — Amanda I. Delia
AF/VT/VF Summit

January 2013 | TBD
22nd Annual New Developments in Cardiology

April 6, 2013 | Milwaukee, WI
Eighth Preventive Cardiology Conference: Diabetes and cardiovascular disease

May 17, 2013 | Milwaukee, WI
Care of Patients With Arrhythmias: From bedside to clinic

May 2013 | New York, NY
Sights and Sounds of Echocardiography: in the heart of the Big Apple — Denise Mczytol
414-649-5616 • Denise.mczytol@aurora.org

Sneak peek
Drawing clinicians and learners from all parts of the country, the preceptorship program at the Aurora St. Luke’s Medical Center Pulmonary Hypertension Clinic provides a multidisciplinary approach to practical and comprehensive patient management.

Dianne Zweczke, MD, FACC, FACP, FESC
Medical Director of the Pulmonary Hypertension Clinic

Check out the next issue for a story about the program and clinic, which are led by Clinical Associate Professor of Medicine Dianne Zweczke, MD, an Aurora Health Care cardiologist with more than 25 years experience in treating patients with pulmonary hypertension of all causes.