Texas Cardiac Arrhythmia Institute

St David's Medical Center

Overview

The Texas Cardiac Arrhythmia Institute at St. David's Medical Center is led by internationally recognized cardiologist Andrea Natale, MD, and staffed by a team that includes some of the most prominent physicians and researchers in the field. In addition to caring for patients suffering from cardiac arrhythmias, the Institute is dedicated to furthering the understanding and treatment of this disease and serving as a primary educational resource for physicians around the world.

The Texas Cardiac Arrhythmia Institute is a relationship between St. David's Medical Center and Texas Cardiac Arrhythmia, an Austin-based cardiac physician group that is the largest private electrophysiology practice in the U.S. The Texas Cardiac Arrhythmia Institute provides specialized care for heart rhythm disorders with an unmatched level of experience and technology.

Electrophysiologists at the Texas Cardiac Arrhythmia Institute have successfully treated thousands of patients with cardiac ablation and other techniques, allowing those individuals to return to their lives with regular heart rhythm within days.

Andrea Natale, MD, F.A.C.C., FHRS, Executive Medical Director

Andrea Natale, MD, F.A.C.C., FHRS, serves as TCAI's executive medical director. Patients from around the world seek treatment from Dr. Natale. A native of Siracusa, Italy, Dr. Natale graduated summa cum laude from the Medical School of the University of Florence, Italy, and summa cum laude from the Catholic University School of Cardiology in Rome, Italy. He received clinical training in cardiology at Methodist Hospital, Baylor College in Houston and at the University of Western Ontario in London, Ontario, Canada. After completing a clinical fellowship in cardiology (electrophysiology) at the University of Western Ontario in 1991, he further trained in cardiology (electrophysiology) at the University of Wisconsin, Sinai Samaritan Medical Center in Milwaukee.

Dr. Natale is a consulting professor at Stanford University and associate professor of medicine at Case Western Reserve University. He has also served as a professor at Duke University, and is the author or co-author of hundreds of published articles on pacing and electrophysiology. He is editor-in-chief of the *Journal of Atrial Fibrillation*.

Dr. Natale believes the greatest thing he can give his patients is a normal life, free of medication. He pioneered a circumferential ultrasound vein-ablation system to correct atrial fibrillation and performed the procedure on the world's first five patients. He also developed some of the current catheter-based cures for atrial fibrillation and was the first electrophysiologist in the nation to perform percutaneous epicardial radiofrequency ablation, which is a treatment for people who fail conventional ablation.

Our Team

The team of electrophysiologists with Texas Cardiac Arrhythmia and TCAI includes:

Andrea Natale, M.D., F.A.C.C., FHRS, Executive Medical Director

Shane M. Bailey, M.D.
J. David Burkhardt M.D., F.A.C.C.
Robert C. Canby, M.D., F.A.C.C.
Rodney P. Horton, M.D.
G. Joseph Gallinghouse, M.D.
Larry D. Price, D.O.
Javier E. Sanchez, M.D.
Jason D. Zagrodzky, M.D.

About Cardiac Arrhythmia

Cardiac arrhythmia, or an irregular heartbeat, is a serious but treatable condition. Using the latest technology, the physicians at the Texas Cardiac Arrhythmia Institute specialize in the diagnosis, management and treatment of this disease.

Atrial Fibrillation, or A Fib, is the most common type of cardiac arrhythmia, affecting approximately 2.2 million people in this country. It is typically diagnosed by electrocardiogram, Holter monitor, event recorders and sometimes trans-telephonic monitors. If the patient is found to have atrial fibrillation, he or she will begin any one or a combination of the following therapies:

- Anti-coagulant therapy
- Cardioversion
- Rate control
- Rhythm control

If these therapies do not control the arrhythmia, ablation therapy is considered.

To diagnose other types of arrhythmia a cardiac electrophysiologist performs an electrophysiology (EP) study to obtain a detailed, in-depth view of the heart's electrical activity. The EP study is a minimally-invasive procedure performed in the Institute's advanced Electrophysiology Lab using catheters situated within the heart. The EP Study can reveal:

- The existence of an arrhythmia
- The cause of the arrhythmia

Continued on back page

- Where the arrhythmia begins in the heart
- The risk for cardiac arrest
- The best treatment for an arrhythmia

Treatment

Cardioversion

Cardioversion treats cardiac arrhythmia with either antiarrhythmia medications (chemical cardioversion) or by delivering an electric current to the heart (electrical cardioversion).

Chemical cardioversion seeks to reduce the frequency of abnormal heart rhythms, allowing the heartbeat to return to normal. Depending on the situation, antiarrhythmia medications may be administered on either an outpatient or inpatient basis.

Electrical cardioversion delivers an electric shock to the heart at a specific moment in the cardiac cycle to restore normal function. This briefly disrupts the abnormal heart rhythm and allows the heart's electrical system to reset, restoring a normal heartbeat. Electrical cardioversion is performed in an outpatient setting.

EP Mapping & Ablation

- Cardiac ablation is a minimally-invasive procedure that treats cardiac arrhythmia by selectively neutralizing, or ablating, the cardiac cells that are generating the electrical signals causing the irregular heartbeat. Cardiac ablation uses a catheter, inserted through the groin or neck, and an energy-emitting probe.

- The electrophysiologist first maps the heart's electrical system, obtaining a detailed, in-depth view of the heart's electrical activity to determine the origin of the abnormal signals. An energy source, usually radiofrequencies or intense cold, is used to destroy the cells or block their signal. By eliminating or blocking these cells, cardiac ablation restores normal function to the heart's electrical pathways.

- This procedure is performed in the Electrophysiology Lab with a team of highly skilled electrophysiology physicians, nurses and technologists. This procedure is done at the Institute under general anesthesia, or occasionally conscious sedation. The procedure lasts anywhere from three to four hours. Patients are admitted overnight and typically discharged the following day.

Implantable Devices

The physician may recommend that the patient have a device implanted, depending on his or her specific diagnosis.

Examples include:

Implantable Cardioverter Device (ICD) - small implanted electronic device that monitors heart rhythm and helps it return to normal should an arrhythmia occur.

Bi-ventricular ICD - device that may be implanted to control arrhythmias in patients who have very serious left ventricular heart failure. After implantation in the right atrium, and left and right ventricles, the device monitors heart rate and provides a shock so that the heart rate returns to normal during episodes of acceleration.

Pacemaker - device that sends small electrical impulses to the heart muscle. In order to maintain an appropriate heart rate, pacemakers may be implanted in atrial fibrillation patients who have a slow heart rate.

Loop Recorder - device used for diagnosis because of its ability to detect and diagnose arrhythmias.

Our Technology

Texas Cardiac Arrhythmia Institute electrophysiologists have access to the latest technology to treat heart rhythm disorders successfully. The Institute is one of only two in the country with the Hansen Robot surgery system and a state-of-the-art stereotaxis lab. Physicians use implantable devices such as pacemakers and defibrillators, remote Internet-based patient monitoring, non-invasive diagnostics, 3D computer imaging, ultrasound, laser and radio frequency ablation.

In 2008, doctors at the Texas Cardiac Arrhythmia Institute at St. David's Medical Center became the first in the nation to implement the CoHesion™ 3D Visualization Module- an enhancement to the state-of-the art Hansen Robotic system used to treat cardiac arrhythmias. With the visualization module, patients undergoing the ablation treatment for heart arrhythmias are exposed to about 30 percent less radiation than without the new technology, among other benefits.

In January 2009, the Institute installed the Siemans Artis Zeego, a robotic fluoroscopy system that allows multi-access viewing and CT angiography during procedures. Physicians are able to view live, real-time images of cardiac anatomy rather than utilizing images that may have been taken a day or two prior to the procedure.

Research

The Institute has a strong commitment to research, and participates in many clinical trials. Such studies focus on implantable cardiac devices and advances in ablation therapy. Dr. Natale served as lead investigator in a study that was published in the October 23, 2008 issue of the *New England Journal of Medicine*. The study centered on a comparison of two forms of ablation – pulmonary vein isolation and atrioventricular-node ablation with bi-ventricular packing – in patients who had heart failure and drug refractory AFib.

Center for Arrhythmias & Atrial Fibrillation

The Center is staffed by nurses with extensive backgrounds in cardiac care and electrophysiology who provide pre-procedure education, discharge planning, and follow-up education. The group also provides presentations to support groups and allied health professionals.

Learn more

Texas Cardiac Arrhythmia Institute

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