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When I came to Utah to Direct the Atrial Fibrillation Program, I saw potential to build upon the resources and excellent foundation provided by the inter-disciplinary approach fostered at the University of Utah. I am so proud of the team we have put together and what we have been able to accomplish in such a short amount of time. In two and a half years we have literally built a program that is envied across the globe for our technology, the support we receive and for the collaboration and dedication our team has to discovering the future of atrial fibrillation treatment and management. Not only are we committed to treating and curing the disease of atrial fibrillation, but our labs are probing the very edges of our own curiosity to discover and learn how atrial fibrillation works, what causes it and how we can prevent this debilitating and life threatening condition. Active in the search for answers to these queries, I pause only to thank those who have made this extraordinary journey possible and to assure that this is only the beginning.
Curing Atrial Fibrillation! I couldn’t believe the diagnosis. How could I have Atrial Fibrillation? I had been racing road bicycles for 18 years to stay fit, especially because it was heart healthy. Now at age 56, I’m told I have a heart disease. I didn’t realize older male athletes were five times more likely than the general population to develop this disease. I guess I was one of the unlucky ones.

Atrial Fibrillation is a heart rhythm problem. It makes your heart beat too fast. At first I thought there was something wrong with my heart monitor, when in a race it showed my heart beating in excess of 240 beats per minute. In denial, I would ask myself, “how can that be?” I’d send my heart monitor back for repair or replacement. The problem was it kept reoccurring.

When the diagnosis was finally made, I was told there was a cure. It’s called a catheter ablation. Electrode catheters are inserted via veins or arteries into your heart. The cells causing the arrhythmia are then destroyed. Since I was in excellent physical condition and at a relatively young age, I was informed I would be a good candidate for an ablation for many years.

There were then two problems with the technique which caused concern. How do the doctors know who’s a good candidate for an ablation and how do they know where in your heart to find and destroy the problem cells? I decided to wait, hoping for further advances in medical procedures. I understood stroke was a risk of considerable concern. What I didn’t realize was waiting would have other problems as well.

Since my heart beat too fast, I could almost run a race while sitting at my desk. As the months turned into years, my energy level decreased. Without really realizing, I became more and more tired. Secondary problems appeared. I developed Raynaud’s Disease. Because my circulatory system was not working as it should, my fingers were cold and the skin on my finger tips would crack.

At age 61, I attended a presentation given by Dr. Marrouche for the Salt Lake Rotary Club. He had found a way (the first in the world) to answer the question, “who is a good candidate.” He developed a way to conduct an MRI of a heart, despite arrhythmia. This would help answer the first question, was I a good candidate? Further, his operating room had the most sophisticated electrophysiology equipment in North America, allowing Dr. Marrouche to monitor hearts signals and better find the problem cells. This answered my second question.

Happily, my MRI revealed I was indeed a good candidate. After my ablation procedure, I awoke to the most beautiful sound in the world – the rhythmic beating of my heart. I feel great. I have 30 – 40% more energy and my Raynaud’s Disease is dissipating. I wish to thank Dr. Marrouche and the University of Utah Hospital for restoring my health. I guess I’m one of the lucky ones after all.
MISSION

To redefine the management of atrial fibrillation through a unique interdisciplinary program of basic and clinical research focused on the understanding, diagnosis, and clinical treatment of atrial fibrillation.

VISION

The CARMA Center is a uniquely multifaceted and comprehensive program, in collaboration with our research partners, seeking to further develop the technology, research, and clinical management leading to the advancement of superior, world-class medical treatment of atrial arrhythmias.

VALUES

Research: The CARMA Center will lead the initiative to overcome the major obstacles in the evaluation and successful treatment and management of atrial fibrillation.

Teaching: Sharing the creation of new technology and understanding of arrhythmias with Academic partners, students, residents, fellows and physicians is the ideal mechanism to change improve current arrhythmia management techniques.

Partnership: Collaboration with other disciplines is integral to the success of our mission to combine the knowledge and expertise required to move technology forward and advance our understanding of the diagnosis and treatment of atrial fibrillation.
The CARMA Center Research Team

- Jeremy Fotheringham, RN, MHSA, JD, Director of CARMA
- Dennis Parker, PhD, Director of Utah Center for Advanced Imaging Research (UCAIR)
- Rob MacLeod, PhD, Associate Director of Cardiovascular Research and Technology Institute (CVRTI)
- Ed DiBella, PhD, Associate Professor – UCAIR
- Eugene Kholmovski, PhD, Research Associate - UCAIR
- Chris McGann, MD, Collaborating Physician - CARMA
- Troy Badger, MD, Collaborating Physician - CARMA
- Gene Payne, Research Associate - UCAIR
- Nathan Burgon, Research Associate - CARMA
- Josh Blauer, Graduate Research Associate - CVRTI
- Sathya Vijayakumar, Graduate Research Associate - UCAIR
- Yaw Adjei-Poku, Medical Student Research Associate - CARMA
- Jurhee Rice, Clinical Research Coordinator - CARMA
- Cynthia Ziegenhorn, Clinical Research Coordinator - CARMA
- Chris Gloschat, Undergraduate Research Assistant - CARMA
- Eric Fish, Undergraduate Research Assistant - CARMA
- Thom Haslam, Undergraduate Research Assistant - CARMA
- Swati Rao, Undergraduate Research Assistant - CARMA
AFIB Clinical Team
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Leela Dhanekula, MD Fellow
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LeeAnn Spencer, ACNP
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Heather Margetts, MA

Electrophysiology Laboratory Team
Kimberly Lilbok, RN, EP Lab Manager
Kim Machara, RN, EP Lab Case Manager
Lisa Mills, RN, EP Lab Data Collection Specialist
Sarah Formosa, Patient Diagnostic Assistant
Stephanie Dawson, RN
Emi Campos, RN
Seth Kearns, RN
Sarah Quigley, RN
Patricia Little, CVT
Bruce Crawford, CVT
Cari Gates, RN
Kathy Cook, RN

Administrative Staff
Valerie Strasburger, Administrative Assistant
April Courtright, Executive Secretary
Clinical Summary

In 2006 we saw an average of 50 patients each month in the Cardiovascular Clinic at the University Hospital and performed an average of 10 procedures each week. Over the past three years we have expanded and have built a successful clinical team that now cares for over 100 patients each month in the CV Clinic. We also currently perform an average of 19 ablation procedures each week, or approximately 76 ablations per month. The technology and techniques we are able to use make our lab one of the most efficient in the country and most successful. We receive referrals from across the country and coordinate our patient care with the utmost attention to detail and compassion. Several patients have expressed their gratitude to our team in notes, cards and letters received over the past three years:

“A note…to thank you for your expertise. You have truly changed my life.”

“I want to thank you for the very professional manner in which my course of treatment has been conducted…Your support services have been superb…I found all those associated with the team which performed the cardio ablation to be cheerful, direct, professional and most of all, full of confidence in everything they were doing.”

 “[They] were effusive in their praise and so very grateful to you and to your staff for the sensitive and excellent care they received…”

Education Efforts

The Atrial Fibrillation Program is responsible for training medical students, residents and interns during their General Cardiology and Electrophysiology rotations, as well as the Electrophysiology Fellows in the Division of Cardiology. Each year we train 13 residents, 26 interns, 13 General Cardiology fellows, and four EP Fellows. Additionally, we have had two very successful conferences, the First and Second Annual Western Atrial Fibrillation Symposia, dedicated to educating physicians, nurses and other health care providers about the complications of AF, the treatment options and best management practices. We also conducted a successful Satellite Symposium at the HRS Scientific Sessions in Boston in May 2009.
Research Activities & Responsibilities

Advancing treatments in patient care and research are the main foci for the CARMA Center. Since the Atrial Fibrillation Program began in 2006, we have initiated 12 original studies, three of which are currently IRB approved, funded, and active. Many others are either waiting for approval of funding or are in the process of obtaining IRB approval and my team will proceed with each of them as the funding and IRB approvals come through.

As evidence of our commitment to research, since July of 2006 The AFib Research team has published 19 original articles in peer-reviewed journals and we have presented 22 posters at professional meetings like the Heart Rhythm Society Scientific Sessions, the American College of Cardiology Scientific Sessions, and the International Society for Magnetic Resonance in Medicine across the globe.

We have participated in a number of other studies either as the lead investigation team. For example, the Atrial Fibrillation Program is the primary research site in the United States for the CASTLE-AF Clinical Trial based in Coburg, Germany. Additionally, we currently have two grants being reviewed for full funding by the National Institute of Health.

Significant Accomplishments

As the director of the Atrial Fibrillation Program I have watched as the momentum of our initially modest team of three people has quickly drawn attention and expanded to include over 32 physicians, nurses and researchers. The AFib team is the largest in the Division of Cardiology and we consistently receive inquiries from graduate and undergraduate students looking for research opportunities as well as practicing physicians who want to become involved with our program.

The nature of our research demands collaboration with several departments across campus including Radiology, Cardiovascular Research and Training Institute and the Scientific Computing and Imaging Institute. We are proud to have contributed to the opening of the new EP MRI Lab on 4th North at the University Hospital. This lab is the first integrated lab in North America and is the only one of its caliber in the world and it enables us not only to perform ablation procedures with the best equipment and technology in the world, but also opens the door to conduct cutting edge research in the development of the use of magnetic resonance imaging in ablation procedures and treatment technology. With the addition of this new lab, we now operate with two fully functional Electrophysiology Laboratories.

With the help of many, we were able to establish the Comprehensive Arrhythmia Research & Management Center. This center is dedicated to the development of best treatment and management practices for atrial fibrillation. We are currently working toward raising funds to create an endowment to support the center indefinitely, as well as office space for our research and administrative staff.
May 1, 2009 was a historic day for the University of Utah, and for the Atrial Fibrillation Program as we cut the ribbon on our new hybrid procedure lab that combines MRI technology with the best robotic angio-equipment in the world. It is the only lab of its caliber in the United States and is truly the only one in the world with its unique specifications and resources. We are now able to benefit from and research the utility of magnetic resonance imaging in guiding the delicate procedure of atrial ablation.

Speaking for the AFib Team, Dr. Marrouche said, “We are proud to be the first program in the country to focus on refining image based heart ablation procedures using MRI. This new lab will be a fertile breeding ground for ideas and discoveries on how to continually improve our ability to diagnose and treat atrial fibrillation.”

The opening of the new EP MRI Lab was crowned by the formal creation of the Comprehensive Arrhythmia Research and Management Center (CARMA). Jeremy Fotheringham, also the Director of Critical Care and Cardiac Services at the University Hospital, was chosen to Direct the affairs of the Center while we work toward requesting the necessary space and building a research endowment to further support our research and educational efforts. Only six weeks into its infancy, the CARMA Center has already brought together major supporters and has facilitated their joining forces in a massive scale collaborative undertaking regarding our research efforts. Additionally, in the spirit of collaboration, in June 2009, CARMA sent a team of researchers to Coburg, Germany to provide training and education on the software technology we have developed.
Current Studies

CASTLE-AF Study
Primary Site: Coburg, GERMANY
University of Utah, Primary US Site
Description: Prospective randomized trial of post ICD patients in which they will placed into the conventional (medication) or ablation (surgical) arms of the study. These patients will be followed for at least 5 years in which data collected in Utah will be analyzed by the primary study site in Germany.

AAD/ERAF
Primary Site: University of Utah
Description: Prospective randomized trial of atrial fibrillation patients, post ablation therapy. Patients will be randomized post ablation into either the conventional (medication) or the control (no medication) arms of the study. The will medication group receive anti-arrhythmic therapy for a period of 8 weeks at which time their cardiologist and/or research physician will make a decision about the benefit of long term anti-arrhythmic therapy.

Proposed Funding Requests

Study Evaluating Predictors of Atrial Fibrillation Risk Using Cardiac Imaging in High Risk (SEARCH)
Primary Site: University of Utah
NIH RC1 Grant: Submitted & Pending Committee Review
Description: Prospective randomized trial to establish using rate ratios and scoring as was done in the Framingham Heart Study, the predictive value of clinical assessment, MRI enhancement, and biomarkers with the development of atrial fibrillation in the at risk population.

MRI for Management and Assessment of Ablative Treatment of Atrial Fibrillation
Primary Site: University of Utah
NIH RO1 Grant: Submitted & Pending Committee Review
Description: Prospective randomized trial to develop improved MRI imaging acquisition and processing techniques using an animal model of AF to determine what the images reveal and how accurately they can classify changes in physiology, electrophysiology, and anatomy of the left atrium; to determine how reproducible the techniques are in humans and; to quantify in patients with and without pre-treatment fibrosis how the LA changes over time in response to ablation.

Atrial Fibrillation Information System
Primary Site: University of Utah
Description: This is a prospective collaborative data collection trial with the goal of assessing factors related to atrial fibrillation across the nation and eventually internationally. Data will be collected in Utah using the system developed by eCardio Diagnostics and will be exported at a later date to Woodlands Texas in a de-identified manner to allow research collaboration.
Featured Publications


International Presentations

**European Society of Cardiology (ESC)**

- Oakes RS, Badger TJ, Burgon NS, Segerson NM, Akoum N, DiBella EV, Kholmovski E, MacLeod RS, Marrouche NF. (9/2008). Left atrial fibrosis impacts lesion formation during catheter ablation of atrial fibrillation. Poster session presented at European Society of Cardiology, Munich, Germany.

- Oakes RS, Badger TJ, Kholmovski E, Segerson NM, Daccarett M, DiBella EV, McGann CJ, MacLeod RS, Marrouche NF. (9/2008). New MRI method to predict successful radiofrequency ablation in the treatment of atrial fibrillation. Poster session presented at European Society of Cardiology, Munich, Germany.

- Badger TJ, Oakes RS, Burgon NS, Akoum N, Daccarett M, Kholmovski EG, DiBella EV, MacLeod RS, Marrouche NF. (09/2008). Use of contrast enhanced magnetic resonance imaging to identify myocardial healing following ablative treatment for atrial fibrillation. Poster session presented at European Society of Cardiology, Munich, Germany.

- Badger TJ, Oakes RS, Daccarett M, Akoum N, Segerson N, Burgon N, Kholmovski E, DiBella EV, MacLeod RS, Marrouche NF. (9/2008). Using 3D delayed-enhancement MRI to identify gap lesions following failed pulmonary vein isolation to help guide repeat radiofrequency ablation in atrial fibrillation patients. Poster session presented at European Society of Cardiology, Munich, Germany.

- Badger TJ, Oakes RS, Fish EN, Segerson NM, Akoum N, Daccarett M, Kholmovski E, DiBella EV, MacLeod RS, Marrouche NF. (09/2008). Using Delayed-Enhancement MRI to Detect Esophageal Tissue Damage Following Radiofrequency Ablation for Atrial Fibrillation. Poster session presented at European Society of Cardiology, Munich, Germany.

**International Society for Magnetic Resonance in Medicine**


Heart Rhythm Society (HRS)

- Adjei-Poku YA, Burgon NS, Badger TJ, Rao SN, Marrouche NF. (05/2009). Use of Delayed-enhancement MRI to Detect and Compare the Extent of Fibrosis in the Right and Left Atrium in Atrial Fibrillation Patients. Poster session presented at HRS Scientific Sessions, Boston, MA.
- Blauer JJ, Oakes RS, Burgon N, McGann CJ, Badger TJ, Vijayakumar S, Kholmovski EG, DiBella EV, MacRouche NF, MacLeod RS. (05/2008). MRI Assessment and Quantification of Left Atrial Lesions Following PVI for Atrial Fibrillation. Poster session presented at Heart Rhythm Society Scientific Sessions, San Francisco.
- For a complete listing, please see our website, www.carmacenter.org

Heart Rhythm Society cont.

- Daccarett M, Oakes RS, Blauer JJ, Burgon NS, Badger TJ, Kholmovski E, DiBella EV, MacLeod RS, Marrouche NF. (5/2007). Quantitative Measurement and Three Dimensional Visualization of Scar Formation. Poster session presented at Heart Rhythm Society Scientific Session, Denver, CO.

American College of Cardiology (ACC)


Mountain West Biomedical Engineering Conference

- Tate SB, Burgon NS, Oakes RS, Kholmovski EG, Marrouche NF, MacLeod RS, DiBella EV. (9/2008). Comparison of MRI Versus CT for Visualizations of the Esophagus and its Anatomical Relationship with the Left Atrium. Poster session presented at Mountain West Biomedical Engineering Conference, Park City, UT.
- Burgon NS, Oakes RS, Kholmovski EG, Vijayakumar S, Fish EN, Blauer JJ, MacLeod RS, Marrouche NF, DiBella EV. (9/2008). Observer Variability of the Extent of Delayed Enhancement MRI in Patients with Atrial Fibrillation. Poster session presented at Mountain West Biomedical Engineering Conference, Park City, UT.
- Oakes RS, Badger TJ, Fish E, Blauer JE, Kholmovski EG, McGann CJ, Marrouche NF, MacLeod RS. (9/2007). Visualization of Fibrotic Low Voltage Tissue Utilizing Delayed Enhancement MRI in the Left Atrium. Poster session presented at Mountain West Biomedical Engineering Conference, Park City, UT.
December 2007 marked the first accredited Symposium dedicated to Atrial Fibrillation conducted in the Western United States. The WAF is co-directed by Nassir F. Marrouche, MD and Mohamed H. Hamdan, MD, and features presentations from an impressive array of national and international leaders in the field of Atrial Fibrillation. The first and second annual meetings were held at The Canyons, a World Class ski resort, in Park City, UT.

Symposium attendees enjoyed the breathtaking scenery of Park City and hit the slopes before, between and after Symposium sessions. They were also able to enjoy the lively night scene in the historic setting of Main Street in Park City after an excellent day of the finest medical education available. The objectives for the WAF Symposium are:

1. Explain the mechanisms of atrial fibrillation
2. Recognize the relationship between atrial fibrillation and heart failure
3. Define appropriate treatment options for each atrial fibrillation patient
4. Apply new treatment options for atrial fibrillation.

The WAF has been a success for two years running and we expect the Third Annual WAF Symposium to be better still. It is slated to take place February 26-27, 2010 at the Park City Marriott and promises the same excellent education combined with the peak of the ski season!
At the May 2009 Heart Rhythm Society Scientific Sessions, eCardio Diagnostics sponsored our first CME accredited HRS Satellite Symposium titled, “Atrial Fibrillation: Strategies and Solutions.” An international panel of speakers addressed a diverse audience that filled the banquet room at the Westin Boston Waterfront. The topics ranged from the Ambulatory Cardiac Monitoring Guidelines to Endpoints of Catheter Ablation and others. The objectives of this symposium are:

1. Review and update of the HRS Consensus Statement and how it has changed.
2. Address the knowledge gap regarding the updated Ambulatory Cardiac Monitoring Guidelines.
3. Develop a strategy of how to use the Atrial Fibrillation Information System (AFIS) to manage atrial fibrillation patients.
4. Assess acute and long term success of ablation treatment for atrial fibrillation.

We have already begun work on next year’s Satellite Symposium which will take place in Denver, Colorado in May of 2010.
**What is atrial fibrillation?**

Atrial fibrillation (AF) is a heart rhythm disorder (arrhythmia), usually involving a rapid heart rate, in which the upper heart chambers (atria) are stimulated to contract in a very disorganized and abnormal manner. This abnormal heart rhythm increases the likelihood that blood will pool and/or clots will form, which makes AF a leading cause of stroke.

**Prevalence**
More than 3.5 million Americans, both men and women, have AF. Its prevalence increases with age and varies from 1 case out of 200 persons for people younger than 60 years, to almost 9 cases out of 100 persons for people over 80 years. AF accounts for one-third of hospital admissions for cardiac rhythm disturbances, and the rate of admissions for atrial fibrillation has risen in recent years.

**Risks**
The most serious problem related to AF occurs when the ineffective pumping action of the atria allows blood clots to form within the atria. If these blood clots break off and get into the bloodstream, they can cause a stroke. People with AF are 2-7 times more likely to suffer a stroke than the general population.

AF with a persistent rapid rate can cause a form of heart failure called tachycardia induced cardiomyopathy, which can significantly increase mortality and morbidity. Research suggests the added burden that inefficient atrial pumping puts on the ventricles also may contribute over time to heart failure. Stress, smoking and heavy drinking, obesity and a range of illnesses also raise the risks of developing the condition and the likelihood that it will be more difficult to treat.

**Symptoms**
Common symptoms include palpitations and heart pounding, as well as or other effects that may not seem related to the heart such as lightheadedness, fainting, headaches, shortness of breath, weariness or exercise intolerance. AF occasionally produces angina and chest pain due to lack of blood in the heart muscle, as well as congestive symptoms such as shortness of breath or edema. Some people with AF, however, may not feel any symptoms.

**What causes atrial fibrillation?**

In atrial fibrillation, arrhythmias (irregular heart beats) are caused by a disruption of the normal functioning of the electrical conduction system of the heart. The electrical impulses that are normally generated by the sinoatrial node -- the impulse generating (pacemaker) tissue located in the right atrium -- are replaced by disorganized activity, leading to irregular conduction of impulses to the ventricles that generate the heartbeat. This results in ineffective and uncoordinated atria contractions, which lead to an irregular (and usually fast) pulse.

Other causes include a number of heart and lung disorders, including coronary artery disease, rheumatic heart disease, mitral valve disorders, pericarditis, and others. Recent research suggests susceptibility to AF may be inherited in some cases. It also may be caused by factors unrelated to the heart such as medications, metabolic diseases, substances in the environment, diet and stress.

**How do we diagnose AFib?**

The fleeting nature of arrhythmias makes it difficult to actually capture an event during any single test. Sometimes it’s necessary to monitor the heart over time. Sometimes specialists provoke abnormal rhythms in a safe environment to evaluate and diagnose a problem. Electrophysiologists conduct special tests to determine if nonspecific symptoms are related to problems in the heart's electrical conduction system or other types of heart disease.

The most commonly used diagnostic tests include:
- Electrocardiogram (ECG/EKG)
- Electrophysiology Study
- Echocardiogram
- Holter Monitor
- Event Recorder
- Tilt Table Test
Radiofrequency Ablation: Challenges and Advances in Developing a Cure

Over the past 15 years, physicians have been able to cure many forms of cardiac arrhythmias using ablation, a procedure in which the source of a patient's heart arrhythmia is mapped, localized, and then destroyed (i.e., ablated). This is typically accomplished by applying radiofrequency (RF) energy (usually through a catheter) to the abnormal area, thus rendering it electrically inactive and incapable of generating heart arrhythmias.

This technique, however, has been extremely difficult to use in AF cases in which the electrical abnormalities are much more generalized, essentially encompassing most of the left and right upper heart chambers. A newer, more complex technique involves ablating groups of cells with radiofrequency energy near the openings of the four pulmonary veins where atrial fibrillation is thought to originate. (The pulmonary veins are the blood vessels that deliver oxygenated blood from the lungs to the heart.) An energy emitting electrode is placed into the heart through a catheter inserted into veins in the groin or neck. Also placed in the catheter are electrodes that can detect electrical activity from inside the heart, and an electrophysiologist uses these to "map" the heart in order to locate the abnormal electrical activity before eliminating the responsible tissue.

The efficacy and risks of catheter ablation of AF are widely variable, due in part to differences in the electrophysiologist’s experience, techniques and technical proficiency. The American College of Cardiology, as well as four other major American and European doctors’ groups, recommend atrial ablation as standard care for patients who do not respond to drug therapy.

In addition, new approaches show great promise in facilitating AF treatment before, during and after ablation procedures. Dr. Nassir Marrouche, Director of the Atrial Fibrillation Program at the University of Utah, has successfully used MRI imaging modalities as a precise, pre-procedure diagnostic tool to visually demonstrate AF’s progression and location. He also has conducted studies in animals to monitor the effects of radiofrequency ablation on heart tissue during a procedure and to assess scars and other collateral damage within 24 hours after a procedure is completed.

Conventional Treatment Options

The ultimate goal of treatment is to restore and maintain a normal heart rhythm. Until the last decade, two methods have been generally used -- anti-arrhythmic drugs and cardioversion -- but both have significant drawbacks.

Anti-arrhythmic drugs, which control the heart rate and are often used in combination, typically include digitalis, beta blockers, and calcium channel blockers. They are effective in restoring a normal rhythm only 50 to 60 percent of the time and are among the most toxic drugs used in medicine.

Cardioversion has been considered the treatment of choice in stopping an episode of atrial fibrillation. It involves placing the patient in a light anesthesia-induced sleep for a few minutes, and then, while the patient is asleep, administering an electrical discharge to the patient's chest. In the vast majority of cases, this electrical discharge stops the AF and enables the normal heart rhythm to resume.

This procedure is very safe and effective when performed by experienced physicians. It may, however, dislodge newly formed blood clots from the heart and precipitate a stroke. This risk of post-cardioversion stroke can be greatly diminished by having the patient take an anti-coagulate for 4 - 6 weeks prior to the procedure. The real shortcoming of cardioversion is that, for many patients, their AF will come back unless they go on a regimen of anti-arrhythmic drugs. And only about half of those who do will achieve good control of their AF after one year.

How do we treat AFib?
Thank You to All Our Supporters

We are grateful to the individuals and academic and industrial institutions that provide the financial and administrative support that helps us conduct our program and advance our mission. We also thank our many expert colleagues who assist us with researching, publishing and teaching the newest atrial fibrillation technologies and techniques.

Institutions

University of Utah, School of Medicine
University of Utah Health Sciences Center
Cardiovascular Research & Technology Institute
Utah Center for Advanced Imaging Research
Scientific Computing and Imaging Institute
Heart Rhythm Society

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