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Fixing Irregular **Heartbeats**

It is often said that when you fall in love, your heart "skips a beat." But what if it's just an ordinary day and you feel your heart beating erratically?



Sohail Jalal, M.D.



Saumya Sharma, M.D. Alexander Drtil, M.D.



Randall Wolf, M.D.

The most common type of erratic heartbeat, atrial fibrillation, affects between 2.7 and 6.1 million Americans, reports the American College of Cardiology. An erratic heartbeat can be life-threatening if untreated.

Atrial fibrillation (AFib) earns its name from its traits and location: Chaotic rhythms originate from electrical signals sent by nerve endings leading to the left upper chamber or nearby pulmonary vessels. These cause the heart's two upper chambers—the atria—to "fibrillate," or contract quickly and irregularly. As a result, blood pools in the atria rather than being pumped fully into the heart's two lower compartments, the ventricles.

AFib may occur rarely, sporadically or chronically. "The longer you have AFib, the less likely it is that doctors can restore a normal heart rhythm, especially if you've had the condition for six months or longer," says Alexander Drtil, M.D., director of the electrophysiology laboratory at Memorial Hermann Heart & Vascular Institute-Memorial City.

HOW COMMON IS AFIB?

Not everyone with AFib knows they have it. The first clue may be a physician detecting an irregular beat while listening to the heart with a stethoscope or recording its electrical activity with an electrocardiogram (EKG/ECG) device.

Others may experience rapid heart rhythms, palpitations, shortness of breath, chest pain, dizziness or swollen ankles. For some, the first sign of an erratic heartbeat is a stroke, in which blood clots migrate to the brain, where they block vessels and cause damage.

"AFib increases your risk of a stroke by five times and is responsible for almost 25 percent of all strokes," says Sohail Jalal, M.D., a cardiac electrophysiologist affiliated with Memorial Hermann Heart & Vascular Institute-Southwest.

The condition leads to 750,000 hospitalizations and about 130,000 deaths every year, according to the Centers for Disease Control and Prevention. The incidence of AFib rises with age: From 1 percent of 50-year-olds to 6 to 8 percent of 80-year-olds. With an aging population, the U.S. Census Bureau projects that 12.1 million Americans will have the condition by 2030.

HOW IS AFIB TREATED?

Many AFib patients reduce the risk of blood clots that can lead to stroke by taking blood thinners (anticoagulants) including newer rivaroxaban and dabigatran and classics like warfarin, heparin or aspirin.

"Taking these medications is a lifelong commitment," says Dr. Jalal, who notes some drugs have side effects including nausea, fatigue or gastrointestinal bleeding.

ADVANCES IN DEVICES

A new life-changing treatment for AFib patients who cannot tolerate anticoagulants is the Watchman Implant. Memorial Hermann Heart & Vascular Institute-Texas Medical Center is one of only two hospitals in Houston implanting the newly approved device.

"When a blood clot develops in the heart of a patient with AFib, it is most often found within the left atrial appendage (LAA), a small pouch on top of the heart," says Saumya Sharma, M.D., a cardiac electrophysiologist and

assistant professor at UTHealth Medical School. "Although it does not cure AFib, the Watchman Implant does reduce the risk of stroke by stopping LAA blood clots from entering the bloodstream and blocking a blood vessel in the brain that could result in a stroke."

ADVANCES IN ABLATION TECHNIQUES

"Cardiologists are split into two camps: interventional cardiologists who deal with the plumbing and cardiac electrophysiologists who deal with electrical signals," Dr. Drtil says. "The recent development of better imaging techniques has been a game-changer, thanks to computers reconstructing the left atrium visually."

Physicians affiliated with Memorial Hermann use catheter radiofrequency ablation to form a fence around abnormal heart tissue and erratic firings of nerves - at the mouth of pulmonary vessels, where AFib is triggered. Doctors thread thin, flexible tubes called catheters from the groin to the heart through the patient's blood vessels to reach the area without opening the chest.

The latest ablation catheters have tips that sense the level of contact pressure. "Previously, we wouldn't know if we were truly ablating tissue until after swelling and bruising healed," adds Dr. Drtil.

"Those advances are increasing the cure rate of a single ablation procedure from as low as 50 percent to as high as 80 percent," Dr. Drtil says.

CURING COMPLEX AFIB CASES

Memorial Hermann is the go-to hospital for another minimally invasive procedure for complex AFib cases. Dubbed the Wolf Mini-Maze for Randall K. Wolf, M.D., who created it in 2003, the surgery requires three small slits made between the ribs and below the armpit on either side of the chest. "We insert a flexible tube with a camera at the end to view the heart directly," says Dr. Wolf, surgical director of atrial fibrillation at the Center for Advanced Heart Failure at UTHealth Medical School and Memorial Hermann Heart & Vascular Institute-Texas Medical Center. "After isolating pulmonary veins and testing nerves, we create a scab as a barrier, much as with ablation."

Then doctors remove the left atrial appendage (LAA). The LAA alone may be removed in patients who cannot take blood thinners. "The left atrial appendage is the source of 91 percent of blood clots that go to the brain," Dr. Wolf says.

The AFib-free post-surgical rate is greater than 92 percent in patients with intermittent AFib with six years follow-up.

To learn more about the Wolf Mini-Maze and other Memorial Hermann AFib treatments, attend the upcoming free AFib webinars on October 24 and December 12. Call 713.704.4300 for more information.

And take heart: With the right treatment, many AFib patients live normal, active lives.

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Cheating Death at 17

A healthy, athletic 17-year-old boy, Christian was used to physical challenges, having been a swimmer and played basketball, baseball, football and soccer most of his life.

Then, in 2014, during a family vacation in Colorado, he began experiencing flu-like symptoms – fever, cough, difficulty breathing and chest pain, all of which worsened over the next five days. The family headed back to Houston early.

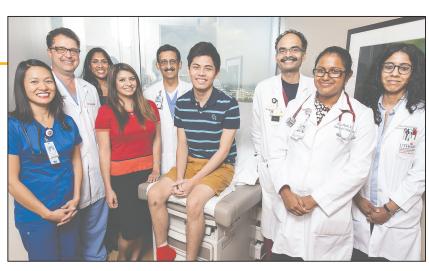
His dangerously high fever and pale complexion worried his aunt Ruth, an ICU nurse at Memorial Hermann Memorial City Medical Center. On Sept. 5, she took him to the ER at Memorial Hermann Southwest Hospital, where doctors detected an abnormal heart rhythm, as if he were having a heart attack, but a coronary blood flow study called an angiogram showed no blocked vessels.

His symptoms worsened and tests showed his organs were failing. "His color was terrible, he was short of breath and he had a markedly abnormal heart rhythm and low blood pressure," says Michael Macris, M.D., a cardiovascular and thoracic surgeon affiliated with Memorial Hermann. "It's like when you look at a wilting plant. He was dying."

Dr. Macris diagnosed Christian with fulminant myocarditis and had him transported by Life Flight* to the Center for Advanced Heart Failure at Memorial Hermann Heart & Vascular Institute-Texas Medical Center.

There awaited the team assembled by interventional cardiologists Biswajit Kar, M.D., Pranav Loyalka M.D., and cardiothoracic surgeon Igor Gregoric, M.D.

"Fulminant myocarditis destroyed his heart muscles," says Dr. Kar. "This is an extremely serious and catastrophic problem with 80 percent mortality. We could keep him alive due to cutting-edge technologies and expertise available at our Center."



Ruth Dinh; Michael Macris, M.D.; Brenda Merkelz; Clarissa Ortiz; Biswajit Kar, M.D.; Christian Dinh; Sriram Nathan, M.D.; Bindu Akkanti, M.D.; Indranee Rajapreyar, M.D. Not pictured: Pranav Loyalka, M.D.; Igor Gregoric, M.D.

Christian underwent five hours of surgery to install a tandem heart. The device bypasses the actual heart, pumping blood directly into the body's largest vessel, the aorta, to give the ailing heart a chance to heal.

When the procedure finished at midnight, the team stayed with Christian in the recovery room till 4 a.m., willing him to live.

Over a week passed and Christian had not improved. On Sept. 16, Dr. Gregoric's team replaced the tandem heart – to avoid complication risks - with a biventricular assist device (Bi-vad) to aid both sides of the heart. The Bi-vad has two pumps, one placed on the lower left side of his heart and another above it to pump blood directly to the pulmonary artery and the lungs.

"I'd check on the kid any time of night, Saturday or Sunday even, and I swear Dr. Kar was always there," Dr. Macris says.

Story continued on inside back page (A13)

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Cheating Death at 17 (continued)

The Center for Advanced Heart Failure is a family, says Bindu Akkanti, M.D., a pulmonary and critical care physician affiliated with Memorial Hermann, among those who stood vigil on the fifth floor of the Institute. "Nurses came in on their days off to spend time with him. Their kids would make him videos and pictures. Our unit has adopted him forever."

Despite blood clots and an erratic heartbeat, Christian held on. His case went before Memorial Hermann's medical review board to determine whether he was a candidate for a heart transplant. Given his youth, determination, former healthiness and support of a resilient extended family, Memorial Hermann added him to the transplant list on Oct. 7.

Fortunately for Christian, his age and size enabled him to be on lists for children and adults. Less than 40 days after he was hospitalized, Christian got a new heart. Four days later, he was removed from the breathing tube and began walking. And four months later – a week before Christmas – Christian was released. The entire transplant team of doctors, nurses, physical therapists, dietitians and pharmacists held a party in honor of their youngest transplant patient.

Although Christian's saviors will never know what the original virus was that inflamed his heart, they accomplished three medical miracles.

"The first was to give him every chance to recover from the viral illness, the second was a heart transplant and the third was when he came off dialysis and was able to have full kidney function despite having been on an artificial kidney machine," says Dr. Macris. "That is rare."

Today, Christian has regular doctor appointments, and his goals are simple: finish high school and learn to drive. After his experience, he hopes to become a pediatric physical therapist.

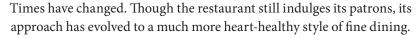
"My friends and I used to joke about the motto we'd see in videos: YOLO: You Only Live Once," he says. "Now it has deeper meaning. When I was in the hospital, I had little goals – like make it to Christmas."

Christian would like to express his appreciation to Dr.Michael Macris, who identified his heart failure, Dr. Gregoric's group who performed the heart transplant, the family of the heart donor (a 13-year-old boy), his aunt Ruth and his grandmother Xuan, who never stopped believing in him.

"My biggest achievement ever was seeing my 18th birthday," says Christian, who reached that benchmark in August 2015. "I didn't ask for any presents. Every day is a gift."

Maintaining a Heart-Healthy Lifestyle

When actress Shirley MacLaine held court at Tony's Restaurant while filming *Terms of Endearment* and *The Evening Star* in Houston, she'd always order a Grand Marnier soufflé – which normally serves six – for herself.



"On the side" and "no cream" have become menu standards for today's health-conscious diners – and owner Tony Vallone himself.

"I realized if I wanted to stay around, I had to eat healthy," says the restaurateur, 71, who lost 100 pounds after having bariatric surgery at Memorial Hermann three years ago. The health system's dietitians taught him a new heart-friendly lifestyle.

"A lifetime of decisions results in cardiovascular disease," says Daniel G. Hermann, M.D., a cardiologist affiliated with Memorial Hermann Memorial City Medical Center. "Similarly, once you have heart disease, small changes over a long span make a difference."

Whether you're striving to prevent a heart attack, cut your risk of heart disease or shape up your diet after a heart attack or cardiac surgery, the goals are the same. Here are some tips for living heart-healthy.

FOLLOW A MEDITERRANEAN DIET.

Choose lots of vegetables, fruit, broiled fish, legumes, seeds and whole grains such as faro to cut calories and hike heart-healthy soluble fiber. Ditch trans (solid) fats and lower saturated fat to 5-7 percent of your diet by relying on polyunsaturated and monosaturated fats found in fish, canola and walnut oil.

"It's not a low-fat diet. It's an appropriate-fat diet," says Sharon Smalling, R.D., clinical dietitian specialist at Memorial Hermann-Texas Medical Center. By choosing fruit and nonprocessed foods over chips, crackers and cakes, you'll also cut bad fats, sugar and calories.

TRADE UP.

Stock your pantry with canned fruits packed in their own juices, low-sodium canned vegetables, beans and water-packed canned tuna or salmon, plus fast-cooking whole-grain brown rice.

"This helps you get the ideal amounts of fats (25%-35%), carbohydrates (45%-55%), and the remainder from protein," says Marcin Bujak, M.D., an interventional cardiologist at Memorial Hermann Medical Group Cardiology-Southwest.

DIVIDE AND CONQUER.

Fill half your plate with vegetables, fruits and salad. One-fourth should contain carbohydrates (pasta, rice, potato and grains) and the other fourth protein (meat, beans and fish). When dining out, skip the bread and box up half of your order for another day. Check out menus on the web and make wise choices before you go out. "Forewarned is forearmed," Dr. Hermann says.

STRATEGIZE.

A Memorial Hermann registered dietitian can work with you. "While I'd love for everyone to eat brown rice over white rice, if I tell someone from Louisiana to switch, I've lost them," says Smalling. "But they can make it a smaller portion of white rice, and add dried beans, peas, fruits and other whole grains."

STOP IT.

"Only one thing is all or nothing – cigarettes," Dr. Bujak says. Quit smoking, period.



Tony Vallone Restaurateur



Sharon Smalling Registered Dietitian



Daniel Hermann, M.D. Marcin Bujak, M.D.



TRACK YOUR NUMBERS.

Focus on your health numbers – blood pressure, cholesterol and body fat percentage – not just numbers on a scale. Get moving and wear a pedometer to count steps. Build up to 10,000 daily steps, which equals about three miles.

"An hour of activity daily is ideal, but being active 20-30 minutes a day is huge. You'll feel so much better, sleep better and be more awake if you exercise regularly," Dr. Hermann says. Ten-minute jaunts around the house or office after breakfast, lunch and dinner combine to 30 minutes.

"Let your body be your guide," Dr. Hermann adds. "If you have chest pains, lightheadedness or breathing trouble, those are signs you need to back off."



SEEK EXPERT HELP.

"Thanks to medications that now exist for blood pressure and cholesterol, people are living longer and better despite being diagnosed with heart disease," says Dr. Hermann. "People with diabetes or a strong family history of heart disease need to be on statins for the rest of their lives, regardless of their cholesterol levels."

"For cardiac patients, every affiliated doctor in the Memorial Hermann system should be able to provide access to counseling and education regarding a healthy lifestyle," says Dr. Bujak. "For those who've had heart disease, a coronary stent or other surgery, many of our hospitals have cardiac rehabilitation programs they can join to make sure exercise is appropriate for their heart condition."

FORGET PERFECTION.

"Give yourself a cheat day every once in a while, but not too often," Vallone says. "For me, it's not a diet. It's a work in progress – and a lifestyle, forever."

To learn more about heart-healthy living or to find a Memorial Hermann-affiliated cardiologist, go to heart.memorialhermann.org or call 713.7CARDIO.

To schedule an appointment with a Memorial Hermann clinical dietitian, visit memorialhermann.org/services-specialties/nutrition-programs.



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