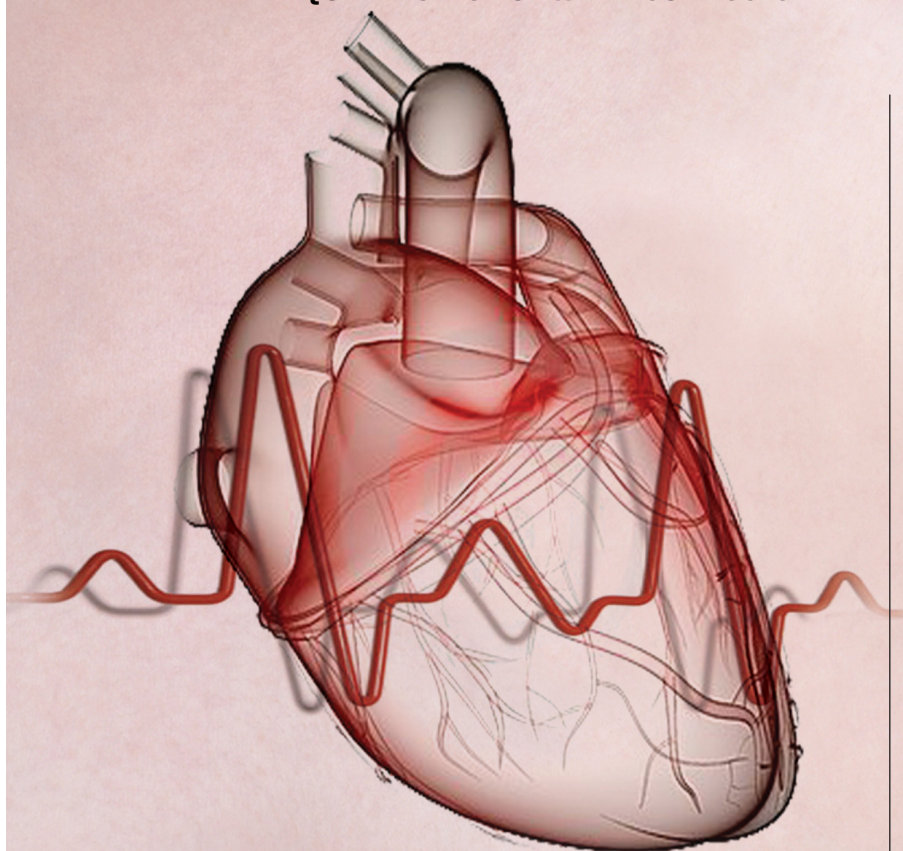


ATRIAL FIBRILLATION

—CAUSES AND CURES— WITH ABLATION

WHEN IT COMES TO MATTERS OF THE HEART, IGNORANCE IS NOT BLISS. SYMPTOMS SUCH AS HEART PALPITATIONS, SHORTNESS OF BREATH, LIGHT-HEADEDNESS AND DIZZINESS SHOULD NOT BE DISMISSED, AND REQUIRE A CHECK-UP WITH YOUR DOCTOR.

BY ALICIA DOYLE



Such symptoms could indicate a heart arrhythmia (irregular heartbeat) such as atrial fibrillation (A-Fib), involving the two upper chambers of the heart, or tachycardia, a heart rate of more than 100 beats per minute. Considered the world's most common cardiac arrhythmia, A-Fib is not in itself life-threatening, however, "it can lead to complications such as stroke or congestive heart failure (CHF) without proper diagnosis and treatment," says cardiac arrhythmia specialist Dr. Leo Polosajian, Director of Cardiac Rhythm Specialists, Inc.

"The chaotic beating of the atrium does not allow the blood to be properly pumped. Instead, it quivers, causing blood to stagnate in the atrium," explains Dr. Polosajian. "The stagnation of the blood can lead to blood clot formation if the patient is not on a blood-thinning medication such as Warfarin or Coumadin and is in A-Fib for 48 hours or longer. If the blood clot reaches the brain, it can lead to a stroke, which can be extremely debilitating or even fatal."

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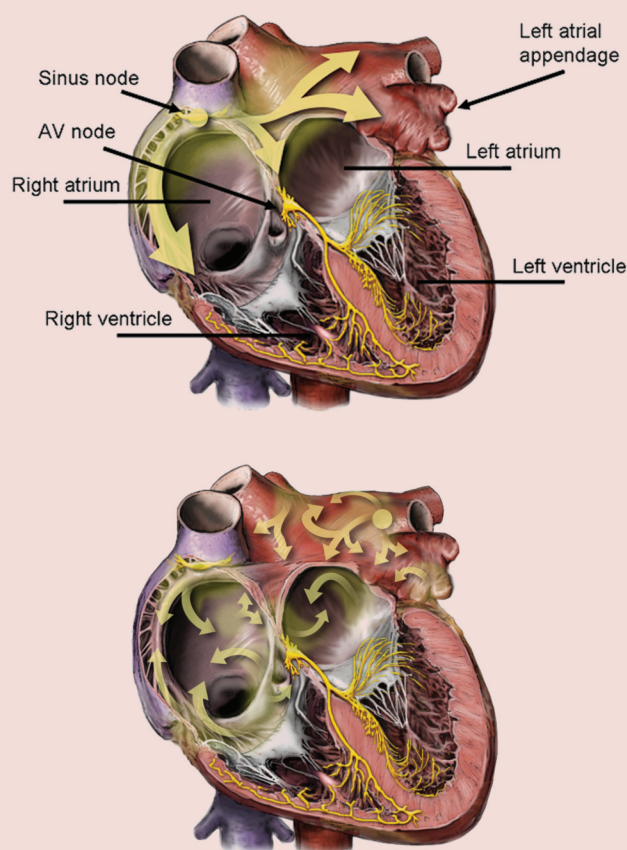
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Atrial fibrillation

occurs when the heart muscles of the two upper chambers (atria) beat in a chaotic and unorganized manner, uncoordinated with the bottom chambers (ventricles) of the heart.

Other forms of tachycardia, especially ventricular tachycardia (rapid heart beat in the ventricles), can be life-threatening. The most serious cardiac rhythm disturbance is ventricular fibrillation, where the lower chambers quiver and the heart cannot pump sufficient volume of blood. Collapse and sudden death follow unless medical help is provided immediately.

What is Atrial Fibrillation and Congestive Heart Failure?



Atrial fibrillation occurs when the heart muscles of the two upper chambers (atria) beat in a chaotic and unorganized manner, uncoordinated with the bottom chambers (ventricles) of the heart. They quiver, or “fibrillate,” rather than beat rhythmically and effectively, resulting in decreased blood circulation to the body.

A-Fib can occur for minutes, hours or all the time. A-Fib and CHF are commonly linked to one another and either condition can predispose the patient to the other. CHF and A-Fib share common risk factors such as hypertension, valve disease, coronary heart disease (such as a history of a heart attack resulting in weakening of heart muscle) and/or genetic predispositions.

“Persistent and permanent A-Fib patients are at the highest risk for likely developing CHF or having exacerbations of CHF,” says Dr. Polosajian. “Likewise, in patients with chronic CHF, A-Fib is likely to occur secondary to the dilation of the left atrium in the event that the patient has developed mitral valve regurgitation (valve leakage).”

A-Fib may cause palpitations, fatigue and stroke. In some patients, it may lead to fainting, chest pain and/or CHF. It causes up to 20 percent loss of cardiac output, known as the “atrial kick,” which is the pumping of the blood out of the atrium and into the ventricles. Sinus rhythm is the rhythm of the heart produced by impulses from the sinoatrial node. “Once sinus rhythm is restored in symptomatic A-Fib or atrial flutter patients, they may immediately feel an improvement in their energy and are able to perform activities they were no longer able to do while in the arrhythmia,” explains Dr. Polosajian.

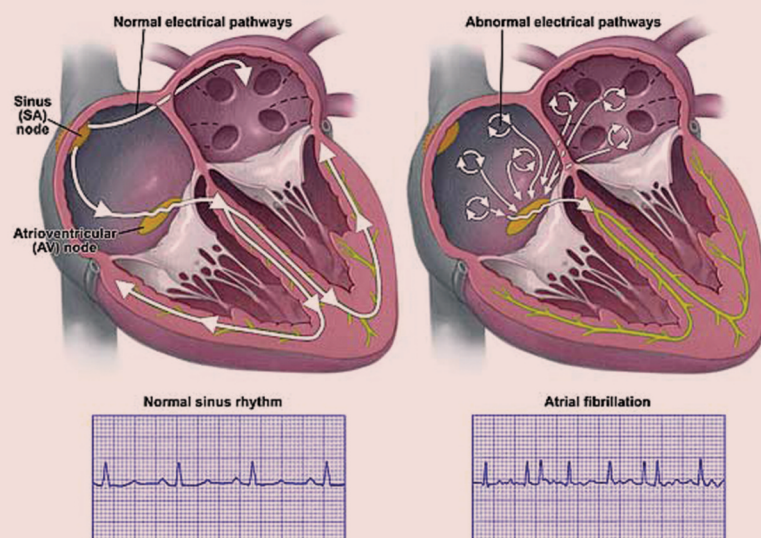
“A-Fib or flutter with rapid ventricular response can also cause weakening of the heart muscle, known as tachycardia-induced cardiomyopathy,” says Dr. Polosajian. “With A-Fib, the atrium is beating at an extremely rapid rate as high as 300 to 400 beats per minute, which causes the heart muscle to become tired and weak. Cardiomyopathy itself can increase morbidity due to the decrease in ejection fraction (EF) and the greater risk for sudden cardiac death from the weakened heart muscle.” Ejection fraction is the ratio of the volume of blood the heart empties to the volume of blood in the heart — usually between 55 and 70 percent.

“Your heart will actually go through remodeling if you have A-Fib. The fast, erratic rhythm causes electrical changes and stretching in the atria,” explains Dr. Polosajian, further noting that the heart can also develop fibrosis, the formation of fibrous tissue in the heart. “The A-Fib episodes then start to occur more frequently with longer durations and can lead to chronic A-Fib. However, this remodeling of the heart can be partially or completely reversed with a curative procedure known as an **A-Fib Ablation**. Once the patient restores sinus rhythm, the heart begins to remodel itself back to its original state with more efficient cardiac output.

What causes A-Fib?

A-Fib is most commonly caused by an underlying heart condition such as mitral valve disease, hypertension, coronary artery disease, cardiomyopathy leading to congestive heart failure or sick sinus syndrome (improper conduction of the sino-atrial node, the natural pacemaker of the heart).

"However, A-Fib may also occur without evidence of heart disease. This is mostly common in young patients and is called lone atrial fibrillation," says Dr. Polosajian. Some causes may be genetic; however, other *reversible* causes may be hyperthyroidism, excessive alcohol use or pulmonary embolism.



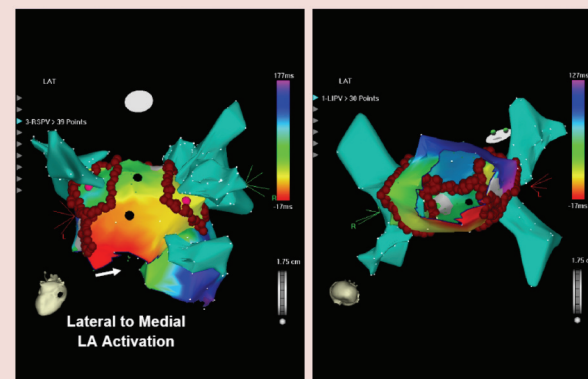
Which therapy is best for A-Fib?

Medical therapy may include heart rate-controlling or anti-arrhythmic drugs, or a combination of both. **Ablation** therapy is a curative therapy with an extremely high success rate, especially in patients who have *paroxysmal* atrial fibrillation (episodes that come and go sporadically). In these patients, the success rate ranges from 80 percent to 85 percent.

"A-Fib ablation is usually an outpatient procedure; this can be performed at your local community hospital," says Dr. Polosajian. "The length of stay for hospitalization may include an overnight stay. The risk of complication — or major adverse effects — is approximately 1 percent to 2 percent or less."

Catheter Ablation

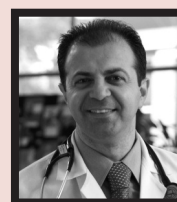
A minimally invasive procedure, catheter ablation is a procedure where flexible, thin tubes (catheters) are guided into the cardiac chambers through the blood vessels using fluoroscopy. Electrical signals are then recorded and mapped with a 3-dimensional electroanatomical system. Intra-cardiac ultrasound is also used during the procedure to visualize the cardiac chambers and pulmonary veins. The three-hour procedure is performed while the patient is under conscious sedation or general anesthesia.



Cardiac CT Scan Prior to A-Fib Ablation

Patients require a cardiac CT scan prior to the ablation in order to delineate the left atrium and pulmonary veins. "This allows the physician to have a thorough understanding of your heart anatomy, specifically, the left atrial volume and pulmonary vein anatomy and size," Dr. Polosajian says. "The imaging data can then be used as adjunct to the 3-dimensional electroanatomical map created during the ablation to find the abnormal nerve fibers triggering the arrhythmia." **yhc**

To learn more about A-Fib, visit the Heart Rhythm Society website at www.HRSonline.org.



Designated among the "Patient's Rank of Top Cardiologists" in California, **Leo Polosajian, MD, MS, FACC**, of Cardiac Rhythm Specialists, Inc., is board certified in Internal Medicine, Cardiology, Adult Comprehensive Echocardiography, and sub-specialized in Clinical Cardiac Electrophysiology.

Committed to providing the highest quality care for his patients, Dr. Polosajian's clinical areas of expertise include complex arrhythmia management and ablation, atrial fibrillation ablation, supraventricular tachycardia ablation, heart failure management and cardiac resynchronization therapy. He also specializes in pacemaker and cardiac defibrillator implantation, including implantation of Cardiac Resynchronization (Bi-Ventricular) Devices for patients with congestive heart failure. For more details, you may contact:

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