

Atrial Fibrillation

What is atrial fibrillation?

Atrial fibrillation, also known as AF or Afib, is a heart rhythm abnormality caused by rapid and disorganized electrical impulses in the atria (upper chambers of the heart). When this happens, the atria may contract poorly and no longer effectively force blood into the ventricles (lower chambers of the heart). As a result, the sluggish blood flow may create clots in the left atrium in addition to decreasing overall heart function.

There are three types of AF:

1. Paroxysmal AF: This type of AF usually comes on suddenly (symptoms can be mild to severe) and the episodes end spontaneously (on their own). Paroxysmal AF episodes may last for a few seconds, minutes, hours or longer before the heart resumes a normal rhythm on its own (in seven or fewer days).
2. Persistent AF: With this condition, the irregular heart rhythm continues indefinitely unless it is treated with medications and/or cardioversion.
3. Permanent AF: In this category of AF, the irregular heart rhythm lasts more than seven days and may continue indefinitely unless treated with medications and/or cardioversion.

How common is atrial fibrillation?

- AF is the most common heart rhythm disorder.
- More than 2.2 million people in the U.S. have AF.
- About 160,000 new cases are diagnosed each year.
- AF is uncommon among young people, although it can occur in people of any age.
- The likelihood of developing AF increases as one grows older. After age 65, approximately 3-5 percent of people have AF.

What risks are associated with having atrial fibrillation?

AF is usually not life-threatening if it is properly diagnosed and treated. However, AF increases the risk of stroke, congestive heart failure or even death. According to the Framingham Heart Study, patients with AF have a three to five times greater risk of stroke, especially individuals who are older than 65, had a prior stroke or have high blood pressure, diabetes or congestive heart failure.

What causes atrial fibrillation?

In some patients, there is no apparent cause for AF. These individuals have what is called "Lone" or Idiopathic AF.

In others, the condition may be related to certain medical problems, such as:

- Coronary Artery Disease (CAD), a condition in which the arteries that supply blood to the heart become clogged and disrupt the normal blood supply to the heart muscle. CAD is usually caused by atherosclerosis, a condition where a substance called "plaque" builds up in the blood vessels.
- High blood pressure (Hypertension)
- Diabetes
- Structural defects of the heart and its valves
- Inflammation of the heart (Pericarditis)
- Lung disease including Obstructive Sleep Apnea
- Thyroid disease
- Familial AF (a rare, genetic disease)

What are the signs and symptoms of atrial fibrillation?

The signs and symptoms of AF vary from person to person. You may have AF without any of the following symptoms (asymptomatic) or you may have additional symptoms not listed below.

Common symptoms include:

- Heart palpitations, fluttering or racing of the heart
- Irregular heartbeat
- Fatigue or decreased energy level
- Anxiety or fear
- Shortness of breath or difficulty breathing
- Weakness
- Chest pain
- Sweating
- Dizziness or lightheadedness
- Fainting

How is AF diagnosed?

In addition to a thorough medical examination, your doctor will need to perform additional noninvasive testing to diagnose AF.

These tests may include:

- Electrocardiogram (ECG): a test that prints an image of the electrical activity in your heart on graph paper.
- Holter monitor: a small, lightweight portable device worn for a period of 24-48 hours which captures the electrical activity of your heart during the entire time it is worn.
- Event monitor: portable device worn for seven to 30 days (time period determined by your doctor) that records your heart's electrical activity. This test is typically used in patients with AF that is infrequent or less symptomatic.

What treatments are available for atrial fibrillation?

The goals of treatment for AF are reducing the risk of stroke and preventing blood clots, heart rate control and heart rhythm control (resuming normal sinus rhythm). Many AF treatment choices are available. Typically, medications are the initial treatment method for AF and may include the following:

- **Blood thinners or anticoagulants:** The decision to prescribe these medications – and which to prescribe (warfarin or aspirin) – is based on patient age and risk factors. Warfarin usually is prescribed for patients who are over age 65, or who have had a prior stroke or mini stroke (TIA), have other health problems such as hypertension, diabetes, heart failure or coronary artery disease. Aspirin (or no medication) is the standard treatment for people under age 65 who do not have any risk factors that increase the likelihood they will develop blood clots associated with AF.
- **Heart rate control medications:** These medications (beta blockers, calcium channel blockers, digoxin) are used to slow the transmission of electrical signals from the atria to the ventricles, thus slowing the heart rate.
- **Heart rhythm control medications or antiarrhythmic drugs:** A number of different medicines with different characteristics may be used to convert or prevent AF. These drugs need to be tailored to the individual patient. Such medications include: Propafenone, Flecainide, Dofetilide, Sotalol or Amiodarone. When first starting some of these medications, hospitalization for several days may be required in order to monitor the patient's response to the specific medication.
- **Electrical cardioversion:** For most individuals with permanent AF or those whose symptoms are not improved with medications, the heart's normal rhythm may be restored by delivering a controlled electric shock to the heart through special cardioversion pads that are applied to the chest and back.

This procedure is performed under careful medical supervision and a short-acting sedative will be administered prior to delivery of the energy to prevent any pain. The cardioversion pads are attached to a defibrillator that delivers the energy or shock that will cause a split second interruption of the abnormal rhythm allowing the heart's electrical system to regain control and restore the heart's normal rhythm without injuring the heart.

Are there more definitive or curative procedures for atrial fibrillation?

- **AF ablation, also called pulmonary vein isolation (PVI):** PVI is a potentially curative treatment for AF. The procedure does not require general anesthesia and most patients are allowed to go home within 24 hours.

AF ablation is a minimally invasive option for symptomatic patients who failed or developed side effects to at least one antiarrhythmic medication. At times, it may be appropriate to perform AF ablation as a first-line therapy for symptomatic patients with heart failure and/or poor heart function. Research demonstrates that the majority of abnormal electrical signals causing AF are commonly found in the muscle sleeves of the pulmonary veins as they enter the heart. These veins drain the blood from the lungs into the heart. During AF ablation, several catheters (thin, flexible tubes with platinum rings and tips) are inserted into blood vessels (at each side of the groin and at times at the neck) and advanced to different locations

in the heart under X-ray guidance. The catheters are used to record and map the arrhythmia, allowing identification of its site of origin and areas in the atria (upper chambers of the heart) exhibiting abnormal electrical activities. One of the catheters has a larger tip and is used to deliver the ablation energy to each opening of the pulmonary veins.

Radiofrequency energy is typically used for ablation which creates lesions by destroying (ablating) small areas of heart tissue containing the atrial fibrillation. After several weeks of healing, the lesions form a permanent circular scar that blocks the abnormal electrical impulses from the pulmonary veins, thus preventing AF.

- **Surgical treatment for AF:** Patients who have failed antiarrhythmic medications, have had unsuccessful AF ablations or those who have additional conditions requiring heart surgery may benefit from surgical treatment of AF.
- **AV (atrioventricular) node ablation and pacemaker implantation:** This type of ablation targets the AV node (the filter between the upper and lower heart chambers), which creates a heart block requiring a permanent pacemaker. This procedure does not cure AF, but may provide some relief of AF symptoms and/or facilitate management of other medical problems. This type of ablation is rarely necessary due to the advanced treatment options currently available.

For more information on the Atrial Fibrillation Center, please contact our clinical coordinator at **216-983-2260**. For appointments, call **216-844-3800** or visit **UHhospitals.org**.

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