Atrial Fibrillation

Atrial Fibrillation (Afib or AF) is an irregular, often rapid, quivering heartbeat with rates typically ranging from 120 to 160 beats per minute that can sometimes reach as high as two hundred beats per minute. A normal heart rate is between 60-100 beats per minute. Afib may occur sporadically with the heart rate changing between a normal rhythm and irregular beats. Afib is usually a chronic condition that requires ongoing treatment and management. The frequency of Afib varies - it can happen rarely, occasionally, or persistently depending on overall health and underlying conditions. The risk of developing Afib increases with aging and contributing risk factors.

The heart has four chambers consisting of two upper chambers called the atria and two lower chambers called the ventricles. With every heartbeat, blood enters the heart at the sinoatrial node (SA node) in the right atrium and moves through the chambers of the heart in sequence. This process relies on electrical impulses and valves to function correctly.

In Afib, the natural pacemaker that signals the electrical impulse for each beat of your heart at the SA node does not receive the signal correctly. It misfires in the same way as when your car misfires if it is not running well. Normally, the pacemaker sends an electrical signal to the atria to contract, open the mitral and tricuspid valves, and rhythmically push blood into the ventricles causing them to contract. When the ventricles contract, the left ventricle pumps oxygen-rich blood through the aorta to the body, while the right ventricle sends oxygen depleted blood through the pulmonary arteries to the lungs for oxygenation.

In a healthy heart, this rhythm is regular, like the ticking of a clock. In Afib, the pacemaker's signals are irregular and untimely, causing the atria to quiver and the ventricles to beat erratically. As a result, blood pools in the atria instead of being pumped efficiently, increasing the risk of blood clots. These blood clots can travel to the lungs, causing pulmonary embolisms or to the brain, causing strokes.

Risk Factors

- Age
- Alcohol (especially binge drinking)
- Drugs (i.e., cocaine)
- Family history
- Medical Conditions (i.e., CKD, COPD, Heart failure, Hypertension, Diabetes)
- No obvious reason
- Race (African American increases risk r/t hypertension)
- Recent Surgery
- Stress
- Smoking
- Obesity

Symptoms

Most people with Afib describe a sensation of just feeling "weird" or just not "feeling quite right." You may not have any symptoms at all. The most common symptoms are as follows:

- Fatigue
- Lightheaded
- Chest pain
- Heart palpitations (pounding, fluttering)
- Irregular heartbeat
- Shortness of breath

Types of Afib

Paroxysmal Afib – lasts less than 7 days and stops with a medical intervention or on its own.

<u>Persistent Afib</u> – lasts longer than 7 days but less than 1 year. It does not matter whether this episode ended on its own or by cardioversion or other medical procedure by a medical specialist.

Long-standing persistent Afib – Continuous ongoing Afib lasting longer than one year.

<u>Permanent Afib</u> – Considered permanent after the provider/specialist and patient have decided to stop anymore attempts to convert Afib to normal sinus rhythm and decided future treatment to be rate control within what patient can tolerate.

Categories of Classification affecting treatment:

<u>Nonvalvular Afib</u>: If the patient does not have heart disease, there would be no additional risk of the formation of blood clots.

<u>Valvular Afib</u>: If a patient has mitral stenosis or mechanical heart valves, they will have an increased risk of blood clot formation and therefore would need to be on warfarin (coumadin) anticoagulation therapy.

*Changes in types may occur as Afib progresses over time.

<u>Treatment</u>

Cardioversion:

- Direct-current cardioversion (DCC); if unsuccessful, repeated attempts are made.
 - This procedure is for patients who do not respond to pharmacological therapies, who are unstable or have heart failure.
 - DCC has good outcomes with low recurrence of AFib in patients who have had persistent AFib for less than 60 days.
 - Conversion to normal sinus rhythm from AFib with DCC is associated with an increased risk of stroke.
 - Therefore, Warfarin is a recommended medication for three weeks before DCC and until 4 weeks after DCC.

Radiofrequency Catheter Ablation:

Long term follow-up after one ablation: No longer have Afib - 54.1% of patients with paroxysmal Afib and 41.8% of patients with non-paroxysmal Afib.

After multiple ablations: 79.8% of both categories no longer have Afib.

This procedure is highly recommended for patients with paroxysmal Afib with symptoms.

Every procedure has a risk factor and a complication risk. The surveyed risk related to complications (based on clinicians' skill/expertise and patient status/health/comorbidities) is 4.5% and death rate of 0.15%. Take time to rate and review the provider before the procedure.

Cryoballoon Ablation:

In cryoablation liquid nitrous oxide is delivered through a catheter to its tip or within a balloon under pressure which changes to a gas. This process causes damage to the surrounding tissue reducing the risk of Afib. Recent studies of success rates show effective and safe outcomes.

Left atrial appendage closure (LAAC), aka Watchman:

Strokes occur in the left atrial appendage of 91% of people with Afib without a history of rheumatic fever and 57% of people with Afib who have a history of rheumatic fever. This is an alternative to anticoagulation therapy. LAAC is recommended for elderly people and people who are not candidates for long-term anticoagulation. The Watchman has better clinical outcomes and fewer hemorrhagic strokes then people who take Warfarin. There are risks with any procedure.

Cox Maze Procedure IV:

This procedure is a complex procedure and technically demanding. It is used today only in open heart surgery patients. It is the gold standard surgical treatment for Afib with no return of Afib at one year and 78% no return of Afib at five years.

Common Drugs for Afib:

- Flecainide 50-150mg BID
 - Cardiovascular Medication slows rate of Afib.
- Propafenone 150-300mg TID
 - o Antiarrhythmic Medication
- Sotalol 80-160mg BID
 - o Beta Blocker
- Amiodarone 200mg TID, then 200mg BID then 200mg QD.
 - Antiarrhythmic (avoid prolonged exposure)
- Ibutilide 1.0mg over ten min, then another 1.0mg
 Antiarrhythmic Medication
- Dronedarone 400mg BID
 - Antiarrhythmic Medication

- Diltiazem 120-360mg daily
 - Antiarrhythmic; Calcium Channel Blocker
- Verapamil 120-480mg daily
 - Antiarrhythmic; Calcium Channel Blocker
- Digoxin 0.125-0.25 mg daily
 - Digitalis glycosides
- Amiodarone 100-200mg daily
 - Antiarrhythmic Medication

What to Know:

If Afib is left untreated, it can cause or worsen heart disease or put a person at increased risk of having a stroke or heart attack. Therefore, if you have any of the above symptoms or suspect you may have Atrial Fibrillation (Afib) you should contact your Primary Care Physician as soon as possible for diagnostic testing. As stated above, there are several treatments for Afib. The sooner you are diagnosed and treated, the better your outcome will be. Your Care Team is extremely knowledgeable in caring for this condition and with their expertise they will be able to provide the highest level of care to keep you feeling at your best.

I hope you have found this information useful and accurate.

Sincerely,

Sharon DeLellis, MSN, RN

References:

(u.n., 2022). Atrial Fibrillation. Causes and Risk Factors. *National Heart, Lung, and Blood Institute*. Site last updated November 30, 2022. <u>https://www.nhlbi.nih.gov/health/atrial-fibrillation/causes</u>

Li J, Gao M, Zhang M, Liu D, Li Z, Du J, Hou Y. Treatment of atrial fibrillation: a comprehensive review and practice guide. *Cardiovasc J Afr.* 2020 May/Jun 23;31(3):153-158. doi: 10.5830/CVJA-2019-064. Epub 2020 Mar 18. PMID: 32186324; PMCID: PMC8762786.

Nayak S, Natarajan B, Pai RG. Etiology, Pathology, and Classification of Atrial Fibrillation. *Int J Angiol. 2020 Jun;29*(2):65-71. doi: 10.1055/s-0040-1705153. Epub 2020 Mar 29. PMID: 32476807; PMCID: PMC7250635

Seed, S. (November 15, 2023) Atrial Fibrillation (Afib): Symptoms and Treatment. *WebMD*. <u>https://www.webmd.com/bio/shawna-seed</u>