A Patient's Guide to Living With Atrial Fibrillation

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Atrial fibrillation[1] (AF) is the most common heart rhythm disturbance in the United States, affecting over 2 million individuals. Over 150 000 new cases of AF are diagnosed each year. It is estimated that approximately 4% of the population over 65 years of age are affected. The incidence of AF increases with age, so that approximately 11% of individuals over 80 years of age are affected. AF is typically characterized by chaotic, disorganized electrical activity in the upper chambers of the heart. When AF occurs, the upper chambers of the heart (atria) quiver rapidly and irregularly (fibrillate). This chaotic beating can cause a range of symptoms. Although this heart rhythm disturbance is not life-threatening, there is an increased risk of stroke or heart failure for some patients who have AF.

How Is Atrial Fibrillation Diagnosed?

A healthcare professional can identify an irregular heartbeat by checking your pulse or listening to your heart with a stethoscope, but an electrocardiogram (ECG or EKG) is the most reliable method to detect and confirm the presence of AF. If the AF comes and goes intermittently (commonly called paroxysmal AF), it may be necessary for you to wear a Holter monitor (a portable ECG monitor) or an event recorder to detect it.

Symptoms Associated With Atrial Fibrillation

AF can cause a range of symptoms. Some people are unaware that their hearts are fibrillating, whereas others are immediately aware of the change in their heart's rhythm. Symptoms can range from mild fatigue to difficultly breathing, shortness of breath, and palpitations. It is unclear why some people experience symptoms while in AF and others do not. In many patients, the symptoms are related to a rapid heart rate. If medications effectively slow the rate, the symptoms disappear. Other patients continue to have symptoms, even if the heart rate is not fast. Occasionally, symptoms are due to a heart rate that is too slow. Potential symptoms associated with AF are listed in the Table.

Who Gets Atrial Fibrillation?

The causes of AF are not always clear, and potential causes are still under investigation. In some patients, AF may be due to wandering, disorganized electrical waves that circulate throughout the atria. In others, it may be caused by a single rapidly firing electrical spot that is usually located in one of the pulmonary veins in the left atrium. A number of medical conditions can promote AF, including thyroid disease (typically an overactive thyroid), poorly treated hypertension (high blood pressure), valvular heart disease, coronary artery disease, and congestive heart failure. Some individuals develop AF for no identifiable reason and in the absence of any other heart disease; this is more commonly known as lone fibrillation.

Anticoagulation

AF increases the risk of development of blood clots in the atria, probably as a result of abnormal patterns of blood flow through the atria. When the atria are fibrillating and not pumping blood effectively, blood may pool in parts of the atria, like a stagnant pond of water. A blood clot that forms and breaks loose could travel to the brain or heart, causing a stroke or heart attack. Young patients with lone atrial fibrillation have a low risk of blood clots, but the risk increases in older patients and in those who have other heart abnormalities, such as heart failure, high blood pressure, and diabetes mellitus.

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Table. Potential Symptoms Associated With Atrial Fibrillation

Difficulty breathing
Shortness of breath
Fatigue
Weakness
Dizziness, shortness of breath, or pain while exercising
Palpitations
Irregular heart beat
Dizziness
Lightheadedness
Chest pain and/or discomfort
Heart failure

One way to prevent blood clots from forming is by thinning the blood with a medication that reduces clotting. This is a process called anticoagulation. The medications used include aspirin or warfarin sodium (Coumadin, Bristol-Myers Squibb, Princeton, NJ). Several large-scale clinical trials have demonstrated that anticoagulation with warfarin reduces the risk of stroke in patients with atrial fibrillation.

Warfarin is taken daily by mouth. Unlike most medications, the dose of warfarin is adjusted according to blood test results; therefore, the dose may change over time. The blood test used to monitor the thinness or thickness of the blood is referred to as the INR, or International Normalized Ratio. It is important to monitor the INR (at least once a month for most patients) to ensure that the level of warfarin is in the effective range. If the INR is too low, blood clots will not be prevented, and if the INR is too high, there is an increased risk of bleeding.

Treatment of Atrial Fibrillation

The management of AF can vary among individuals depending on factors such as underlying heart condition, age, stroke risk, and the severity of symptoms associated with AF. The Atrial Fibrillation Follow-up Investigation of Rhythm Management (AFFIRM) trial randomized AF patients into 2 treatment strategies: heart rate control without attempting to maintain normal rhythm versus heart-rhythm control that attempted to maintain normal rhythm through the use of medications. Both groups received warfarin. The study showed that there was no advantage of one approach over the other in terms of survival. Patients treated with heart rhythm medications were hospitalized more often for their treatment and were exposed to possible side effects of antiarrhythmic medications.[2] Therefore, the selection of treatment strategy is often guided by symptoms. Anticoagulation should be considered for all patients at increased risk for stroke.

Heart Rate Control

During AF, the atria are beating quickly and irregularly, often times in excess of 350 to 500 times per minute. The impulses are transmitted to the ventricles over an electrical bridge called the atrioventricular (AV) node. Fortunately, the AV node slows the transmission of many of these impulses; however, the ventricular rate can still be quite rapid (more than 100 beats per minutes) and, if left untreated, can result in the development of heart failure. Rate control is very important. Medications such as beta-blockers, calcium channel blockers, and digitalis can be used to help slow conduction of electrical impulses over the AV node to maintain a heart rate less than 80 beats per minute at rest.

Heart Rhythm Control: Maintaining a Normal Rhythm

Restoration of a normal heartbeat is often attempted for those individuals with symptomatic AF. Medications called antiarrhythmic drugs are used to stabilize the electrical activity in the atria in an attempt to prevent episodes of AF. If AF is persistent and does not stop by itself, electrical cardioversion can be performed to restore the normal rhythm. Although cardioversion works immediately, it does not prevent the AF from recurring; medications, ablation, and surgery are potential treatments to try to prevent AF from recurring.

Electrical Cardioversion

Cardioversion[3] is a procedure whereby a brief electrical current (shock) is delivered through the chest wall to the heart through special pads or paddles that are applied to the skin of the chest. The purpose of the cardioversion is to interrupt the abnormal electrical circuit(s) in the heart to restore the normal heart beat. The delivered shock activates all the heart cells simultaneously, thereby interrupting and terminating the abnormal electrical beat (typically fibrillation of the atria). This procedure allows the electrical system of the heart to take over, restoring a normal heartbeat.

Catheter Ablation

Catheter ablation[4,5] is an invasive procedure that uses special tubes (catheters) with small electrodes. After administration of a local anesthetic to numb the skin over blood vessels (usually in the groin), the catheters are inserted into the blood vessel and guided to the heart. There, they are used to cauterize (burn) or freeze heart cells to modify or destroy the abnormal electrical circuits and triggers causing AF, thereby preventing AF. Another type of catheter ablation can also be performed to control rapid ventricular rates by ablating the AV node (the bridge that allows electrical signals to travel from the atria to the ventricles). This type of ablation is usually reserved for patients who have a rapid heart rate that cannot be controlled with medications. It necessitates implantation of a permanent pacemaker[6] to maintain a normal heart rate.

Lifestyle Adjustments in Atrial Fibrillation

Treatment for AF must be individualized. Some people require a series of different treatments before the best management approach is found for them. There are a number of lifestyle considerations that can be helpful.

Diet

Diet is an important consideration in the management of AF, particularly if

one is taking warfarin. There are many types of foods, such as green leafy vegetables and some vegetable oils, that are high in vitamin K. The liver uses vitamin K to make clotting factors that prevent excessive bleeding. Erratic consumption of foods with Vitamin K can cause the INR levels to fluctuate. This does not mean that these foods need to be avoided altogether, but care should be taken to maintain a balanced intake. There are specialized cookbooks for patients who take warfarin to assist them in preparing a variety of healthy foods while maintaining a steady daily intake of vitamin K.[7]

- Alcohol and caffeine are both known triggers of AF and therefore should be avoided in susceptible individuals.
- Blood pressure and cholesterol should be monitored. Follow a low-sodium and low-fat diet. Salt should be used sparingly particularly by those who have high blood pressure. The use of salt substitutes or fresh herbs is recommended.
- Stop smoking. Nicotine is a cardiac stimulant and can aggravate AF. Cigarette smoking is also a known risk factor for coronary artery disease.

Medications

Specific over-the-counter (OTC) medications, such as nasal sprays and cold remedies, contain substances that can aggravate AF and should therefore be used cautiously and only under the advice of your physician. Similarly some herbal remedies may contain stimulants that may aggravate heart rhythm problems.

Managing Anticoagulation with Warfarin

Various medications, including prescription, OTC, and herbal preparations, can interfere with the metabolism of warfarin, resulting in an INR that is either too high or too low. Patients should always consult their prescribing practitioner, pharmacist, or anticoagulation clinic before starting, changing, or stopping any medication.

- Most antibiotics will interfere with warfarin metabolism; therefore, the warfarin dosage should be adjusted along with careful monitoring of the INR.
- Multivitamins can also interfere with warfarin and may require an adjustment of the dosage of warfarin. The multivitamin should be taken on a consistent basis to avoid variations in the INR level.
- Herbal preparations do not undergo safety testing by the US Food and Drug Administration; therefore, the potency of preparations may vary. Some herbal preparations are purported to have anticoagulant activity, but most have little effect and are unlikely to provide the protection against stroke that is achieved with warfarin.

Exercise and Physical Activity

Regular physical activity is important. Before starting any exercise routine, you should consult your physician or nurse to establish what would be a safe and reasonable level of activity given your specific physical condition and capabilities. Physical activity is important for a number of reasons, including:

- It helps with maintenance of a positive, upbeat mood.
- It regulates daily biological rhythms, thus helping you get a good night's sleep.
- It is an important component of weight control.

Patients who need medications to slow their heart rate may find that their heart rate does not increase as much as they expect with exercise. This observation usually indicates that the medications are doing a good job of controlling the heart rate and the beneficial effects of exercise will still occur.

Coping with Atrial Fibrillation

The triggers of AF are still being investigated, but stress is likely to play a role for some people. Contemporary research suggests that approximately 54% of patients with intermittent AF cite psychological stress as the most common trigger.[8] Nonetheless, AF is known to be a complex medical problem. Stress likely works together with many medical factors to prompt AF. Because many different types of stress are common aspects of life, patients with AF benefit from being aware of stress and taking specific strategies to deal with it.

Below we describe a set of strategies for AF patients to use to reduce the effects of stress.

Know Your Condition

Understanding your condition allows you to communicate your needs to family, friends, and healthcare providers. Being smart about your condition is empowering. If you don't have the answer, ask your healthcare provider.

Be Mindful of Your Emotional Health

Many AF patients believe that they are the only ones who are experiencing worry or anticipatory fear. However, most AF patients experience at least some periods of fear and depression. Talking with a health professional about these concerns is another part of complete health care.

Plan Some Relaxation

Feelings of depressed mood or anxiety can lead to feelings of lack of control over one's own life. To break the cycle, you will likely need a deliberate plan to schedule pleasant events. Make and follow a plan, even though you may not want to. It makes sense that when you start doing pleasant, fun or rewarding activities again, you might start feeling a bit more like your usual self.

Additional Resources

Heart Rhythm Society Web site. Available at: http://www.HRSonline.org. Accessed March 14, 2008.

American Heart Association Web site. Available at: http://www.americanheart.org. Accessed March 14, 2008.

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Disclosures

None.

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