Review Article

Atrial Fibrillation: Causes, Investigations and Treatment

Abstract

Background: Atrial fibrillation (AF) is a common progressive cardiac arrhythmia and increases with age and the number of cardiac comorbidities. Atrial fibrillation is characterized by a rapid and irregular heartbeat that can go unnoticed or cause symptoms such as palpitations, shortness of breath, and dizziness. This condition can also be associated with more serious complications, including an increased risk of stroke. Recent developments in the clinical epidemiology and management of AF have taught us about our approach to the disease. This manual provides a complete overview of AF including its epidemiology, methods and pathophysiology, diagnosis, testing, prevention, and management. Management strategies are considered, including stroke prevention, quality control, and rhythm control. We also address the quality of health issues and provide insight for future developments and ongoing clinical trials to treat this common cardiac arrhythmia.

Conclusion: The AF diagnosis was associated with a 2-fold increased risk of VTE episodes. The association was not strong when excluding people with PE other than DVT, suggesting that the increased risk of VTE in patients with AF may be due to AF-related abnormalities, or risk factors.

***Keywords**: Atrial Fibrillation, Sinus Rhythm, Atrial Enlargement, Paroxysmal Atrial Fibrillation, Accessory Pathway*

Introduction

Atrial fibrillation is a rare and very fast heartbeat (arrhythmia) that can lead to blood clots in the heart. Atrial fibrillation increases the risk of stroke, heart failure, and other heart problems. During atrial fibrillation, the upper chambers of the heart (atria) beat abnormally and abnormally so as not to align with the lower chambers (ventricles) of the heart. In most people, AF can be asymptomatic. However, atrial fibrillation can cause a rapid heartbeat, increased heart rate (heart rate), shortness of breath, or weakness. Episodes of atrial fibrillation may even disappear or persist. Although AF is not usually life-threatening, it is a medical emergency that requires proper treatment to prevent stroke. Treatment for atrial fibrillation may include medications, heart rate resection, and catheter procedures to prevent abnormal heart symptoms. A person with atrial fibrillation may also have a heart problem called atrial flutter. Although atrial flutter is another arrhythmia, the treatment is exactly the same as that for atrial fibrillation (1).

Comment [EA1]: How true is this?

Comment [EA2]: Do you mean reduction?

Formatted: Font color: Red

Causes and Risk Factors

Causes of Atrial Fibrillation: Problems with heart formation are a common cause of atrial fibrillation. Possible causes of arterial fibrosis include coronary artery disease, heart attack,

Comment [EA3]: This is not clear enough

congenital heart disease (paralyzed heart), heart valve problems, hypertension, lung disease, physical stress from surgery, pneumonia or other disease, previously Heart surgery includes heart disease (sick sinus syndrome), sleep aspiration, thyroid diseases such as hyperthyroidism and other metabolic imbalances, stimulant use, diseases caused by certain drugs, Caffeine, tobacco, alcohol, bacteria. People with atrial fibrillation do not have known heart problems or heart damage (2).

Factors that increase the risk of atrial fibrillation (A-fib) include:

a. Age:~~,~~ The older a person is, the greater the risk of atrial fibrillation.
b. Heart disease:~~,~~ Anyone with heart disease, such as heart valve problems, congenital heart disease, severe heart failure, coronary artery disease, or having a heart attack or a history of heart surgery, has an increased risk of atrial fibrillation.
c. ~~,~~High blood pressure: Having high blood pressure, especially if it is not properly controlled~~d with lifestyle changes or medications~~, can increase the risk of atrial fibrillation.
d. Thyroid Disease: In some people, thyroid problems can cause arrhythmias, including atrial fibrillation.
e. Other chronic health conditions:~~,~~ People with certain chronic conditions, such as diabetes, metabolic syndrome, chronic kidney disease, pneumonia, or lack of sleep, have an increased risk of developing atrial fibrillation.
f. A~~Drinking a~~lcohol Intake: For some people, drinking alcohol can cause an episode of atrial fibrillation. Drinking too much increases the risk.
g. ~~,~~O~~o~~besity:~~,~~ Obese people have a higher risk of developing atrial fibrillation.
h. Family history: Some families have an increased risk of atrial fibrillation (3).

Mechanism of Atrial Fibrillation

Hypertensive, valvular, ischemic and other types of ~~systemic~~ heart disease are the most common forms of chronic and chronic AF, with AF alone accounting for 15% of AF diseases. The family AF is well defined, although it is currently considered rare. The region of chromosome 10 (10q22–q24) originally contained the AF gene responsible for families in which the arrhythmia was classified as a dominant autosomal factor. However, familial AF appears to be a separate disease. A family with a genetic mutation that makes the α subunit of the cardiac channel IK in chromosome 11 leads to an increase in the activity of this channel, with affected members continuously developing AF that may be due to reflex deficits. The pathogenesis of AF now involves interactions between underlying causes, usually in the form of increasingly ectopic foci that rupture into one or more pulmonary arteries, as well as abnormal arterial tissue substrates capable of perpetuating the arrhythmia. Although heart disease develops in most AF conditions, the pathogenesis of AF in the heart is apparently common and not well understood. Despite overcrowding, pulmonary arterial vasculature may play a major role in younger patients with normal heart and small paroxysms, whereas rare arterial tissue substrates may play a more important role in patients with developed heart disease and chronic or chronic AF (4).

Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: List Paragraph, Numbered + Level: 1 + Numbering Style: a, b, c, … + Start at: 1 + Alignment: Left + Aligned at: 0.63 cm + Indent at: 1.27 cm
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Formatted: Font: (Default) +Headings CS, 12 pt
Comment [EA4]: Not clear enough
Comment [EA5]: Do you mean familial?

Several models of active replacements have been proposed. The “lead circle” model assumes that active recirculation loops should have the smallest possible loop size or wavelength. At a given operating speed, the contour size will be the smallest distance necessary to repair regenerating tissue (wavelength = mean conduction speed x refractory time). The size of the contour will not be less than the wavelength, as this will require the frontal depsolarizing wave to collide with the opposing tissue and extinguish itself: the front end of the circle cannot "bite its tail." (figure 1) (5).

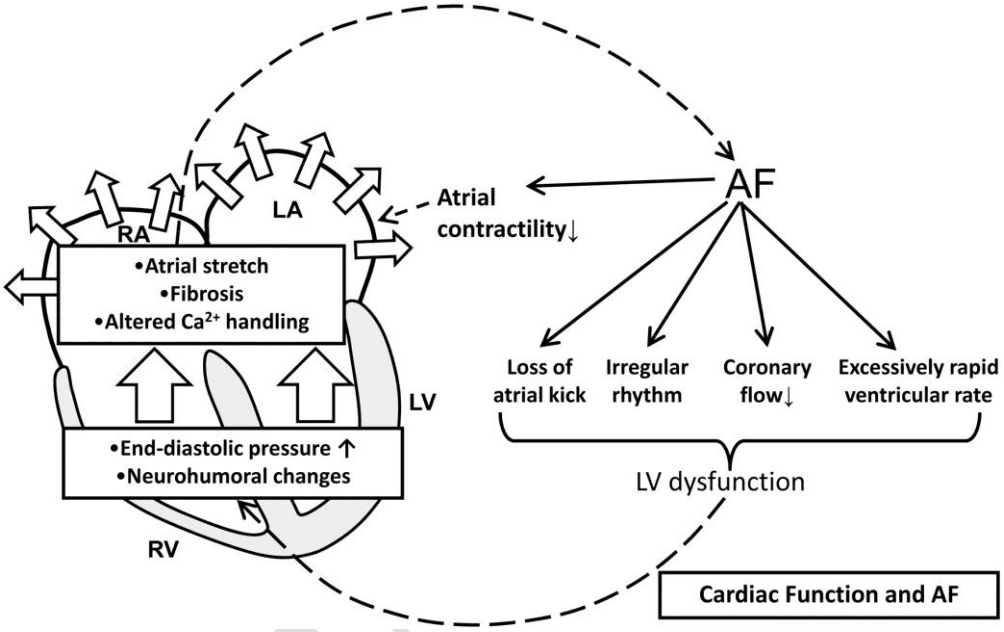

Figure 1 Mechanism of Atrial Fibrillation (5)

Classification of Atrial Fibrillation (AF)

Atrial fibrillation (AF) separation begins by separating the first visible episode, whether symptomatic or limited. Published guidelines from the expert committee of the American College of Cardiology (ACC) / American Heart Association (AHA) / Heart Rhythm Society (HRS) in treating patients with atrial fibrillation recommends classifying AF into the following three patterns (see also image below):

1. Paroxysmal AF: AF episodes automatically end within 7 days (most episodes last less than 24 hours).
2. Persistent AF: AF episodes lasting more than 7 days and may require medical or electrical intervention to eliminate.
3. Persistent AF: AF persists for more than 12 months, either because of cardioversion failed or because cardioversion has not been tried.
4. Permanent AF: When both patient and physician decide to cancel any other recovery strategies after sharing clinical decisions (6).

Formatted: Font: (Default) +Headings CS, 12 pt

Formatted: List Paragraph, Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.63 cm + Indent at: 1.27 cm

Formatted: Font: (Default) +Headings CS, 12 pt

Formatted: Font: (Default) +Headings CS, 12 pt

Formatted: Font: (Default) +Headings CS, 12 pt

Formatted: Font: (Default) +Headings CS, 12 pt

This rating program resolves unrelated conditions due to AF degradation (e.g., thyrotoxicosis, abnormal electrolytes, ethanol). In current clinical practice, atrial fibrillation is considered to be secondary to acute myocardial infection, cardiac surgery, pericarditis, sepsis, pulmonary embolism, or severe lung disease. This is because, in these cases, it is thought that once the seizure condition is properly treated and resolved, the chances of recurrence of AF are low. However, data from the Framingham Heart Study show that more than 60% of participants with secondary AF develop reflex AF within 15 years of follow-up. In addition, the long-term risks of stroke and the underlying cause of death were the same between participants without other stimuli and those with other conditions. Therefore, long-term AF screening strategies in these patients may be considered, as is the current rate of cryptogenic stroke patients (figure 2) (7).

Comment [EA6]: Pease check

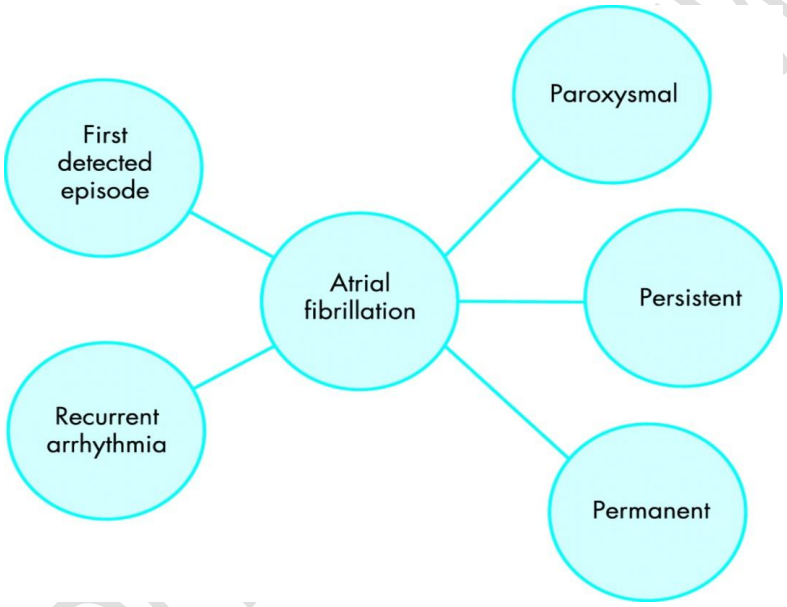

Figure 2 Classification of Atrial Fibrillation (AF) (7)

Symptoms

Some people with atrial fibrillation (A-fib) have no symptoms. People with symptoms of atrial fibrillation may have signs and symptoms such as: rapid heartbeat, palpitations or heartbeat (heartbeat), chest pain, dizziness, fatigue, dizziness, loss of ability to exercise, shortness of breath. Lack of Pain, weakness, atrial fibrillation. May be: Occasionally (paroxysmal atrial fibrillation). Symptoms of A-fib usually last from a few minutes to hours. Sometimes the symptoms last for about a week and the episodes may recur. The symptoms may go away on their own. Some people with A-fib need occasional treatment. Persistence With this type of atrial fibrillation, the heartbeat does not return to normal. If a person has symptoms of A-fib, cardioversion or medication may be used to restore and maintain the heartbeat. Lasts a long time. This type of atrial fibrillation is permanent and lasts for more

Comment [EA7]: Not clear within this context.

than 12 months. Abnormal heart rate cannot always be restored in this type of atrial fibrillation. Medication is needed to control the heartbeat and prevent blood clots (8).

Comment [EA8]: The arrangement of this section makes understanding and clarity difficult.

Complications

Blood clots are a serious risk factor for atrial fibrillation, which can lead to stroke. In atrial fibrillation, an abnormal heart rhythm can cause blood to pool in the upper chambers (atria) of the heart and form clots. If a blood clot in the upper left chamber (left atrium) leaves the heart area, it can enter the brain and cause a stroke. The risk of stroke due to atrial fibrillation increases with age. Other health conditions can also increase the risk of stroke caused by A-fib, including: high blood pressure, diabetes, heart failure, and other heart defects. Antiretroviral drugs are commonly prescribed to prevent blood clots and stroke in people with atrial fibrillation (9).

Comment [EA9]: How true is this?

Prevention

Choosing a healthy lifestyle can reduce your risk of heart disease and prevent atrial fibrillation. Here are some key points for heart health: Eat a healthy diet, exercise regularly and maintain a healthy weight, do not smoke, avoid or reduce alcohol and caffeine consumption, and manage stress, because too much stress and anger can cause heart rhythm problems (10).

Investigations

Some people are unaware that they have A-fib. A-Fib can appear when doctors ask for a heart through a stethoscope during physical examination for other reasons. Doctors may order several tests to diagnose A-Fib or rule out other conditions that cause similar symptoms. The test may include (11):

Electrocardiogram (ECG or EKG)

This quick and painless test measures cardiovascular activity. Adhesive spots (electrodes) are placed on the chest and sometimes on the arms and legs. The cables connect the electrodes to the computer, which displays the test results. The ECG indicates whether the heart is beating fast, slow, or not. ECG is the primary diagnostic test for atrial fibrillation (figure 3) (12).

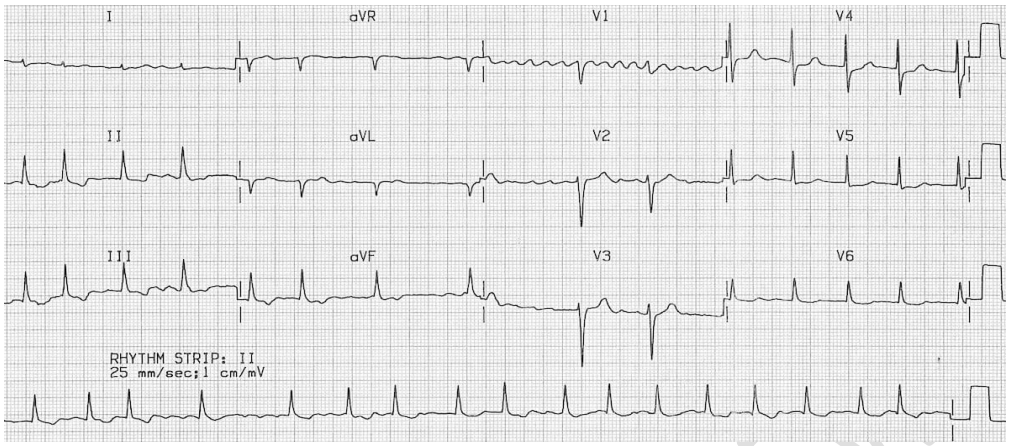

Figure 3 Electrocardiogram of Atrial Fibrillation (12)

Blood tests

This helps the doctor diagnose thyroid problems or to detect other substances in the blood that may lead to A-fib (13).

Holter Monitor

This small, portable ECG device can be carried in a pocket, shoulder strap or shoulder strap during normal daily activities. It records your heart rate continuously for 24 hours or more (figure 4) (14).

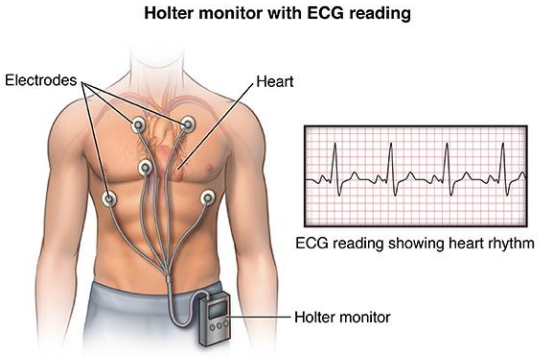

Figure 4 Holter Monitor (14)

Event Recorder

This device resembles a Holter monitor, but only records for a few minutes at a time. Wearing longer than a Holter monitor, usually 30 days. When you hear symptoms you usually press the button. Some devices automatically detect abnormal heartbeats (15).

Echocardiogram

This non-invasive experiment uses sound waves to create images of heart size, shape, and movement (figure 5) (16).

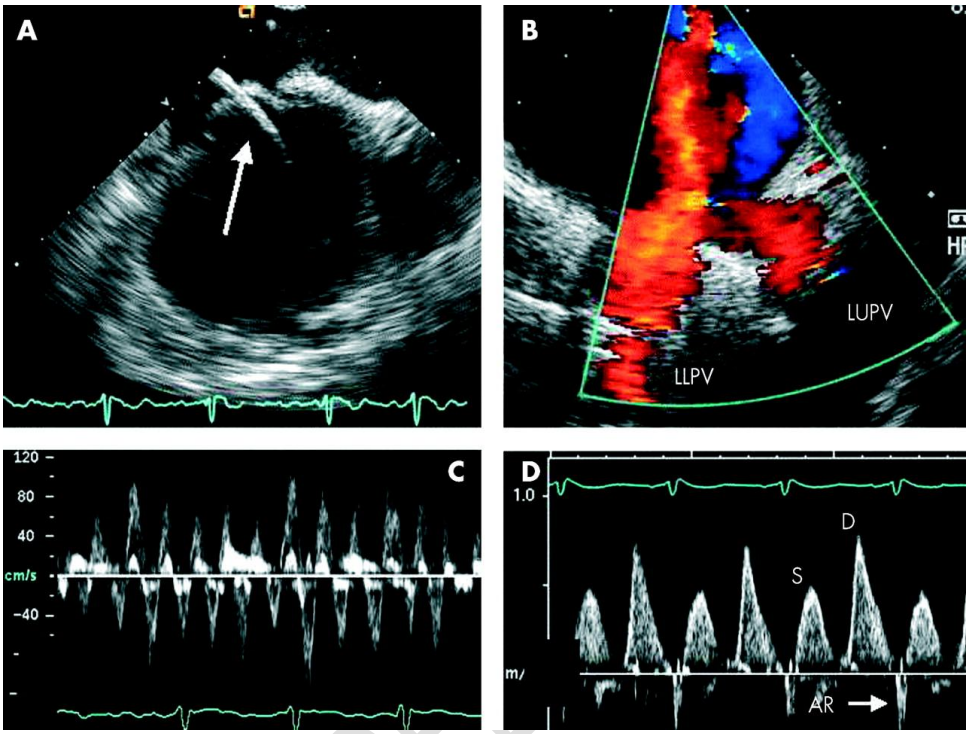

Figure 5 Intracardiac echocardiography (ICE) images. (A) Transeptal piercing with a catheter (arrow) from the right atrium to the left. (B) Color block diagram showing the combination of upper and lower extremity pulmonary arteries (LUPV and LLPV). (C) LAA pulse-wave Doppler indicating constant velocity in a patient with AF. (D) Pulse Doppler for LUPV, which shows a decrease in systolic (S) blood flow compared to diastolic flow (D) and heart rate followed by atrial reversal systolic reversal (AR) conversion in the same patient (16).

Comment [EA10]: What is intracardiac Echocardiography? The ECG recording on Image A may not support the diagnosis of AF.

Comment [EA11]:

Comment [EA12]:

Comment [EA13]: Again, what is upper and lower extremity pulmonary valves?

Stress Test

Also called a physical exam, a stress test involves a heart test while exercising on a treadmill or standing bike (17).

Comment [EA14]: Please check

Chest X-ray

X-rays help the doctor to see the condition of the lungs and heart (figure 6) (18).

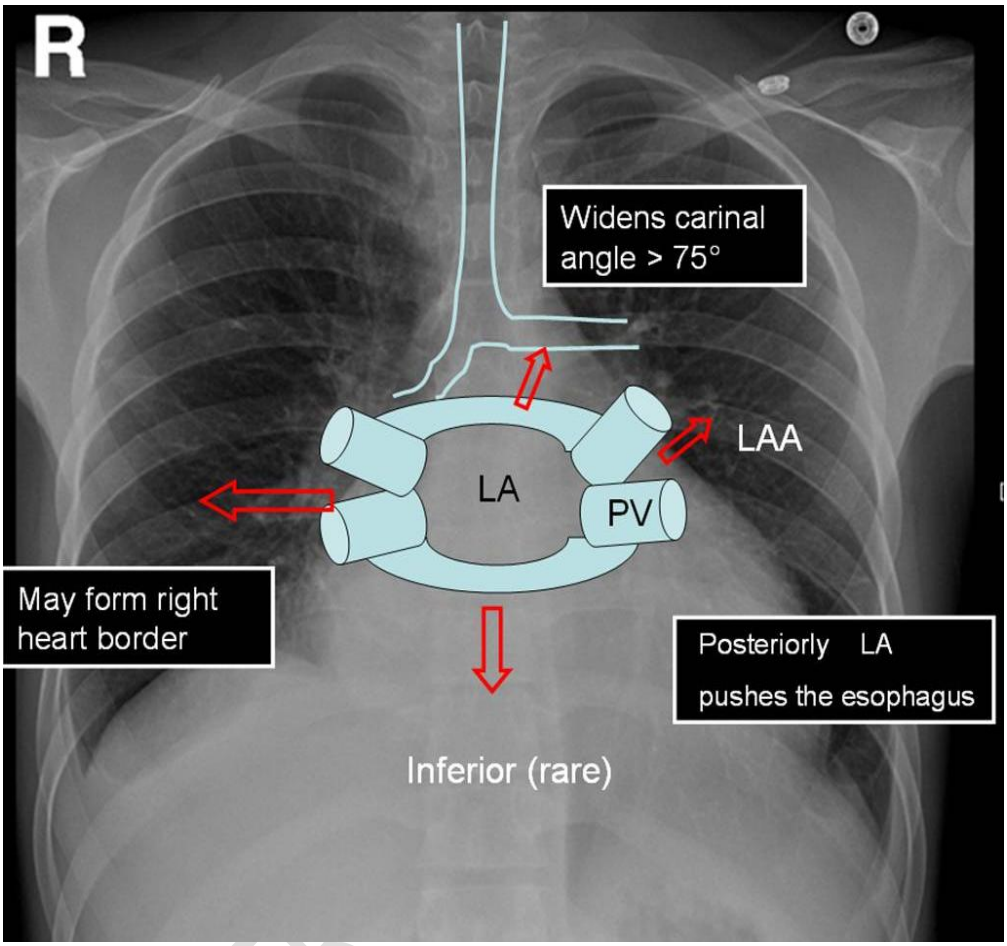

Figure 6 Modes of Left Atrial Enlargement in Case of Atrial Fibrillation (18)

Treatment

Treatment for atrial fibrillation depends on how long you've had A-fib, your symptoms, and the underlying cause of your heart problem. Treatment goals: restore heartbeat, control heartbeat, prevent blood clots that can lead to stroke and treat the underlying cause, if known.. ,-Ttreatment for atrial fibrillation may include: taking medications, cardiopulmonary therapy, surgery, or catheter procedures, together. you and your doctor will discuss the best treatment option. It is important to follow your treatment plan for atrial fibrillation. A misdiagnosis of atrial fibrillation can lead to other problems, such as stroke and heart failure (19).

Comment [EA15]: What is it?

Medications: You may be given medication to control your heart rate and return it to normal. Medications are also prescribed to prevent blood clots, a dangerous problem for A-fib. Medications used to treat atrial fibrillation include: Beta blockers. These medications can help slow down the heartbeat at rest and during exercise. Calcium channel blockers. These drugs control heart rate but may need to be avoided by those with heart disease or low blood

pressure. Digoxin. This medication can control your heart rate at rest, but not during exercise. Most people need more or different medications, such as calcium channel blockers or beta blockers. Anti-arrhythmic drugs. These drugs are used to maintain normal heart rhythm, not just to control heart rate. Because they tend to have more serious side effects than heart-regulating drugs, anti-arrhythmics are often used less. Blood clots. To reduce the risk of stroke or other complications caused by blood clots, the doctor may prescribe an anticoagulant. Blood drugs include warfarin (Jantoven), apixaban (Eliquis), dabigatran (Pradaxa), edoxaban (Savaysa) and rivaroxaban (Xarelto). If you are taking warfarin, you will need regular blood tests to monitor the effects of the medication (20).

Cardioversion Therapy

If symptoms of A-fib are severe or if it is the first stage of atrial fibrillation, doctors may try to reset the heartbeat (sinus rhythm) using a procedure called cardioversion. Cardioversion can be done in two ways (21):

Electrical Cardioversion

This process of resetting the heart rate is done by sending electrical shock to the heart through paddles or patches (electrodes) placed on the chest (22).

Drug Cardioversion

IV or oral medications are used to restore the rhythm of the heart. The cardio version usually runs in a hospital environment, but it can also be run in an emergency. If necessary, warfarin or other anticoagulants may be given weeks before the procedure to reduce the risk of blood clots and stroke. After cardioversion, arrhythmic drugs may be prescribed indefinitely to prevent future episodes of atrial fibrillation. Even if you are taking the drug, a second episode of atrial fibrillation can occur (figure 7) (23).

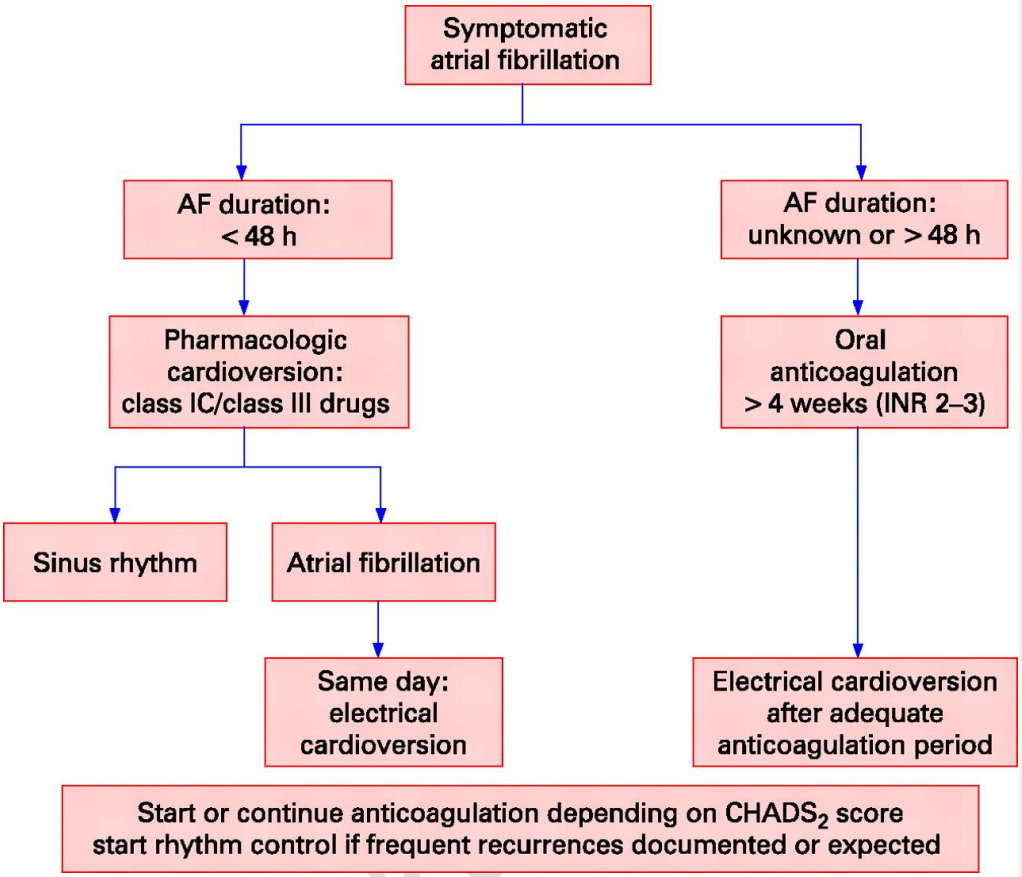

Figure 7 Cardioversion Therapy Decisions (23)

Surgery or Catheter Procedures

If medication or other therapy does not improve A-fib, a doctor may recommend a procedure called cardiac ablation. Sometimes abortion is the first aid for some patients. Cardiac output uses heat (radio frequency energy) or cryoablation to create scars in your heart, block abnormal electrical signals, and restore a normal heartbeat. The doctor inserts a flexible catheter into your bloodstream, usually your lungs and your heart. More than one catheter may be used. The veins at the tip of the catheter use either cold or heat energy. Uncommonly, ablation is performed with a scalpel during open heart surgery. There are different types of cardiac output. The type of treatment for atrial fibrillation will depend on your specific symptoms, how long you've lived, and whether you're going to have another heart surgery. Some types of cardiac output that may be used to treat atrial fibrillation include (24):

Atrioventricular (AV) Node Ablation

Heat or cold power is applied to the heart muscle in the AV node to damage the electrical signal connection. After the release of the AV node, a pacemaker is required for life (25).

Maze Procedure

Doctors use heat or cold energy or scalpel to create a pattern of red tissue in the upper chambers of the heart. Because red tissue does not send electrical signals, the maze interferes with lost heart signals and causes atrial fibrillation. If a scalpel is used to create a maze, open heart surgery is required. This is called surgical complication. It is the preferred method of treating atrial fibrillation for those who need other heart surgeries, such as coronary artery bypass surgery or coronary heart valve repair. Atrial fibrillation may return after cardiac arrest. In this case, another heart transplant or other heart therapy may be recommended. After a heart attack, life-long blood transfusions may be required to prevent paralysis. If a person with A-Fib is unable to take anticoagulants, the doctor may recommend a catheterization procedure to close the small appendix of the upper left ventricle (appendage), where multiple A-Fib-related clots are formed. This process is called closure of the left atrial appendage. The closing device is slowly passed through the catheter into the bag. Once the device is installed, the catheter is removed. The device will stay in place forever. Surgery to close the left atrial appendage is an option for some people who already have heart surgery (figure 8) (26).

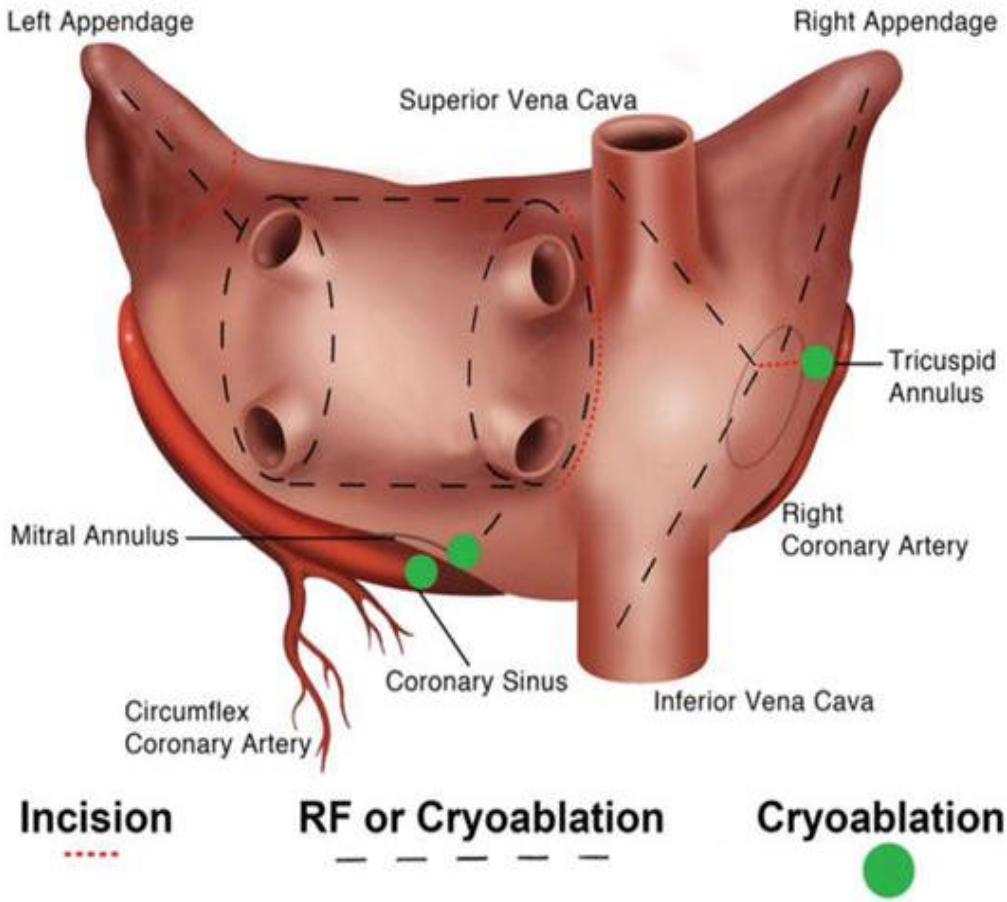

Figure 8 Maze Procedure (26)

Discussion

In most cases of atrial fibrillation, any symptoms of the arrhythmia obscure the conditions for its diagnosis. Therefore, atrial fibrillation can be found in patients with stroke, thyrotoxicosis, or pulmonary edema due to severe mitral stenosis. Alternatively, atrial fibrillation may be completely undetectable and may only be detected during a systematic public electrocardiographic examination. Long-term recordings in patients with paroxysmal atrial fibrillation may also reveal several short episodes of atrial fibrillation that go unnoticed. However, few people are familiar with arrhythmias during atrial fibrillation, with anxiety, palpitations, premature malaise, shortness of breath and dizziness being the most common complaints. Dizziness does not mean dizziness, but dizziness and a feeling of fainting, often unlikely. Indeed, patients with atrial fibrillation have improved tolerance to orthostatic stress and are less likely to develop orthostatic hypotension. Syncope, or close syncope, in patients with atrial fibrillation associated with a ventricular stance may indicate cardiac obstruction and reverse circulation after 2–3 seconds (27).

Conclusion

The cause of most early strokes is unknown (ESUS). AF: Stroke and TIA may be the root cause, but can be difficult to diagnose. The presence of undiagnosed AF may increase the risk of recurrence, and consequently, correct identification and treatment of AF may reduce the risk of recurrence and death from stroke. Outpatient cardiac monitoring using Ambulatory Holders, MCOTs, ELRs and ILRs can detect more AF than inpatient monitoring alone. Although these results are consistent with the observations of other systematic reviews that increase the diagnostic value of AF with long-term follow-up, comparative data are insufficient to understand which devices may work best to monitor a patient's heart, or long-term. Duration. Term monitoring. General evidence suggests that ambulatory cardiac monitoring of AF is appropriate for patients with ESUS. Interpretation of clinical data is limited by the significant number of different patients, the duration of follow-up, and the significant clinical variation between subjects in terms of definitions of AF. Therefore, more research is needed with well-designed RCTs.

References

1) Culebras A, Messe SR, Chaturvedi S, Kase CS, Gronseth G. Summary of evidence-based guideline update: prevention of stroke in nonvalvular atrial fibrillation: report of the Guideline Development Subcommittee of the American Academy of Neurology. Neurology. 2014 Feb 25. 82 (8):716-24.
2) Connolly SJ, Eikelboom J, Joyner C, et al, for the AVERROES Steering Committee and Investigators. Apixaban in patients with atrial fibrillation. N Engl J Med. 2011 Mar 3. 364 (9):806-17.
3) Connolly SJ, Ezekowitz MD, Yusuf S, et al, for the RE-LY Steering Committee and Investigators. Dabigatran versus warfarin in patients with atrial fibrillation. N Engl J Med. 2009 Sep 17. 361 (12):1139-51.

4) Deftereos S, Giannopoulos G, Kossyvakis C, et al. Colchicine for prevention of early atrial fibrillation recurrence after pulmonary vein isolation: a randomized controlled study. J Am Coll Cardiol. 2012 Oct 30. 60 (18):1790-6.
5) Doyle JF, Ho KM. Benefits and risks of long-term amiodarone therapy for persistent atrial fibrillation: a meta-analysis. Mayo Clin Proc. 2009 Mar. 84 (3):234-42.
6) Fang MC, Go AS, Chang Y, et al. Thirty-day mortality after ischemic stroke and intracranial hemorrhage in patients with atrial fibrillation on and off anticoagulants. Stroke. 2012 Jul. 43 (7):1795-9.
7) Friberg L, Rosenqvist M, Lip GY. Evaluation of risk stratification schemes for ischaemic stroke and bleeding in 182 678 patients with atrial fibrillation: the Swedish Atrial Fibrillation cohort study. Eur Heart J. 2012 Jun. 33 (12):1500-10.
8) Gage BF, Yan Y, Milligan PE, et al. Clinical classification schemes for predicting hemorrhage: results from the National Registry of Atrial Fibrillation (NRAF). Am Heart J. 2006 Mar. 151 (3):713-9.
9) Gerdts E, Wachtell K, Omvik P, et al. Left atrial size and risk of major cardiovascular events during antihypertensive treatment: losartan intervention for endpoint reduction in hypertension trial. Hypertension. 2007 Feb. 49 (2):311-6.
10) Giugliano RP, Ruff CT, Braunwald E, et al, for the ENGAGE AF-TIMI 48 Investigators. Edoxaban versus warfarin in patients with atrial fibrillation. N Engl J Med. 2013 Nov 28. 369 (22):2093-104.
11) Granger CB, Alexander JH, McMurray JJ, et al, for the ARISTOTLE Committees and Investigators. Apixaban versus warfarin in patients with atrial fibrillation. N Engl J Med. 2011 Sep 15. 365 (11):981-92.
12) Hagens VE, Ranchor AV, Van Sonderen E, et al, for the RACE Study Group. Effect of rate or rhythm control on quality of life in persistent atrial fibrillation. Results from the Rate Control Versus Electrical Cardioversion (RACE) Study. J Am Coll Cardiol. 2004 Jan 21. 43 (2):241-7.
13) Hansen ML, Sorensen R, Clausen MT, et al. Risk of bleeding with single, dual, or triple therapy with warfarin, aspirin, and clopidogrel in patients with atrial fibrillation. Arch Intern Med. 2010 Sep 13. 170 (16):1433-41.
14) Imazio M, Brucato A, Ferrazzi P, et al, for the COPPS Investigators. Colchicine reduces postoperative atrial fibrillation: results of the Colchicine for the Prevention of the Postpericardiotomy Syndrome (COPPS) atrial fibrillation substudy. Circulation. 2011 Nov 22. 124 (21):2290-5.
15) Kowey PR, Reiffel JA, Ellenbogen KA, Naccarelli GV, Pratt CM. Efficacy and safety of prescription omega-3 fatty acids for the prevention of recurrent symptomatic atrial fibrillation: a randomized controlled trial. JAMA. 2010 Dec 1. 304 (21):2363-72.
16) Larsen TB, Lip GY. Warfarin or novel oral anticoagulants for atrial fibrillation?. Lancet. 2014 Mar 15. 383 (9921):931-3.
17) Lip GY, Skjoth F, Nielsen PB, Larsen TB. Non-valvular atrial fibrillation patients with none or one additional risk factor of the CHA2DS2-VASc score. A comprehensive net clinical benefit analysis for warfarin, aspirin, or no therapy. Thromb Haemost. 2015 Oct. 114 (4):826-34.

18) Liu T, Korantzopoulos P, Shehata M, Li G, Wang X, Kaul S. Prevention of atrial fibrillation with omega-3 fatty acids: a meta-analysis of randomised clinical trials. Heart. 2011 Jul. 97 (13):1034-40.
19) Lopes RD, Al-Khatib SM, Wallentin L, et al. Efficacy and safety of apixaban compared with warfarin according to patient risk of stroke and of bleeding in atrial fibrillation: a secondary analysis of a randomised controlled trial. Lancet. 2012 Nov 17. 380 (9855):1749-58.
20) Majeed A, Hwang HG, Connolly SJ, et al. Management and outcomes of major bleeding during treatment with dabigatran or warfarin. Circulation. 2013 Nov 19. 128 (21):2325-32.
21) McNamara RL, Tamariz LJ, Segal JB, Bass EB. Management of atrial fibrillation: review of the evidence for the role of pharmacologic therapy, electrical cardioversion, and echocardiography. Ann Intern Med. 2003 Dec 16. 139 (12):1018-33.
22) Moreno I, Caballero R, Gonzalez T, et al. Effects of irbesartan on cloned potassium channels involved in human cardiac repolarization. J Pharmacol Exp Ther. 2003 Feb. 304 (2):862-73.
23) O'Shea SI, Arcasoy MO, Samsa G, et al. Direct-to-patient expert system and home INR monitoring improves control of oral anticoagulation. J Thromb Thrombolysis. 2008 Aug. 26 (1):14-21.
24) Patel MR, Mahaffey KW, Garg J, et al, for the ROCKET AF Investigators. Rivaroxaban versus warfarin in nonvalvular atrial fibrillation. N Engl J Med. 2011 Sep 8. 365 (10):883-91.
25) Piccini JP, Hasselblad V, Peterson ED, Washam JB, Califf RM, Kong DF. Comparative efficacy of dronedarone and amiodarone for the maintenance of sinus rhythm in patients with atrial fibrillation. J Am Coll Cardiol. 2009 Sep 15. 54 (12):1089-95.
26) Roy D, Talajic M, Dorian P, et al, for the Canadian Trial of Atrial Fibrillation Investigators. Amiodarone to prevent recurrence of atrial fibrillation. N Engl J Med. 2000 Mar 30. 342 (13):913-20.
27) Shi Y, Li D, Tardif JC, Nattel S. Enalapril effects on atrial remodeling and atrial fibrillation in experimental congestive heart failure. Cardiovasc Res. 2002 May. 54 (2):456-61.