

Atrial Fibrillation

Know your risk of stroke Know your treatment options

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What is Atrial Fibrillation

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Atrial Fibrillation

Heart has it's own electrical system

•Electrical system makes the signals that start each heartbeat

•Atrial fibrillation is a type of heart rhythm disorder called an 'arrhythmia'

•Atrial fibrillation is a condition that occurs when there is a fault in the electric activity in the heart muscle, causing the heart to beat irregularly and in an uncoordinated way.

•Also called: Atrial Fib or A Fib

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Types of Atrial Fibrillation

•Paroxysmal AFib: starts and stops on own, lasts less than 7 days

•Persistent Afib: lasts longer than 7 days, needs treatment to be stopped

•Permanent Afib: is ongoing and resists most treatment attempts



How Common is Atrial Fibrillation?

- •Most common heart arrhythmia
- •More than 2.7 million Americans have Atrial Fib
- •Risk increases with age
- •Number of people with A Fib doubles every decade of life after age 50
 - -1 in 200 people between 50 and 59 have A Fib
 - -1 in 10 people over 80 years old have A Fib



Risk Factors for Developing Atrial Fibrillation

- •Increasing age
- •High blood pressure
- •Diabetes
- •Heart valve disease
- •Heart failure
- •Previous heart attack
- •Heart surgery
- Thyroid problems
- •Sleep apnea
- •Excessive alcohol intake
- •Illegal drug use



Symptoms of Atrial Fibrillation

•YOU MAY NOT HAVE ANY SYMPTOMS!

- •Fast, pounding, irregular heart beat
- Shortness of breath
- •Tiredness
- •Dizziness or fainting
- Chest pain or tightness



Complications of Atrial Fibrillation

- •Stroke
- •Heart Failure





How is Atrial Fibrillation Diagnosed?

- •Electrocardiogram (ECG) confirms diagnosis
- •Feel for the pulse in your wrist
- •Health care provider listening with a stethoscope



Electrocardiogram (ECG)







Normal Heart Rhythm



When the heart beats in a normal rhythm (known as 'sinus rhythm'), blood flows freely through its chambers.

Atrial Fibrillation



 Ventricles contract in an irregular and uncoordinated way.

When the rate of the electrical signals is very high, the atria quiver instead of contracting properly. They fail to pump all the blood out of the atria. The blood can pool and may form a clot. If a blood clot leaves the atria it can block an artery in the body, causing severe complications, such as stroke.



Conduction System of the Heart

Atrial Fib Video



Medication Therapy Medication Therapy Goals for Atrial Fibrillation include:

•Maintaining normal heart rhythm

- •-Antiarrhythmics (amiodarone, flecaniade, sotalol
- Controlling the heart rate
 - •Beta Blockers (metoprolol, atenolol, carvedilol, bisoprolol)
- Preventing stroke
 - •Anticoagulants, (Warfarin, Pradaxa, Eliquis, Xarelto)



Anticoagulants

Blood Thinners

•Coumadin, Jantoven (Warfarin)- take once a day

"New blood thinners"

- Eliquis (Apixaban) take twice a day
- Pradaxa (Dabigatran) take twice a day
- Xarelto (Rivaroxaban) -take once a day



What's the Difference?

Coumadin, Jantoven

- •Requires regular bloodwork (INR) to monitor the "thinness" of blood
- Interactions with food, other drugs and alcohol
- •Can be reversed if blood is too thin or bleeding develops



What's the Difference?

Pradaxa, Xarelto and Eliquis

- Do not require regular blood testing
- •Do not require dietary restrictions
- Only Pradaxa can be reversed if bleeding develops



Complications of Blood Thinners

- Unusual bruising
- •Bleeding from the gums
- •Blood in the urine or stool
- •Vomiting blood
- Nosebleeds
- •An unusual or severe headache

CALL YOU HEALTH CARE PROVIDER IF YOU DEVELOP ANY BLEEDING



Atrial Fibrillation Interventions

Deanna Walborn, RN Emily O'Hern, RN



Goals of Treatment

- •Maintain Normal Sinus Rhythm
- Rate Control
- Decrease Symptoms
- Decrease stroke risk



Treatment Overview

- Medication Therapy
- Cardioversion
- •Catheter Ablation Therappy
 - Radiofrerquency Ablation
 - •Cryo Ablation
- Implantable Cardiac Devices
 - •Pacemaker
- •MAZE Surgical Procedure





Cardioversion

•<u>Electrical cardioversion</u> is a process by which the heart is shocked to convert it from an irregular heart rhythm back into a normal sinus rhythm. The EKG illustration shows what the heart rhythm looks like before and after cardioversion.





Cardioversion – What to Expect

- Informed consent
- •Complete History and Physical
- Possible Transesophageal Echocardiogram prior or use of therapeutic anticoagulants at MD discretion
- •NPO after midnight the night before
- •Peripheral IV placement
- Moderate Sedation
- •Frequent vital signs and monitoring
- •Done in the EP lab or procedure room by EP Staff



Cardioversion – Post Procedure

- •Monitored until fully awake
- •May need hydrocortisone cream if skin is sore (sunburn)
- •No driving for 24 hrs, you need a ride home
- •Take it easy for the day $\textcircled{\odot}$

Know your heart rate, and how to find your pulse

Cardioversion is not a permanent solution, A-fib can return.



Catheter Ablation

•<u>Radiofrequency Ablation-</u> a minimally invasive catheter approach that delivers radiofrequency energy to destroy the abnormal electrical paths in the heart.

•<u>Cryo Ablation-</u> a minimally invasive catheter approach that freezes tissue to destroy the abnormal electrical paths in the heart.

One of the main differences between these techniques is the energy source used during the procedure. In RF ablation, heat is applied to the tissue, where in Cryoablation, **heat is removed** from the by introducing cold temperatures.

Both types of ablation result in the formation of scar tissue around the pulmonary veins.



Anatomy of the Heart



Atrial fibrillation ablation procedures focus on destroying cells in the left atrium around the pulmonary veins (PV) to block or isolate the abnormal electrical paths.



Anatomy of the Heart





Knowi

Atrial Fibrillation Ablation What to expect

- Informed consent
- Complete History and Physical
- •Certain medications may be held at MD discretion
- •NPO after midnight the night before
- Peripheral IV placement
- Moderate Sedation or General Anesthesia
- •Frequent vital signs and monitoring
- •Requires overnight stay in hospital



Atrial Fibrillation Ablation What to expect

- •Hair on chest, back, groin will be shaved
- •Vital Sign monitoring equipment is applied (blood pressure, EKG, oxygen saturation, other necessary patches)
- •MD will administer numbing medication to both groins.
- •A needlestick is made to the groin area through which catheters are inserted.
- •Catheters are threaded from the groin to the right atrium of the heart.
- •MD crosses through the wall that separates the right and left atria or upper chambers of the heart.
- •Pulmonary Veins are isolated (RF or Cryo)
- •Anticoagulants are given to help prevent blood clots
- •Done in the EP lab by Electrophysiologist and EP Staff



Atrial Fibrillation Ablation Post Procedure

- •Catheters will be removed and pressure held to insertion site to stop bleeding.
- •Monitored in recovery room or holding area until fully awake, then transferred to room for overnight stay.
- Strict bed rest will be instituted for at least 4 hours
 Head must remain on pillow
 - •Limited movement of both legs
- You may feel minor chest discomfort or bruising/soreness at insertion site – This is normal !
- •Activities may be limited for a few days; take it easy 😳



Atrial Fibrillation Ablation Post Procedure

- It is important to schedule and keep your post procedure appointments
- •Ask your doctor about return to work job dependent!
- •Your MD will want to monitor your healing
- •Expect heart rhythm to be monitored closely
- •Full success is not always achieved with one procedure
- •Many patients may continue anticoagulation following ablation



Radiofrequency











Implantable Cardiac Devices with Ablation Therapy

Another approach to atrial fibrillation treatment is "Pace and Ablate" therapy.

•This is most often utilized for patients:

- •Who are not a good candidate for ablation
- •For whom ablation has not been successful
 - Who cannot tolerate or have been unsuccessful with medication therapy

The goal of this option is to control the symptoms, it is not a cure for the atrial fibrillation itself.



Implantable Cardiac Devices with Ablation Therapy

•First, a pacemaker is implanted into the heart.

- •A single lead with a screw on the end is placed into the lower chamber of the heart.
- •A lead may also be placed into the upper chamber.
- •These leads are connected to the pacemaker.

•Secondly, an ablation is then performed to destroy the AV node (gatekeeper of the heart) so that signals from the atrium are no longer able to cause a fast and erratic heart rate.

•Atrial fib impulses will be isolated in the atria



Implantable Cardiac Devices with Ablation Therapy

- •The ablation may be done a couple of weeks after the implant of the pacemaker, or the same day.
- •The pacemaker "takes over" creating evenly spaced, normal heart beats.
- •The patient becomes dependent on the impulses generated by the pacemaker.
- •Must maintain regular patient-physician relationship for follow up, yearly testing, and pacemaker battery changes.



Pacemaker



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Knowing changes everything.[∞]

MAZE Procedure

There are three types of MAZE procedures.

- Cox Maze III a complicated set of incisions made in a maze-like pattern on the left and right atria (the upper chambers of the heart) to permanently interrupt the abnormal electrical signals that cause atrial fibrillation. When these incisions heal, the resulting scar tissue blocks the erratic electrical impulses that cause atrial fibrillation.
 - This is an invasive surgical procedure done under anesthesia in an OR setting
 - Requires open heart surgery with a Cardiothoracic Surgeon.
 - Most often done while another surgery on the heart is being performed.



MAZE Procedure

- Maze IV or Maze Ablation the same as above but done with radiofrequency ablation energy.
- Mini Maze A less invasive procedure where instead of having open heart surgery, the surgeon is able to perform the maze ablation procedure through a small hole in the thoracic (chest) cavity through which a camera, ablation catheter and surgical instruments are inserted.



Atrial Fibrillation - Statistics

- RF Catheter ablation
 - Reported 60% rate of success after one ablation
 - 70% after a second procedure
 - Paroxysmal Afib had a higher treatment success rate than persistent Afib.
 - Success rates were higher in centers who did a higher volume of these types of cases. ☺
- Cryo Ablation
 - 80% 91% success rate after one ablation
 - Afib free after one year.



Atrial Fibrillation - Statistics

- Cox Maze III
 - >96% Success Rate
- Maze Ablation
 - 85-91% reported rate of success
 - No Afib reported after 6 months
- Mini Maze
 - 80%-90% success rate, again varies by center and method used.







AFIB & STROKE: The Heart Brain Connection

Michelle Vallelunga, RN, MS, CNRN Data Coordinator, Stroke Program Upstate University Hospital January 25, 2016



Heart or Brain: Who wins?



- Answer: Neither, need to work together
- All organs are affected by heart issues but brain has the largest impact.
- Brain controls major body functions such as: our movement, speech and thinking and breathing.
- Brain needs good healthy blood from the heart to function properly. Heart and Brain are connected.



Stroke and Afib: How BIG is this?

- 15% of Strokes are due to untreated Afib per American Heart/Stroke Assoc.
- Afib increases your chances of a Stroke
 5 times that of the general population
- Uncontrolled High Blood Pressure is the most common cause of Afib and the highest risk factor for Stroke.
- Just getting older automatically increases risk for High Blood Pressure



Stroke Facts...

- In the United States:
 - New stroke every 45 seconds (700,000/ yr)
 - Death from a stroke every 3 minutes (150,000/yr)
 - 3rd leading cause of death
 - –#1 leading cause of adult disability



How can Afib Cause a Stroke?

• A picture is worth a 1000 words....

• Atrial Fib and Clot Formation



What is a Stroke?

- Stroke is referred to as "brain attack."
- Stroke is a sudden neurological deficit caused by interruption of blood flow to the brain.
- Brain has blood vessels. Like a tree, big branches and small ones which carry nutrients. If larger blood vessels are blocked <u>more</u> of the brain can be damaged



 Manifestations of the stroke depend on which region or extent of brain affected



Calculating risk for Stroke?

- CHADS2 Score main tool
- Used for Afib patients to help doctors determine risk for stroke and which medication regimen is right
- Higher score –more likely to be placed on Coumadin vs Aspirin & higher risk for Stroke





I have Afib! Don't want a Stroke

What can I do?







Control? How to do it.... Support your Heart



- **#1 Medication**: take blood thinners AS DIRECTED
- Follow Medication related instructions such as blood draws, BP checks and MD visits: <u>be</u> <u>diligent!</u>
- Medication: consistently take high blood pressure medication, cholesterol medications and others
- Ask for help! Spouse, child, friend to remind and support
- Be Smart: use tools to help: alarms, pill boxes, smart phones, notebook or logs



More Control..... #2 : Heart Healthy Diet Choices



✓ Control Sugar Intake--- High Blood Sugar stresses the heart
 ✓ A little goes a long way! Small changes are good too
 ✓ Watch FAT and Cholesterol---- many many options now
 ✓ Ask for a Nutrition consult : Dietician
 ✓ Cut back on caffeine and alcohol







Do what **YOU** can do! Not strenuous!! Anything in moderation and regularly is the ticket!



More Control..... #4: Lower Stress Do your best



Breathe Laugh Meditate Avoid Stressful situations: say No Do fun things/Hobbies Get good sleep/rest



More Control..... #5: Stay Aware: this is your "job"

- Know your body: keep it checked
- Know your resources: if you are feeling overwhelmed as for help: MD office, library, YMCA, Office of the Aging
- Read what you can
- Know the SIGNS of Stroke and What to do!!



Signs of Stroke

- Sudden numbress or weakness, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing
- Sudden dizziness, trouble walking or loss of balance
- Sudden, severe headache



Think "FAST"



Stroke Warning Signs and Symptoms



What Next? Panic? NO!!! Call 911

- Don't try to bring the person yourself
- EMS communicates with the hospital and can help if symptoms worsen or change
- Do not ignore the symptoms even if they go away!!





What is a Comprehensive Stroke Center?

- Certified by DNV Healthcare
- Cares for ALL types of stroke patients
- 24/7 access to endovascular procedures
- 24/7 on site neurosurgical availability
- Three levels of specialized neuroscience nursing care
 - Neuro ICU
 - Neuro Step-down
 - Neuro floor
- Multidisciplinary approach to stroke care across the continuum of the disease process
- Catheter based therapy for patients beyond the tPA window.
- Only 5 Comprehensive Stroke Centers in NYS









New York State Department of Health





Pass the Word about Stroke!

- Tell others about F-A-S-T
- Friends, Family, Colleagues, Church Groups
- Talk it up!!
- THANK YOU.....



Sources

- Www.StopAFib.org
- www.afibmatters.org/
- <a>www.heart.org/HEARTORG
- Www.Medtronic.com
- Www.MedtronicAcademy.com



Thanks! Any Questions??