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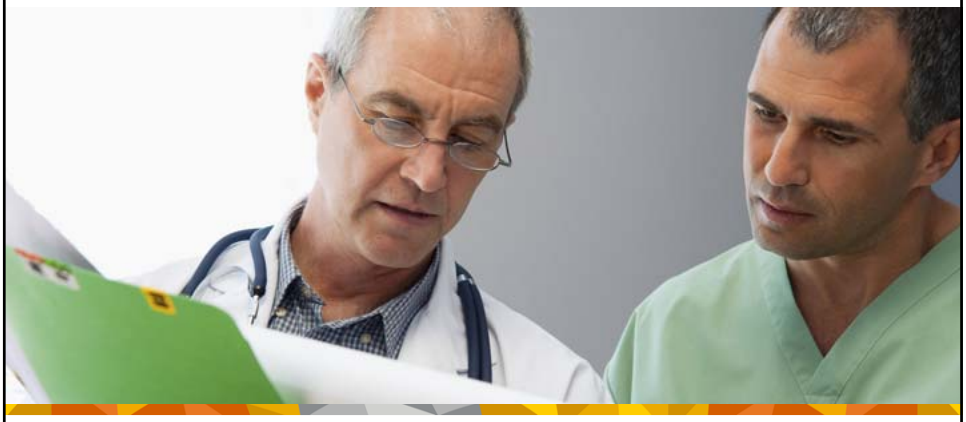

Atrial Fibrillation – Pharmacological Treatment, Interventional Management and Anticoagulation Therapy

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Agenda

- Etiology of atrial fibrillation
- Risk factors for atrial fibrillation
- Clinical presentation of atrial fibrillation
- Treatment options for management of atrial fibrillation
  - Antiarrhythmic medications
  - Anticoagulation
  - Interventions
- Complications of atrial fibrillation
- The relationship between physical and behavioral health in atrial fibrillation
- Case studies
- Case management opportunities

Objectives

At the end of this activity, participants should be able to:

- Discuss the clinical features, risk factors, diagnosis and management of atrial fibrillation;
- Recognize the relationship between physical and behavioral health in Members with atrial fibrillation;
- Discuss pharmacologic treatment of atrial fibrillation including antiarrhythmic agents and anticoagulation; and
- Identify treatment strategies for atrial fibrillation including rate control, rhythm management, anticoagulation therapy, interventional procedures and surgical intervention

Atrial Fibrillation – Scope of the Problem

- The most common cardiac arrhythmia in the United States
  - 2.7 – 6.1 million adults (2015)
  - $6 billion per year directly attributed to atrial fibrillation (2015)[1]
  - 9% incidence among Medicare beneficiaries over age 65 (2010)[2]
- Independent predictor of increased mortality
- Associated with increased mortality rate for patients with other cardiovascular problems including heart failure, myocardial infarction, coronary artery bypass surgery and stroke[1]

[1] 2016 ACC/AHA Clinical Performance and Quality Measures for Adults with Atrial Fibrillation or Atrial Flutters, Section 1.1, *Scope of the Problem* www.ahajournals.org/doi/pdf/10.1161/HCQ.0000000000000018

[2] 2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation. Section 2, *Background and Pathophysiology,* www.ahajournals.org/ doi/pdf/10.1161/CIR.0000000000000041

Etiology of Atrial Fibrillation

- Structural abnormalities of the atria
  - Dilation (enlarged atrial size)
  - Fibrosis (scaring)
  - Ischemia (coronary artery disease)
  - Infiltrative diseases (amyloidosis, sarcoidosis, hemochromatosis)

- Extracardiac factors
  - Comorbidities (see risk factors)
  - Autonomic nervous system (sympathetic / parasympathetic)
  - Renin-Angiotensin-Aldosterone stimulation

2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation. Section 2.2, *Mechanism of AF and Pathophysiology,* www.ahajournals.org/ doi/pdf/10.1161/C IR.0000000000000041

Risk Factors for Atrial Fibrillation

- Valvular heart disease
- Cardiomyopathy / heart failure
- Myocarditis / pericarditis
- Recent surgery (particularly cardiac surgery)
- Pulmonary embolism
- Increasing age
- Hypertension
- Obesity
- Obstructive sleep apnea
- Diabetes
- Alcohol use (particularly binge drinking)
- Smoking
- Hyperthyroidism
- Infiltrative diseases (amyloidosis, sarcoidosis, hemochromatosis)

2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation. *Mechanism of AF and Pathophysiology and Table 5*, www.ahajournals.org/ doi/pdf/10.1161/C IR.0000000000000041

Presentation of Atrial Fibrillation

The presentation of atrial fibrillation is very variable

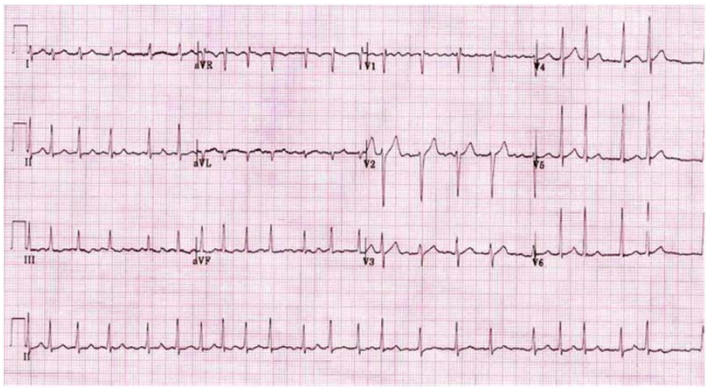
- May be asymptomatic
- Palpitations
- Weakness
- Activity / exercise intolerance
- Dyspnea
- Syncope[1]
- Cerebrovascular accident[2]
- May be found incidentally in patients who present with other cardiac pathology (heart failure, acute myocardial infarction)[1]

[1] 2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation. Section 2, *Background and Pathophysiology*, *www.ahajournals.org/ doi/pdf/10.1161/C IR.0000000000000041*

[2] Guidelines for the Primary Prevention of Stroke, *Assessing the Risk of first Stroke,* www.ahajournals.org/doi/pdf/10.1161/STR.0000000000000046

Electrocardiogram in Atrial Fibrillation

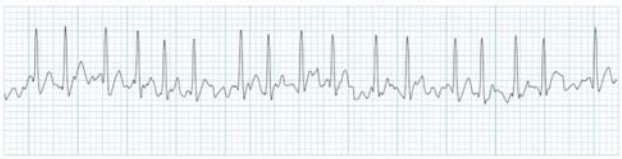
Atrial fibrillation is irregularly irregular.



Edward Burns/FashLane EKG Strips: lifeinthefastlane.com/ecg-library/atrial-fibrillation, used for educational purposes

Atrial Fibrillation vs. Atrial Flutter

Atrial fibrillation and atrial flutter are related but different dysrhythmias



Atrial fibrillation – irregularly irregular[1]

Atrial flutter – commonly very regular[2]

[1] Edward Burns, Fastlane EKG Strips, lifeinthefastlane.com/ecg-library/atrial-fibrillation, used for educational purposes
[2] Edward Burns, Fastlane EKG Strips, lifeinthefastlane.com/ecg-library/atrial-flutter/, used for educational purposes

Atrial Fibrillation - Definitions

- **Paroxysmal Atrial Fibrillation**
  - Terminates within 7 days, spontaneously or with treatment
  - May recur with variable frequency
- **Persistent Atrial Fibrillation**
  - Continuous for longer than 7 days
- **Long-standing Atrial Fibrillation**
  - Continuous for longer than 12 months
- **Permanent Atrial Fibrillation**
  - Patient and treating physician stop trying to achieve sinus rhythm
  - Definition based on treatment intent – not clinical issues or duration
- **Non-valvular Atrial Fibrillation**
  - Occurs in the absence of rheumatic mitral stenosis, previous mitral valve repair or a prosthetic heart valve
  - Most cases of atrial fibrillation are considered non-valvular

UpToDate, Overview of atrial fibrillation, *Non-valvular versus Valvular Heart Disease and Classification* sections, https://www.uptodate.com/contents/overview-of-atrial-fibrillation?search=Atrial%20Fibrillation &source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1

Complications of Atrial Fibrillation

- Cerebral embolization (stroke)
- Systemic embolization (renal, gastrointestinal tract, extremities)
- Loss of atrioventricular synchrony / reduced cardiac output
- Persistent symptomatology
- Need for long-term pharmacological therapy
  - Antiarrhythmic therapy
  - Anticoagulation therapy

Guidelines for the Primary Prevention of Stroke, www.ahajournals.org/doi/pdf/1 0.1161/STR.0000000000000046

Cerebrovascular Embolization in Atrial Fibrillation

- The risk of stroke is increased by a 4-to 5-fold in atrial fibrillation[1]
- Approximately 10% of ischemic strokes related to atrial fibrillation
- The risk of stroke in atrial fibrillation is highly variable dependent on multiple clinical factors:
  - The risk of stroke is approximately 3.5% per year at age 70[2]
- Stroke related to atrial fibrillation is likely to be more severe than stroke not related to AF[3]

[1] 2016 ACC/AHA Clinical Performance and Quality Measures for Adults with Atrial Fibrillation or Atrial Flutters, Section 1.1 *Scope of the Problem,* www.ahajournals.org/doi/pdf/10.1161/HCQ.0000000000000018

[2] AHA/ASA Guidelines, Guidelines for the Primary Prevention of Stroke, *Atrial Fibrillation*, www.ahajournals.org/doi/pdf/10.1161/STR.0000000000000046

[3] Guidelines for the Primary Prevention of Stroke, Section 2, *Background and Pathophysiology,* www.ahajournals.org/doi/pdf/10.1161/STR.0000000000000046

Management of Atrial Fibrillation

The Primary Goals of Treatment

1. **Eliminate or reduce symptoms**
2. **Prevent stroke and other thromboembolic events**

UpToDate: Overview of atrial fibrillation, *Treatment Issues*, https://www.uptodate.com/contents/overview-of-atrial-fibrillation?search=atrial%20fibrillation&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1

Management of Atrial Fibrillation

- **Rate control**
  - Slow rapid ventricular rate
- **Rhythm control**
  - Cardioversion (first line intervention if unstable hemodynamics)
  - Medications
  - Ablation procedures
  - Surgery (Maze procedure)
- **Prevent thromboembolism**
  - Antithrombotic medications
  - Surgery
  - Devices

UpToDate: Overview of atrial fibrillation, *Treatment Issues*, https://www.uptodate.com/contents/overview-of-atrial-fibrillation?search=atrial%20fibrillation&source=search_result&selectedTitle=1~150&usage_type= default&display_rank=1

Pharmacological Agents used for Atrial Fibrillation

- **Rate control**
  - Beta blockers (metoprolol, esmolol, carvedilol, etc.)
  - Calcium channel blockers (diltiazem, verapamil)
  - Amiodarone (Cordarone®, Pacerone®, Nexterone®)
  - Digoxin (used less commonly than in past)
- **Rhythm control**
  - Amiodarone (Cordarone®, Pacerone®, Nexterone®)
  - Dofetilide (Tikosyn®)
  - Dronedarone (Multaq®)
  - Flecainide (Tambocor®)
  - Propafenone (Rhythmol®)
  - Sotalol (Betapace®)

Lexicomp, online.lexi.com/lco/action/home

Determining the Risk of Stroke in Atrial Fibrillation

CHA_2DS_2VASc (For Non-valvular Atrial Fibrillation)

	Condition	Score if present
C	Congestive Heart Failure	1
H	Hypertension	1
A_2	Age 75 years or older	2
D	Diabetes mellitus	1
S_2	Prior stroke, TIA or thromboembolism	2
V	Vascular disease	1
A	Age 65 -74	1
Sc	Sex category - Female	1

Sex category: male = 0 points / female = 1 point

The maximal possible score is 9 since the two age categories are mutually exclusive.

Guidelines for the Primary Prevention of Stroke, *Table 3,* www.ahajournals.org/doi/pdf/10.1161/STR.0000000000000046

Antithrombotic Therapy in Atrial Fibrillation

Using the CHA_2DS_2VASc Score for antithrombotic therapy

- CHA_2DS_2VASc Score 0 – No antithrombotic therapy
- CHA_2DS_2VASc Score 1 – Anticoagulation or Antiplatelet
- CHA_2DS_2VASc Score 2+ – Anticoagulation

** *CHA_2DS_2VASc used only in cases of non-valvular atrial fibrillation*

Guidelines for the Primary Prevention of Stroke, *Prevention of Thromboembolism*, www.ahajournals.org/doi/pdf/10.1161/STR.0000000000000046

Antithrombotic Therapy in Atrial Fibrillation

- Antithrombotic medications prevent the formation of clot (thrombus)[1]
- There are two groups of antithrombotic medications:
  - Antiplatelet agents
  - Anticoagulant Agents
    - Warfarin
    - Non-Vitamin K Oral Anticoagulants (NOACs)[2]
      - Alternate term is Direct Oral Anticoagulants (DOACs)[3]
- Antithrombotic medications do not 'thin' or dilute the blood in any way Recommend avoiding the term "blood thinners"

[1] UpToDate: Atrial fibrillation: Anticoagulant therapy to prevent embolization, *Introduction*
[2] UpToDate: Atrial fibrillation: Anticoagulant therapy to prevent embolization, *Impact of Anticoagulation*
www.uptodate.com/contents/atrial-fibrillation-anticoagulant-therapy-to-prevent-embolization?search=Overview%20of%20Atrial%20Fib&source=search_result&selected Title=9~150&usage_type=default&display_rank=9
[3] UpToDate: Management of bleeding in patients receiving direct oral anticoagulants Management of bleeding in patients receiving direct oral anticoagulation, *Direct oral anticoagulants*, www.uptodate.com/contents/management-of-bleeding-in-patients-receiving-direct-oral-anticoagulants?search=DOAC%20Medication&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1

Antithrombotic Therapy in Atrial Fibrillation

Antiplatelet Agents

- Inhibit the function of platelets (thrombocytes)[1]
- Commonly used antiplatelet agents
  - Aspirin
  - Clopidogrel (Plavix®)
  - Prasugrel (Effient®)
  - Ticagrelor (Brilinta®)[2]
- May be used in non-valvular atrial fibrillation when CHA_2DS_2VASc Score is 1
- Dual antiplatelet agents (aspirin + a second drug) are primarily used to prevent thrombus in coronary, carotid or peripheral arteries. This is recommended therapy after placement of stents in an artery[3]

[1] UpToDate: Atrial fibrillation: Anticoagulant therapy to prevent embolization, Introduction, www.uptodate.com/contents/atrial-fibrillation-anticoagulant-therapy-to-prevent-embolization?search=Atril%20Fibrillation&source=_search_result&selectedTitle=2~150&usage_type=default&display_rank=2

[2] Lexicomp, online.lexi.com/lco/action/home

[3] 2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation, *Class IIa, Prevention of Thromboembolism, and Interruption and Bridging Anticoagulation, www.ahajournals.org/doi/pdf/10.1161/CIR.0000000000000041*

Antithrombotic Therapy in Atrial Fibrillation

Warfarin Anticoagulation - I

- The most widely used anticoagulant, available clinically since 1954
- Brands in US are Coumadin® and Jantoven®
- Mechanism is inhibition of action of Vitamin K in synthesis of 4 coagulation factors by the liver (Factors II, VII, IX, X)
- The degree of anticoagulation is determined by the Prothrombin Time (PT) which is generally reported as the International Normalized Ratio (INR)
- The interval from taking the dose to change in INR is 2-5 days
- Many factors influence stability of anticoagulation with warfarin including diet, other medications, activity and genetics

Lexicomp, online.lexi.com/lco/action/home

Antithrombotic Therapy in Atrial Fibrillation

Warfarin Anticoagulation - II

- Consistency is critical
  - Same brand or generic product if possible
  - Take medication at same time of day (evening is practical)
  - Check INR at same lab, clinic or physician office
  - INR early in day to allow recheck and/or dose adjustment the same day
  - Vitamin K consistent diet (consistent …. not necessarily restricted)
  - Consistent physical activity
- Unstable INR
  - Medication adherence (missed, delayed or doubled doses?)
  - Medication changes (amiodarone? antibiotics?)
  - Dietary changes (vitamin K over-restriction / binging?)
  - Laboratory testing (too often / too early after dose change?)
  - Concomitant illness

Lexicomp, online.lexi.com/lco/action/home

Antithrombotic Therapy in Atrial Fibrillation

NOACs / DOACs- I

- Non-Vitamin K Oral Anticoagulants / Direct Oral Anticoagulants
- Mechanism is direct inhibition of action of a specific coagulation factor
- Factor Xa inhibitors
  - Apixaban (Eliquis®)
  - Rivaroxaban (Xarelto®)
  - Endoxaban (Savaysa®)
- Factor II inhibitors (Direct Thrombin Inhibitor = DTIs)
  - Dabigatran (Pradaxa®)
- Look for the letters **Xa** in the name to identify NOACs / DOACs
- NOACs / DOACs are much more expensive than warfarin

Lexicomp, online.lexi.com/lco/action/home

Antithrombotic Therapy in Atrial Fibrillation

NOACs / DOACs- II

- Equal to or better than warfarin in prevention of stroke in most patient with atrial fibrillation (but not all)
- Advantages of NOACs / DOACS
  - Fixed dosage for most patients (poor renal function is key exception)
  - Rapid onset of action (1-4 hours to maximal effect)
  - No routine laboratory monitoring
  - Few drug interactions (exceptions are some antifungal and antiviral agents)
  - No dietary interactions / restrictions
- Bleeding with NOACs / DOACS
  - Bleeding risk is favorable compared to warfarin – but bleeding still a risk
  - Specific reversal agents for Dabigatran and for the Factor Xa inhibitors
  - Prothrombin Complex Concentrate (4F-PCC / aPCC) may also be used

Lexicomp, online.lexi.com/lco/action/home

Antithrombotic Therapy in Atrial Fibrillation

Special circumstances necessitating warfarin anticoagulation

- Mechanical heart valve prosthesis
- Rheumatic mitral stenosis[1]
- Time period surrounding cardioversion
  - Minimum 3 weeks before and 4 weeks after[2]

[1] UpToDate, Atrial fibrillation: Anticoagulant therapy to prevent embolization, *Select an anticoagulant,* www.uptodate.com/contents/atrial-fibrillation-anticoagulant-therapy-to-prevent-embolization?search=Antithrombotic%20Therapy%20in%20Atrial%20Fibrillation&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1

[2] 2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation, *Selecting tx to reduce stroke risk in pts with AF*, www.ahajournals.org/doi/pdf/10.1161/STR.0000000000000046

Surgery for Atrial Fibrillation

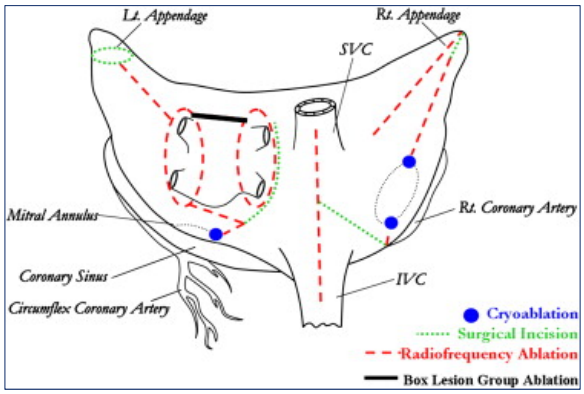
The Cox Maze Procedure - I

- Incisions, radiofrequency ablation and cryoablation within the left and right atria block fibrillation and flutter
- The left atrial appendage is routinely removed, thus reducing future risk of thromboembolism
- May be done at same time as other cardiac surgical procedures including valve replacement and coronary artery bypass
- Sinus rhythm is achieved and maintained in over 90% of patients
- A modified (limited) version of the procedure can be done from the outer surface of the heart using open or thoracoscopic approach

UpToDate, Surgical ablation to prevent recurrent atrial fibrillation, ww.uptodate.com/contents/surgical-ablation-to-prevent-recurrent-atrial-fibrillation?search=Cox%20Maze&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1

Surgery for Atrial Fibrillation

The Cox Maze Procedure - II



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Catheter Ablation for Atrial Fibrillation

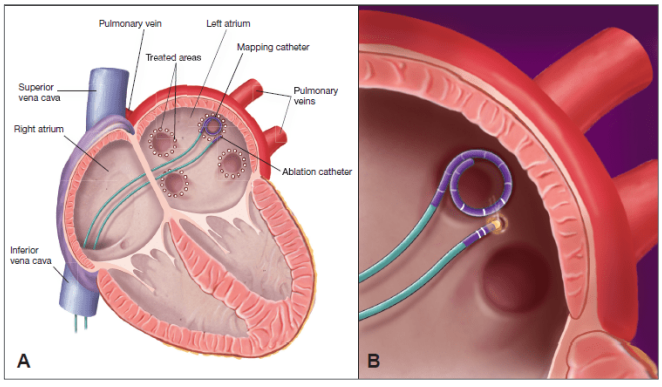
Radiofrequency Ablation I

- Catheter passed through accessible vein – usually femoral vein
- For atrial fibrillation, the areas of ablation is around the ostia of the pulmonary veins (where the veins from the lung enter the heart)
- For atrial flutter, the target is in the lower right atrium
- Most common energy source is radiofrequency
- Persistent or recurrent atrial fibrillation is common early after the procedure
- Repeat procedures may be necessary (generally after 3 months)
- Success at terminating atrial fibrillation / flutter is very high
- Anticoagulation needed after the procedure

2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation, www.ahajournals.org/doi/pdf/10.1161/CIR.0000000000000041

Catheter Ablation for Atrial Fibrillation

Radiofrequency Ablation II



AJNO: Copyright Clearance, https://ajnoffthecharts.com/catheter-ablation-of-atrial-fibrillation-essentials-for-nurses, used for educational purposes

The Left Atrial Appendage in Atrial Fibrillation

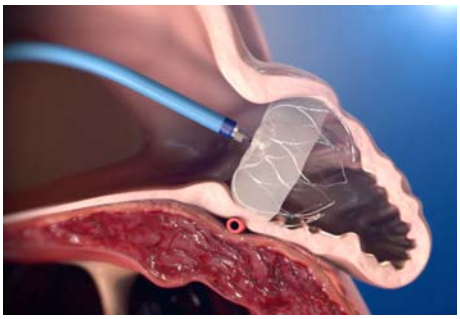
- The left atrial appendage is the primary source of emboli in patients with atrial fibrillation
- The left atrial appendage is excised during a Maze procedure
- In patients undergoing cardiac surgery, occlusion of the left atrial appendage is associated with reduce risk of subsequent stroke and all cause mortality
- Evolving technology and techniques enable closure of the atrial appendage by percutaneous interventional approaches and by thoracoscopic techniques
- In two clinical trials, the Watchman® device has been found to be non-inferior to warfarin in preventing stroke in patients with atrial fibrillation
- Clinical trials underway for a number of other devices

2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation, *www.ahajournals.org/doi/pdf/10.1161/CIR.0000000000000041*

The Left Atrial Appendage in Atrial Fibrillation

Devices for occluding the left atrial appendage

Watchman® device in left arial appendage



www.watchman.com /content/dam/bostonscientific/Rhythm%20Management/portfolio-group/ WATCHMAN/download-center/hospital-media-kit/WATCHMAN device_implanted_in_LAA1_v2.jpg, used for educational purposes

AtriClip® device on applicator

AHA Journal, copyright clearance, circ.ahajournals.org/content/118/Suppl_18/S_860.1, used for educational purposes

Key Points in Case Management for Atrial Fibrillation

- Inquire about the cause of atrial fibrillation
- Confirm that heart rate is controlled. What is pulse rate?
- Is Member on therapeutic anticoagulation? What antithrombotic drugs?
- Does Member have a mechanical heart valve? If yes, think warfarin.
- If a Member is on warfarin, who is managing the anticoagulation regimen?
- What is dose of warfarin? What is INR and target?
- Discuss signs and symptoms of bleeding
- Address Comorbidities
  - Heart failure
  - Coronary artery disease / atherosclerosis
  - Hypertension
  - Obstructive sleep apnea
  - Diabetes
  - Obesity

Mental Health Considerations in Atrial Fibrillation

- Inquire about the Member's understanding of the diagnosis of atrial fibrillation.
  - What were the main presenting symptoms?
  - What did it feel like?
  - Was there stress or physical or emotional trauma involved at the onset of symptoms?
- How did the Member know to seek medical advice / care?
- Be sure to inquire about psychiatric history
  - Atrial fibrillation occurs more commonly in patients with bipolar disorder than with schizophrenia

Acta Cardiol Sin, Bipolar Disorder and Schizophrenia, 2014;30:46-52, www.ncbi.nlm.nih.gov/pmc/articles/PMC4804820

Mental Health Considerations in Atrial Fibrillation

Anxiety, Depression and Stress

- There appears to be a relationship between mental health issues and atrial fibrillation …. but
  - The impact of behavioral diagnoses on the occurrence of atrial fibrillation is unclear
  - It is uncertain which is the chicken and which is the egg here
- The impact of stress
  - Biological / oxidative stress
  - Emotional / perceived stress
    - Traumatic events are more highly associated with stress in women than men
  - What is the appropriate role if stress management techniques here?
- Consider underlying metabolic disorders, alcohol and drugs
  - Thyroid, parathyroid and adrenal
  - Alcohol, tobacco, stimulants, etc.

UpToDate: **Anxiety, Depression and Stress,** Traumatic events are more highly associated with stress in women than men, www.uptodate.com/contents/acute-stress-disorder-in-adults-epidemiology-pathogenesis-clinical-manifestations-course-and-diagnosis?search=Stress&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1

Mental Health Considerations in Atrial Fibrillation

Cognitive Impairment

- Is atrial fibrillation an independent risk factor for cognitive decline?
  - Causation is uncertain because of common risk factors:
    - Heart failure
    - Atherosclerotic cardiovascular / cerebrovascular disease
    - Hypertension
    - Diabetes mellitus
    - Obstructive sleep apnea
    - Alcohol use / abuse
- Atrial fibrillation is a risk for cerebrovascular accident which may cause or exacerbate cognitive impairment

Guidelines for the Primary Prevention of Stroke, *Assessing the Risk of first Stroke,* www.ahajournals.org/doi/pdf/1 0.1161/STR.0000000000000046

Case Study - 1

Ms. A. Fibber is 76 year old woman with a history of congestive heart failure due to a long history of poorly controlled hypertension. She has diabetes on oral medications. She has a history of peripheral vascular disease for which she has had previous stenting. She is on clopidogrel (Plavix®).

Ms. Fibber was hospitalized for a transient ischemic attack (TIA). She was found to be in atrial fibrillation with a heart rate of 96 beats per minute. She denies any cardiac symptoms. There is no residual neurological deficit. Carotid arteries do not have significant disease. Ms. Fibber was discharged home with one new prescription which she was told to fill promptly and to take twice daily. She has discharge instructions.

What information is needed on the TCM call?

Case Study - 2

During your call, Ms. Fibber reports that her medication is a ‘blood thinner’. She is unable to recall the name of the medication or to read the full name on the label because it is partially torn. Ms. Fibber remarks that the name ends in ‘…xaban’. The Pharmacist told her that even though the medication was expensive, she would be happy that she did not have to change anything in her diet just because of her anticoagulant medication.

Which of the following statement(s) is/are correct regarding this medication?

Case Study - 3

On the follow-up call 1 week later, Ms. Fibber said she is starting to wonder if she really needs to be on an anticoagulant. She read something on the internet that makes her think the risk of bleeding is really high and she does not think she is really at risk for a stroke. She confirms that she is not having any signs or symptoms of bleeding or stroke. She states, “That website just got me wondering.”

You encourage Ms. Fibber to continue to take her anticoagulant - and all of her other medications - as prescribed and to make a point to discuss this with her Cardiologist at her upcoming visit next week.

Considering Ms. Fibber’s stroke risk, which of the following is true?

Case Study - 4

On a follow-up call three months after hospital discharge, you discover that Ms. Fibber had a radiofrequency ablation procedure. She has been predominantly in sinus rhythm since the procedure. A Watchman® device was placed in the left atrial appendage during the same procedure. The EP Cardiologist is pleased with her progress. Left ventricular function is unchanged with EF 50% (HFpEF). She has had no bleeding problems. Anticoagulation therapy with the same DOAC / NOAC will be continued for about a year and then they will reassess further antithrombotic therapy.

At this time, appropriate management includes which of the following?

Thank You.

Appendix 1 – Assessing the Risk of Bleeding

- **HAS-BLED Risk Score for Assessing Bleeding Risk with Anticoagulation**

H - Hypertension *(>160 mmHg)*
A - Abnormal renal function *(Cr > 2.26 mg/dl)*
A - Abnormal hepatic function
S - Prior stroke
–
B - Prior major bleeding
L – Labile INR *(<60% time in range)*
E – Elderly *(age > 65)*
D – Drugs predisposing to bleeding *(Antiplatelet agents / NSAIDs)*
D – Drugs *(Prior drug or alcohol use)*

Score of 3 or greater indicates increased risk of bleeding
The maximal possible score is 9

2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation, www.ahajournals.org/doi/pdf/10.1161/CIR.0000000000000041

References

2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation - A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and the Heart Rhythm Society. Published December 2014. Accessed July 1, 2018. circ.ahajournals.org/content/early/2014/04/10/CIR.0000000000000041

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