Atrial Fibrillation—The Basics

Family Practice Symposium
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Objectives
• Review the fundamentals of managing afib
• Discuss the risks for stroke and the indications for anticoagulation
• Identify tests that assist the workup of afib
• Recognize the implications of rate control alone vs. cardioversion and rhythm control
• Summarize the technique and the indications for afib ablation

Definition
• Chaotic atrial arrhythmia resulting in atrial mechanical dysfunction
  – Reduces cardiac output
  – Predisposes to clot formation
• EKG: p-waves replaced by fast, oscillating activity with irregularly irregular QRS
• Ventricular response determined by AV node properties, autonomic tone, drugs
Prevalence/Fast Facts

- Most frequent arrhythmia in clinical practice
  - More than 2 million patients in US
  - Prevalence increases dramatically with age
- Mortality rate double that of pts without afib
  - Linked to severity of coincident disease
- Usually easy to control, difficult to cure
- Compared to general population, risk for stroke is 6x higher in nonvalvular afib and 17x higher in rheumatic valvular afib

Initial Management

- Rate control
  - Bblocker, CCB (not nifedipine class), digoxin
- Anticoagulation
  - Evaluate stroke risk factors
- Cardioversion?
- Etiology

Which Rate-control agent is best?
Generally beta-blocker and CCB are considered equivalent
  – Consider other conditions (ex. ischemic heart disease) and contraindications (ex. asthma)
• BB preferable when activity-induced
• Digoxin
  – Ideal for patients with low EF
  – Can be helpful as a second agent (particularly when treatment is limited by low BP)

Who Needs Warfarin?

Afib Stroke Risk Myths
• Risk for stroke is higher in patients with chronic afib
• All afib patients benefit from being on warfarin
• Risk is similarly elevated in all patients over the age of 65
• Risk for stroke related to frequency of paroxysms
Data on Stroke Prevention

- ASA has been shown in meta-analyses to reduce risk by 11-33% vs. placebo
- ASA prevents non-disabling strokes better than disabling strokes (often cardioembolic)
- Warfarin has been shown in meta-analyses to reduce risk by 60-80% vs. placebo
  - Both disabling and non-disabling strokes
- Warfarin vs. ASA...33% RRR on warfarin
What if they’re already on ASA for known CAD or for primary prevention?

- ASA and warfarin have similar benefit in secondary prevention of CAD…we use ASA because of its lower risk
- There is conflicting data regarding the benefit of (antiplatelet + anticoagulant) vs. anticoagulant alone
  - European trials…ASA, warfarin not used
- Combination therapy probably has small increased bleeding risk
The choice for long-term management of patients with CAD and AF therefore involves aspirin alone, aspirin plus moderate-intensity warfarin (INR 2.0 to 3.0), or warfarin alone (INR 2.0 to 3.0). For those with risk factors for stroke, the latter 2 regimens are more effective than aspirin alone but are associated with more bleeding and inconvenience. Further, without close INR control, the combination regimen may be associated with a greater risk of bleeding. For most patients with AF who have stable CAD, warfarin anticoagulation alone (target INR 2.0 to 3.0) should provide satisfactory antithrombotic prophylaxis against both cerebral and myocardial ischemic events.

Insert McAveney Bias

- Warfarin alone is probably best for patients with afib plus stable CAD or isolated risk factors such as hypertension
- I tend to use ASA + Warfarin in pts with afib plus CAD with poorly controlled risk factors or with diabetes
- Warfarin + Clopidogrel is the recommended regimen for pts with afib plus recent PCI

Who needs an echo?
Everyone.

Causes of Atrial Fibrillation
- Pulmonary (PNA, COPD, Pulmonary embolism)
- Ischemic heart disease (ex. post-MI)
- Rheumatic or valvular heart disease
- Atrial myxoma
- Thyrotoxicosis
- EtOH (holiday heart)
- Systemic HTN… the #1 predisposing condition

Therefore...
- Echo is indicated in all new cases of afib to determine etiology and to risk stratify for stroke
- Echo is helpful in determining safety of certain antiarrhythmics
- TSH, lytes should also be done
Who needs a stress test?

Not everyone.

- Not routinely indicated for initial eval
  - Occult ischemia is rarely a triggering factor
- May be helpful in pts with chest pains, particularly when worsened by rapid afib
- Must be considered before initiating certain anti-arrhythmics in pts with risk for CAD

When Is a Rate Control Strategy okay?
When should I consider cardioversion?

Some General Indications…

- Hemodynamic instability
- First persistent episode documented
- Significant symptoms
  - Heart failure
  - Angina
  - Intolerable or bothersome palpitations
When should anti-arrhythmic drugs (AADs) be considered?

- Heart failure
- Angina
- Intolerable or bothersome palpitations
- Exercise intolerance in the younger pt

When patients are symptomatic in afib.

- Heart failure
- Angina
- Intolerable or bothersome palpitations
- Exercise intolerance in the younger pt
When is it safe to cardiovert?

Duration of paroxysm is clearly < 48 hours (preferably < 24 hours)
– Stuttering or vague symptoms in the last several weeks or months raises concern
• The patient has been on warfarin at therapeutic levels for at least one month
• TEE is negative for intracardiac thrombus
  – Left atrial appendage is particularly important

Stroke risk is low when...

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...and

• After cardioversion of afib > 48 hours duration, anticoagulation should be continued for a minimum of 4 weeks
Which antiarrhythmic should I prescribe?

None. That’s our job.

• AADs carry significant potential toxicities
  – Flecainide, propafenone can increase mortality in pts with ischemic heart disease (CAST trial)
  – Sotalol is not particularly safe in pts with heart failure or HTN + LVH...even in structurally normal hearts the risk of torsade de pointes is significant
  – Amiodarone, the least proarrhythmic AAD, has the longest list of extracardiac toxicity

What about Flutter?
Treat it like fib, except…
• Stroke risk is probably slightly less than afib, though the risk is still significantly higher than NSR
• Anticoagulation recommendations are therefore the same
• Flutter, unlike fib, is often curable with relatively low procedure risks…these patients should be referred to cardiology

Who are the most appropriate candidates for Pulmonary Vein Isolation Procedure (Afib Ablation)?

Patients with recurrent paroxysmal atrial fibrillation whose symptoms are uncontrolled on medical or anti-arrhythmic therapy.
Afib Ablation Quick Facts

• Trans-septal approach
• Connected ablation of PV entry into LA
• Success Rate: ~60%, may require repeat
• Risks include stroke (1-2%), tamponade (1%), pulmonary vein stenosis (1%), and atrioesophageal fistula (<<1%)
• Reserved for patients with symptomatic afib despite good rate control after failed anti-arrhythmic therapy

Summary

• First goal is recognition and hemodynamic management (rate control)
• Decision to anticoagulate is based on CHADS₂ risk factors, not the frequency of afib episodes
• Rate control is a reasonable strategy in patients who are asymptomatic (and older)
• Rhythm control carries some risk but may be worth it in patients with severe symptoms

References

• AHA/ACC/ESC Practice Guidelines
• www.acc.org
  – Clinical Statements under Quality & Science