Clinical Controversies – Management of Atrial Fibrillation

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Topics in Emergency Medicine
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Atrial Fibrillation – Topics for Today

- Rate control
- Rhythm control
  - Drugs
  - Cardioversion
  - Ablation
- Anti-coagulation

Atrial Fibrillation in the ER – Topics for Today

- Rate control
- Rhythm control
Pharmacological management of patients with newly discovered A-Fib

Options for Rate Control

- Beta-blockers
- Calcium Channel blockers
- Digoxin
- AV nodal ablation

When to choose which drug for rate control?

- Beta-blockers
  - Post-op
  - Hyperthyroid
  - CAD or myocardial ischemia (if BP can tolerate it)
  - Chronic CHF (but with great care)
- Calcium channel blockers
  - COPD
  - No CHF

Case 1 -- 28 year old with palpitation while playing basketball
How would you treat him – BP 114/78 mmHg?

1. Lopressor
2. Adenosine
3. Digoxin
4. Verapamil
5. Procainamide

Case 1 -- 28 year old with palpitation while playing basketball

- Procainamide
- Ibutilide
(no adenosine)

WPW with Atrial Fibrillation

Case 2 -- 70 year male with nausea, hypotension

WPW – with delta waves seen
How would you treat this patient?

1. Digoxin
2. Verapamil
3. Lopressor
4. Amiodarone
5. None of the above

Case 2 -- 70 year male with nausea, hypotension

Case 2 – Coronary Angiogram

Case 2 - Right Coronary Artery
Case 2: Post PTCA and Stent

Clot after Thrombectomy

Case 3 – 57 year old with history of alcohol use who presents with lightheadedness and BP 92/68 mmHg

Would you cardiovert this patient?
1. Yes – no need for heparin prior to cardioversion
2. Yes – but give heparin first and then cardiovert
3. No
Case 3 – 57 year old with history of alcohol use who presents with lightheadedness and BP 92/68 mmHg

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Rhythm control – which agent to choose?

No dronedrone for persistent A-fib

Courtesy Mayo Clinic
Case 4 – 64 year old with 6 hours of palpitations. BP 100/72 mmHg

Which one of the following statements is true?

1. Give heparin and cardiovert
2. Before you cardiovert, obtain a transthoracic echocardiogram to rule out atrial appendage clot
3. Before you cardiovert, obtain a transesophageal echocardiogram to rule out atrial appendage clot
4. No need for heparin prior to cardioversion

What do you need to know about Cardioversion?

After cardioversion

Courtesy Mayo Clinic
A-fib ablation – things to know

A-fib ablation

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To Anticoagulate or not?

Preventing Stroke in AF

<table>
<thead>
<tr>
<th>CHADS2</th>
<th>Risk factor</th>
<th>Points</th>
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<tbody>
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<td>CHF exacerbation</td>
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<tr>
<td>Hx of HTN</td>
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<td>Age ≥75 years</td>
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<tr>
<td>Diabetes</td>
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<tr>
<td>Stroke history</td>
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</tbody>
</table>

Score = 0 | Aspirin 81 - 325mg
Score = 1 | Aspirin 81 - 325mg or warfarin INR 2-3
Score ≥ 2 | Warfarin for INR 2-3

Rheumatic MS: INR 2-3; Mechanical Valve INR 2.5-3.5

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A-fib ablation/Complications

- Anticoagulation
  - 3 months post procedure all
  - Longer: risk factors (CHADS2)
- Recurrent AF
  - AADs for early recurrence (2-3 months)
- PV stenosis (<2 %)
- Masquerade as PE/pneumonia
- Phrenic nerve injury
- LA esophageal fistula (<1 %)

Manifest as CVA, endocarditis

Courtesy Mayo Clinic
How about Plavix?

- Warfarin is superior to aspirin + plavix
- If a patient cannot take warfarin, then combination of aspirin + plavix can be used and it reduces stroke compared to aspirin alone but there is increased risk of bleeding

How about Dabigatran?

- Oral direct thrombin inhibitor
- Indicated for stroke prevention in non-valvular A-FIB
- 150 mg po twice daily; 75 mg po twice daily if CrCL < 15-30 ml/min.

**RE-LY- DABIGATRAN v WARFARIN FOR STROKE PREVENTION IN AFIB**

Dabigatran, as compared with warfarin, was shown to have:

- superior safety with equivalent efficacy (when it was administered at a dose of 110 mg twice daily),
- Or, superior efficacy with similar safety (when it was administered at a dose of 150 mg twice daily) for the prevention of stroke

Connolly SJ et al. NEJM 2009
Rivoxaban

- Direct Xa inhibitor
- Recently approved by FDA for stroke prevention in A-fib

Study Design

Atrial Fibrillation

Randomize

Rivoxaban

20 mg daily
15 mg for Cr Cl 30-49 ml/min

Warfarin

INR target - 2.5
(2.0-3.0 inclusive)

Monthly Monitoring
Adherence to standard of care guidelines

Risk Factors
- DM
- Hypertension
- Age > 75
- Stroke
- TIA or Systemic embolus

At least 2 of 3 required

Primary Endpoint: Stroke or non-CNS Systemic Embolism

* Enrollment of patients without prior Stroke, TIA or systemic embolism and only 2 factors capped at 10%

Primary Efficacy Outcome

Stroke and non-CNS Embolism

Event Rates are per 100 patient-years

Based on Protocol Compliant on Treatment Population

No. at risk:
Rivoxaban 6958 6211 5786 5468 4406 3407 2472 1496 634
Warfarin 7004 6327 5911 5542 4461 3478 2539 1538 655

Event Rates are per 100 patient-years

Based on Protocol Compliant on Treatment Population

Efficacy:
- Rivoxaban was non-inferior to warfarin for prevention of stroke and non-CNS embolism.
- Rivoxaban was superior to warfarin while patients were taking study drug.
- By intention-to-treat, rivoxaban was non-inferior to warfarin but did not achieve superiority.

Safety:
- Similar rates of bleeding and adverse events.
- Less ICH and fatal bleeding with rivoxaban.

Conclusion:
- Rivoxaban is a proven alternative to warfarin for moderate or high risk patients with AF.
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THANK YOU