COMPREHENSIVE ATRIAL FIBRILLATION MANAGEMENT:

HOW TO REDUCE ADMISSIONS/READMISSIONS

Jill Repoley MSN, CRNP, FHRS
The Heart Group of Lancaster General Health
Penn Medicine

DISCLOSURES

• Modest honoraria – SJM, Medtronic
World map showing the age-adjusted prevalence rates (per 100,000 population) of atrial fibrillation in the 21 Global Burden of Disease regions, 2010.
MECHANISMS OF AF/ PATHOPHYSIOLOGY

CONSEQUENCES OF AF

• Stroke
• More frequent arrhythmia hospitalization- $$$$ 6 billion!
• Reduced Quality of Life
• Mortality
• Hemodynamics: Loss of atrial kick, HF, Tachycardia induced cardiomyopathy
READMISSION IMPACT

• Institution consequences for increased readmissions

• AF is a common problem – readmissions are common (THG – 8-14% 30 day unplanned)

• Alternative care models will be needed

• **PROBLEM: Rhythm control meds don’t work very well!**

HOSPITAL TO OFFICE TO HOME

• Initiatives to limit inpatient resources

• Bundling costs

• “Out of the box” thinking
INPATIENT TO OUTPATIENT

MOPU AND OBSERVATION
OUTPATIENT AF STRATEGIES

- Avoid the admit
- Observation strategies
- Outpatient units
- Emergency observation units – ER cardioversion
- AF clinic follow ups


SAFETY

- Clinical trial examining post discharge management and effect on recurrent admissions
- Compared usual primary care post hospital follow up with nurse home visit and holter monitor 7-14 days, prolonged support, multidisciplinary support as needed
- Nurse led management program associated with more days alive and out of hospital, but not prolonged event free survival.

Stewart et al. Lancet 2015; 385: 775-84
SAFETY

• Exclusions were valvular heart disease, scheduled catheter ablation, pre-existing dx of HF, alcohol-induced atrial fibrillation, or terminal disorder or malignant disease needing palliative care

STANDARD CARE

• Access to PCP and specialists
• All patients received education
• Treating clinicians were send discharge summary and info regarding the trial
• No restrictions on standard management
SAFETY INTERVENTION

• Nurse visit within 7-14 days
• Tool to assess ability for self care
• Nurse sent reports with recommendations/ findings to medical team. Nurse coordinated care.

SAFETY RESULTS

• SAFETY Intervention vs Standard management – prolonged the number of days alive and out of the hospital – but did not extend event–free survival
• SAFETY – fewer days of recurrent unplanned hospital days
• No differences regarding AF specific events, strokes, bleeding, falls
Guidelines attempt to define practices that meet the needs of most patients in most circumstances.

DEPRESSION ON ANTITHROMBOTIC THERAPY

- Shared decision making
**CHA2DS2-VASc**

- C = CHF (1)
- H = HTN (1)
- A2 = Age ≥ 75 (2)
- D = Diabetes Mellitus (1)
- S2 = Stroke/ TIA (2)
- V = Vascular Disease (1)
- A = Age 65-74 (1)
- S = Sex (1)

Lip et al. *Chest* 2010; 137: 263-272

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**CHA2DS2-VASc**

- “Low” risk (0 points) = annual stroke events <0.5%
- “Intermediate” risk (1 point) = 1.1%
- “High” risk (2 or more points) = 4.9%

[www.MDcalc.com](http://www.MDcalc.com)  
iPhone app: Qx calculate  
Anticoag Evaluator (ACC)

Lip et al. *CHEST* 2010; 137 (2): 263-272
EPIC TOOLS

HAS-BLED

• Score to assess one year risk of major bleeding
• Hypertension – 1 point
• Abnormal renal or liver function – 1 point each
• Stroke – 1 point
• Bleeding – 1 point
• Labile INRs – 1 point
• Elderly (age > 65) – 1 point
• Drugs or alcohol - 1 point each

INDICATIONS FOR ANTICOAGULATION

- CHADSVASc 2 or greater
- CHADSVASc 1 – None, ASA or OAC
- For all patients with AF greater than 48 hours or when AF duration is unknown – 3 weeks of therapeutic anticoagulation is required prior to cardioversion. TEE can be used to exclude presence of LA thrombus as an alternative.
- OAC must be continued for at least 4 weeks post cardioversion

NOMENCLATURE

- VKA – Vitamin K antagonist
- NOAC – New oral anticoagulant; Novel oral anticoagulant; Non Vit K anticoagulant
- DOAC – Direct oral anticoagulant
- NoVAC – Non vitamin K anticoagulant
- TSOAC – Target specific oral anticoagulant
NOVEL ANTICOAGULANTS – NONVALVULAR AF

• Dabigatran (Pradaxa) – direct thrombin inhibitor; RE-LY

• Rivaroxaban (Xarelto) - Xa inhibitor - ROCKET AF

• Apixaban (Eliquis) - Xa inhibitor – ARISTOTLE

• Edoxaban (Savaysa) – Xa inhibitor - ENGAGE


PATIENT ADHERENCE

• “Prescribed courses of treatment in accordance with these recommendations are effective only if they are followed”

• Active patient participation
TREATMENT GOALS

• Evaluate anticoagulation status

• Slow the rate/ Convert

• Prevent recurrence

• Quality of life issues-symptoms!!

• Life style modifications

GUIDELINE DRIVEN TREATMENT OPTIONS

Rate control
- Pharmacologic
- AV node ablation plus pacing

Rhythm control
- Pharmacologic / Pacing support may be needed at times
- Cardioversion
- PVI
- Surgery, Intra-operative RFA

Stroke prevention
- Pharmacologic
- Occlude / Exclude LA appendage

JACC 2006; 48: 854-906
RATE CONTROL

- Use AV nodal blocking agents
- Goal is less than 110 bpm with moderate exercise
- Beta blockers first
- Digoxin has relatively poor rate control during exertion – save for the sedentary, HF pt
- Calcium channel blocker
- Needs careful follow up

AHA/ACC/HRS 2014 GUIDELINES FOR MANAGEMENT OF PATIENTS WITH AF
TEAMWORK FOR COMPREHENSIVE CARE

- Education sessions for patients
- Pharm D teamwork to monitor antiarrhythmic drugs
- AC clinic
- Shared medical appointments/ Support groups
- EP lab sessions/ education regarding ablation strategies
- Web education/ Text reminders
- Control of co-morbidities/ risk factors

Patients want a reoccurrence plan!!

SURVEILLANCE

- Follow up
- Co-morbidities
- Sleep apnea, HTN
- Lab follow up
- Careful observance renal function
- Heart rates/ rhythms
- Home monitoring – BP monitor/ HR
- Device detection AF
WHAT SHOULD BE THE FOLLOW UP MONITORING?

- Clinical vs. Research
- Monitoring is important to correlate patient symptoms with type of arrhythmia
- Heart rate control when in persistent AF
- Monitoring usually delayed in the blanking period – recurrences common in first 1-3 months
- Asymptomatic AF common after PVI
TYPES OF MONITORS

- ECG
- Event monitor
- Continuous monitor – auto detect AF
- Implantable loops
- Pacers/ CIEDS
- Alive-Cor
- Pulse checks

WHEN TO STOP ANTICOAGULATION

- Consensus guidelines now address that AF can recur
- Decisions to stop AC should be made based on stroke risk scores (CHADS/ CHADSVASC)
- Anticoagulation recommended for all patients for at least two months post ablation

CAN WE USE PILL IN THE POCKET ANTICOAGULATION STRATEGY?

- REACT-AF – trial looking at using ILRs to know when if is possible to safely reduce OAC
- Examining if AC can be point of care treatment managed by patients

“ALTERNATIVE” METHODS FOR IMPROVING SUCCESS

- Risk factor modification an important tool to control AF
PATIENT FOLLOW UP – AF CENTER

• Nurse led clinic
• Computerized decision algorithms
• Regimented follow up
• Improved mortality vs. usual care (1.1% vs 3.9%, p = 0.025)
• Reduced hospitalization (13.5% vs 19.1%, p = 0.029)
• Use of Class I or III AAD – 29.1% vs 24.7%


LIFESTYLE MODIFICATIONS

• More studies showing risk factor modification limits AF episodes
• Adelaide work:
  • ARREST-AF
  • LEGACY
  • CARDIO-FIT
• Aggressive risk factor modification increased success rates of PVI; 30% avoided need for RFA
Patients with BMI ≥ 27
N=825

Met Exclusion Criteria (N=293)
Terminal Cancer (N=10)
Inflammatory Dx (N=20)
Permanent AF (N=84)
AV Node ablation (N=12)
AF ablation (N=90)
Severe Medical Illness (N=77)

Patients from other States (N=177)

Assessed for Eligibility
N=1415

Final Cohort
N=355

≥10%WL
N=135

3-9%WL
N=103

<3%WL or WG
N=117

Baseline Characteristics

<table>
<thead>
<tr>
<th></th>
<th>&lt;3% Wt Loss Group 3 N=117</th>
<th>3-9% Wt Loss Group 2 N=103</th>
<th>&gt;10% Wt Loss Group 1 N=135</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>61±11</td>
<td>63±11</td>
<td>65±11</td>
<td>0.06</td>
</tr>
<tr>
<td>Male gender, n (%)</td>
<td>83 (71)</td>
<td>65 (63)</td>
<td>86 (64)</td>
<td>0.4</td>
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<tr>
<td>Non-Paroxysmal AF, n (%)</td>
<td>45 (56)</td>
<td>46 (45)</td>
<td>64 (47)</td>
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</tr>
<tr>
<td>BMI</td>
<td>32.9±4.8</td>
<td>32.7±4.4</td>
<td>33.6±4.7</td>
<td>0.2</td>
</tr>
<tr>
<td>Hypertension</td>
<td>90 (78)</td>
<td>75 (73)</td>
<td>109 (81)</td>
<td>0.3</td>
</tr>
<tr>
<td>DM/IGT, n (%)</td>
<td>34 (29)</td>
<td>28 (27)</td>
<td>41 (30)</td>
<td>0.5</td>
</tr>
<tr>
<td>Hyperlipidemia, n (%)</td>
<td>56 (48)</td>
<td>45 (44)</td>
<td>66 (49)</td>
<td>0.7</td>
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<tr>
<td>CAD, n (%)</td>
<td>14 (12)</td>
<td>12 (12)</td>
<td>21 (16)</td>
<td>0.3</td>
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<tr>
<td>AHI&gt;30, n (%)</td>
<td>61 (52)</td>
<td>52 (50)</td>
<td>69 (51)</td>
<td>0.1</td>
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<td>Smoker, n (%)</td>
<td>47 (40)</td>
<td>41 (40)</td>
<td>50 (37)</td>
<td>0.9</td>
</tr>
<tr>
<td>ETOH (&gt;30g/week), n (%)</td>
<td>34 (29)</td>
<td>35 (34)</td>
<td>42 (31)</td>
<td>0.7</td>
</tr>
</tbody>
</table>
Impact on AF Symptoms

AF Symptom Burden

Global Well Being Score

Structural Remodeling

LA Volume (Indexed)

hsCRP Level
TEAM BASED CARE

- SUMMARY:
  
  - Difficult disease process with multiple co-morbidities
  - Prevention strategies needed
  - Team based approach to care to offer our patients control and follow up strategies


"WHAT IS RESEARCH BUT A BLIND DATE WITH KNOWLEDGE?"

Jirepole@lghealth.org