Staying Current on Atrial Fibrillation

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No Disclosures
Learning Objectives

• Understand the concept of comprehensive AF care

• Recognize some important 2019 updates of the 2014 ACC/AHA/HRS AF Guidelines

• Apply updated recommendations to optimize care of the AF patients
Four Pillars of the AF Management

• Stroke/Thromboembolism prevention
• Ventricular rate control
• Rhythm control
• Risk factors management
MODIFIABLE RISK FACTORS

- OBESITY & PHYSICAL INACTIVITY
- HYPERTENSION
- SLEEP APNOEA
- DIABETES
- HYPERLIPIDEMIA
- ALCOHOL
- SMOKING

MECHANISTIC CHANGES

- Atrial Remodelling
- Abnormal Conduction
- Atrial Enlargement
- Progressive Substrate Inflammation

- Expression of Endothelin Receptors
- Atrial Dysfunction
- LA Pressure
- LA Volume
- Epicardial Fat
- Vagal Tone

- Endothelial Dysfunction
- Cellular Myolysis
- Oxidative Stress
- Conduction Slowing
- Interstitial Fibrosis
- Ectopic Triggers

Middeldorp et al. Heart 2019
AGGRESSIVE RISK FACTOR MANAGEMENT

WEIGHT TARGET
- Target: ≥10% weight loss
- BMI <27 kg/m²
- Avoid fluctuation

EVALUATE
- Diet plan
- Current activity levels
- Educate – permanent change

EXERCISE TARGET
- 30 mins, 3-4 x per week
- Activity increase to 200 mins/week

DM TARGET
- Dietary changes
- Start Metformin if HbA1c >6.5% @ 3mths
- Endocrinologist if required

EVALUATE
- Diet
- Glucose tolerance test

BP TARGET
- <130/80 mmHg (rest)
- <200/100 mmHg (exercise)
- ACEI or ARB if required
- Sodium reduction

EVALUATE
- BP diary
- Exercise stress test for intolerance
- Record 2-3 x daily

OSA TARGET
- CPAP if AHI ≥30
- or ≥20/hr with resistant HT or daytime sleepiness
- CPAP adherence checks

EVALUATE
- Overnight sleep study

LIPID TARGET
- Dietary changes
- @3 mths: Start statins if LDL >100 mg/dL

EVALUATE
- Cholesterol levels
- Diet
- Add fibrates if TG >200 mg/dL
- Start fibrates if TG >500 mg/dL

ALCOHOL TARGET
- Reduction to ≤30 g/week
- Complete abstinence if required

EVALUATE
- Assess intake

SMOKING TARGET
- Cease all forms of tobacco

EVALUATE
- Assess smoking status

Middeldorp et al. Heart 2019
2019 AHA/ACC/HRS Focused Update of the 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 Clinical Practice Guidelines and the Heart Rhythm Society

Developed in Collaboration With the Society of Thoracic Surgeons
Revised Definition of “Valvular” Atrial Fibrillation

• “Valvular” - AF in the setting of moderate-severe mitral valve stenosis or in the presence of a mechanical prosthetic heart valve

• Valvular AF - Warfarin
NOACs (dabigatran, rivaroxaban, apixaban, and edoxaban) are recommended over warfarin in NOAC-eligible patients with AF (except with moderate-to-severe mitral stenosis or a mechanical heart valve) (S4.1.1-8-S4.1.1-11).

**NEW:** Exclusion criteria are now defined as moderate-to-severe mitral stenosis or a mechanical heart valve. When the NOAC trials are considered as a group, the direct thrombin inhibitor and factor Xa inhibitors were at least noninferior and, in some trials, superior to warfarin for preventing stroke and systemic embolism and were associated with lower risks of serious bleeding.
Female Gender and Aspirin Have Been Removed

For patients with AF and an elevated CHA\textsubscript{2}DS\textsubscript{2}-VASc score of 2 or greater in men or 3 or greater in women, oral anticoagulants are recommended. Options include:

- Warfarin (LOE: A) ([S4.1.1-5](#)-[S4.1.1-7])
- Dabigatran (LOE: B) ([S4.1.1-8])
- Rivaroxaban (LOE: B) ([S4.1.1-9])
- Apixaban (LOE: B) ([S4.1.1-10]), or
- Edoxaban (LOE: B-R) ([S4.1.1-11])

**CHA\textsubscript{2}DS\textsubscript{2}-VASc score of 0 in men or 1 in women, it is reasonable to omit anticoagulant therapy ([S4.1.1-24], [S4.1.1-25]).**

For patients with AF (except with moderate-to-severe mitral stenosis or a mechanical heart valve) and a CHA\textsubscript{2}DS\textsubscript{2}-VASc score of 1 in men and 2 in women, prescribing an oral anticoagulant to reduce thromboembolic stroke risk may be considered ([S4.1.1-31]-[S4.1.1-35]).
Percutaneous LAA Occlusion

Percutaneous LAA occlusion may be considered in patients with AF at increased risk of stroke who have contraindications to long-term anticoagulation (S4.4.1-1-S4.4.1-5).
Catheter Ablation

<table>
<thead>
<tr>
<th>COR</th>
<th>LOE</th>
<th>RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>IIb</td>
<td>B-R</td>
<td>1. AF catheter ablation may be reasonable in selected patients with symptomatic AF and HF with reduced left ventricular (LV) ejection fraction (HFrEF) to potentially lower mortality rate and reduce hospitalization for HF (S6.3.4-1, S6.3.4-2). NEW: New evidence, including data on improved mortality rate, has been published for AF catheter ablation compared with medical therapy in patients with HF.</td>
</tr>
</tbody>
</table>
Hypothesis: AF ablation improves mortality and hospitalization rate in patients with LV dysfunction and AF compared to conventional treatment
Death or Hospitalization for Worsening Heart Failure

Probability of Survival Free of Hospital Admission

Hazard ratio, 0.62 (95% CI, 0.43–0.87)
P=0.007 by Cox regression
P=0.006 by log-rank test

No. at Risk

<table>
<thead>
<tr>
<th></th>
<th>Ablation</th>
<th>Medical therapy</th>
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<tbody>
<tr>
<td>Months of Follow-up</td>
<td></td>
<td></td>
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<tr>
<td>0</td>
<td>179</td>
<td>184</td>
</tr>
<tr>
<td>12</td>
<td>141</td>
<td>145</td>
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<td>24</td>
<td>114</td>
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<td>48</td>
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<tr>
<td>60</td>
<td>22</td>
<td>12</td>
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Marrouche et al. N Engl J Med 2018
AF Ablation in HFrEF: A Meta-analysis of RCTs

All-cause mortality

<table>
<thead>
<tr>
<th>Study, Year (Reference)</th>
<th>Ablation, n</th>
<th>No Ablation, n</th>
<th>Follow-up, mo</th>
<th>RR (95% CI)</th>
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<tbody>
<tr>
<td>CAMTAF, 2014 (11)</td>
<td>0</td>
<td>26</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>ARC-HF, 2013 (9)</td>
<td>1</td>
<td>24</td>
<td>0</td>
<td>26</td>
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<tr>
<td>AATAC, 2016 (8)</td>
<td>8</td>
<td>102</td>
<td>18</td>
<td>101</td>
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<tr>
<td>CASTLE-AF, 2018 (14)</td>
<td>24</td>
<td>179</td>
<td>46</td>
<td>184</td>
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<tr>
<td>CAMERA-MRI, 2017 (10)</td>
<td>0</td>
<td>33</td>
<td>0</td>
<td>33</td>
</tr>
</tbody>
</table>

Random-effects model: 364 vs. 368
Heterogeneity: $I^2 = 0\%$; $\tau^2 = 0$; $P = 0.67$
Favors ablation: 0.52 (0.33-0.81)

HF hospitalization

<table>
<thead>
<tr>
<th>Study, Year (Reference)</th>
<th>Ablation, n</th>
<th>No Ablation, n</th>
<th>Follow-up, mo</th>
<th>RR (95% CI)</th>
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<tr>
<td>MacDonald et al. 2011 (12)</td>
<td>2</td>
<td>20</td>
<td>1</td>
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<td>CAMERA-MRI, 2017 (10)</td>
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<td>33</td>
<td>2</td>
<td>33</td>
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<td>ARC-HF, 2014 (9)</td>
<td>3</td>
<td>24</td>
<td>3</td>
<td>26</td>
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<tr>
<td>CASTLE-AF, 2018 (14)</td>
<td>37</td>
<td>179</td>
<td>66</td>
<td>184</td>
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</table>

Random-effects model: 256 vs. 261
Heterogeneity: $I^2 = 0\%$; $\tau^2 = 0$; $P = 0.57$
Favors ablation: 0.60 (0.39-0.93)

Indications for Catheter Ablation

2017 Expert consensus statement on catheter and surgical ablation of AF
Weight Loss and Risk Factor Modification

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<tr>
<td>I</td>
<td>B-R</td>
<td>1. For overweight and obese patients with AF, weight loss, combined with risk factor modification, is recommended (S7.13-1-S7.13-3). <strong>NEW:</strong> New data demonstrate the beneficial effects of weight loss and risk factor modification on controlling AF.</td>
</tr>
</tbody>
</table>
Take Away Points

• Aggressive management of risk factors is a critical part of comprehensive AF care in addition to rate/rhythm control and prevention of stroke

• Important updates to anticoagulation management:
  • Definition of Valvular AF is revised
  • Aspirin has been removed
  • Female gender is removed as an independent risk factor
  • NOAC are recommended over warfarin in non-valvular AF
Thank You and Stay Safe!