Andrea M. Russo, MD
Presenter Disclosure

*The following relationships exist:*

- Research trials (Boston Scientific, Boehringer Ingelheim, Medtronic, St. Jude)

- Honoraria (Apple, Medtronic, Up-To-Date)
Current Indications and Effectiveness of Atrial Fibrillation Ablation

Andrea M. Russo, MD, FACC, FHRS
Professor of Medicine, Cooper Medical School of Rowan University
Director of Electrophysiology & Arrhythmia Services,
Director, CCEP Fellowship
Cooper University Hospital, New Jersey
October 25, 2018
Cooper CME
The Westin, Mount Laurel, NJ
Atrial Fibrillation: Epidemiology

Prevalence increases with age

Prevalence (%)

-associated with increased morbidity (CVA) & mortality

Feinberg Arch Int Med 1995;155:469
Atrial Fibrillation and Risk of Death: The Framingham Heart Study

AF associated with increased mortality:
1.5 x in men
1.9 x in women

Benjamin Circ 1998;98:946-52
Age-Adjusted Prevalence Rates (per 100,000 population) of Atrial Fibrillation in 2010

Epidemic

Prevalence of atrial fibrillation and flutter (per 100,000) by region, 2010

Chugh Circulation 2014;129:837-847
Projected Number of Patients in US With Atrial Fibrillation by 2050

Curves from top to bottom: Olmsted County data, 2006 (assuming a continued increase in the AF incidence); Olmsted County data, 2006 (assuming no further increase in the AF incidence); MarketScan & Thomson Reuters Medicare databases, 2009; ATRIA study data, 2000.

Camm et al., J Int Med 2016;279:412-27
Mechanisms of AF

January CT et al., 2014 Guidelines – J Am Coll Cardiol 2014;64:e1-76
Patterns of Atrial Fibrillation:

First Detected

Paroxysmal
Self-terminating: ≤ 7 days
(most < 24 hours)

Persistent
Not self-terminating:
> 7 days

Permanent
Cardioversion failed
or not attempted

Long-standing Persistent
Continuous >12 mos.

Pts characterized by their most frequent pattern.

ACC/AHA/ESC Guidelines, Circulation 2006;114:e257-e354
Reasons to treat AF:

- Symptomatic improvement
- Prevention of thromboembolic complications
- Prevention of tachycardia-induced cardiomyopathy
Symptoms of Atrial Fibrillation

- Palpitations
- Shortness of Breath
- Chest Pain
- Lightheadedness/dizziness
- Syncope

Heart Failure

Stroke

No Clear Symptoms

http://www.ohsu.edu/blogs/brain/2012/11/30/what-is-a-stroke/

AF Management Options

- Ventricular Rate Control
  - Pharmacological
  - Nonpharmacological

- Conversion and Maintenance of Sinus Rhythm
  - Pharmacological
  - Nonpharmacological

- Antithrombotic Therapy
Thromboembolic Risk Assessment - AF

ACC/AHA/HRS Guidelines

• **Class I**: For patients with nonvalvular AF with prior stroke, transient ischemic attack (TIA), or a CHA₂DS₂-VASc score ≥2, oral anticoagulants are recommended. Options:
  - Warfarin INR 2.0-3.0 (LOE A)
  - Dabigatran (LOE B)
  - Rivaroxaban (LOE: B)
  - Apixaban (LOE: B)

• **Class IIb**: With nonvalvular AF and a CHA₂DS₂-VASc score of 1, no antithrombotic therapy or treatment with oral anticoagulant or aspirin may be considered (LOE: C)

January J Am Coll Cardiol 2014;64:e1-76.
Development of AF requires trigger + susceptible substrate

PVI isolation

Goal of ablation:
Eliminate triggers and/or alter substrate

(may also interrupt innervation from autonomic ganglia)
Epicardial and Endocardial Appearance of the Pulmonary Veins

COMPLEX ANATOMY

Muscular sleeves around PVs: 
*fibers oriented in various directions*

Keith and Flack J Anat Physiol 1907
PV Origin for Triggers for *Initiating* Atrial Fibrillation

- Focal Ablation
- PV Isolation

*myocardial sleeves*

*Preferential inputs or “breakthroughs” enable non-circumferential disconnection*
Atrial Fibrillation Initiated From Focal Triggers (Most Commonly Localized to Pulmonary Veins)
Structure and Mechanisms of AF

- Extension of muscular fibers
- Ganglionic plexi & axons
- Pulmonary vein (red) & non-pulmonary vein (green) triggers
- Reentrant wavelets (that initiate and maintain AF)
Pulmonary Vein Isolation: Integration of 3D Electroanatomic Mapping With CT Scan

Kalla et al., Heart, Lung and Circulation 2017;26:941-9
Variants Anatomy

Intracardiac Echo to Define Anatomy

LA

LSPV
LIPV
RSPV
RIPV

Anatomic Variability of PV Location and Number:
LA Electroanatomic Map of SR Activation & MRA

Anatomic shell of LA and PVs

Ren et al, J of Echo 2002
Circumferential ablation lesions (endpoint: isolation of PVs)

Additional linear ablation lesions:
- Between superior and inferior PVs (figure of eight)
- Posterior inferior line for electrical isolation of posterior LA
- Encircling lesion of SVC

Addition of linear lesions (e.g., roof line, mitral isthmus, CTI line)

Targeting rotational activity or CFAEs

Radiofrequency Ablation

Cryoablation

Kuck NEJM 2016;374:2235-45
Meta-analysis of Antiarrhythmic Drug Vs. Catheter Ablation RCTs: Treatment Efficacy (No Recurrence of AF)

Overall, treatment success rate was 559/780 (71.7%) in catheter ablation group, and 199/661 (30.1%) in anti-arrhythmic drug group.

“Time to first recurrence” is how treatment is judged...

Cheng et al., J Interv Card Electrophysiol 2014;41:267–272
**Meta-Analysis - Catheter Ablation vs. Medical Therapy (Rhythm Control Drugs): Freedom From Atrial Arrhythmia**

8 studies with total of 809 patients

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Ablation</th>
<th>AADs</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Events</td>
<td>Total</td>
<td>Events</td>
</tr>
<tr>
<td>1.1.1 Freedom from atrial arrhythmia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Di Biase 2016</td>
<td>71</td>
<td>102</td>
<td>34</td>
</tr>
<tr>
<td>Hummel 2014</td>
<td>77</td>
<td>138</td>
<td>19</td>
</tr>
<tr>
<td>Mont 2014</td>
<td>59</td>
<td>98</td>
<td>14</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>338</td>
<td>621</td>
<td>221</td>
</tr>
<tr>
<td>Total events</td>
<td>207</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: Tau² = 0.00; Chi² = 0.01, df = 2 (P = 1.00); I² = 0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test for overall effect: Z = 6.63 (P &lt; 0.00001)</td>
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<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>1.1.2 Freedom from atrial arrhythmia off AADs</th>
<th>Ablation</th>
<th>AADs</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Events</td>
<td>Total</td>
<td>Events</td>
</tr>
<tr>
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<td>Hummel 2014</td>
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</tr>
<tr>
<td>Mont 2014</td>
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<td>98</td>
<td>14</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>338</td>
<td>621</td>
<td>221</td>
</tr>
<tr>
<td>Total events</td>
<td>182</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: Tau² = 0.04; Chi² = 3.70, df = 2 (P = 0.16); I² = 46%</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Test for overall effect: Z = 3.72 (P = 0.0002)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Overall maintenance of SR with RFA was 50-70% (with or without AADs) at ~6-24 months

Chen et al., JICE 2018;52:9-18
Meta-Analysis - Catheter Ablation vs. Medical Therapy (Rhythm Control): Changes in LVEF, 6MWD, & MLHFQ

Chen et al., JICE 2018;52:9-18
Short and Long-Term Efficacy of PV Isolation as Sole Treatment Strategy for Paroxysmal AF: Systematic Review and Meta-Analysis

Kis et al., Current Card Reviews 2017;13:199-208

12-Month Success Rate of PVI

Success rate 78% (95% CI 0.76 to 0.85)

62-Month Success Rate of PVI

Success rate 59% (95% CI 0.56 to 0.64)

*Progressive decline in freedom from AF between 1, 3, and 5-year after successful PVI.*
Survival Free of Recurrent Atrial Fibrillation or Flutter After Ablation, Stratified by Age

AF-free survival was significantly lower in those aged 70 and older during long-term FU (p=0.001)

Desai et al., J Am Geritr Soc 2017;65:185-93
The FIRE & ICE Trial

Paroxysmal AF Primary Efficacy Endpoint*:
Randomized 762 patients – 387 cryo-ablation, 384 RF ablation; mean FU 1.5 yrs

(*1st Recurrence of AF/AFL/AT, Use of Antiarrhythmic Drugs or Repeat Ablation)

Kuck NEJM 2016;374:2235-45

Cryo-ablation non-inferior to RF ablation
Experienced operators
CASTLE-AF: Death or Hospitalization for Worsening Heart Failure

Catheter ablation (179 pts) or medical therapy with rate or rhythm control (184 pts); Paroxysmal or persistent AF; Included pts who did not have a response to AADs, unacceptable side effects, or were unwilling to take drugs NYHA class II, III, or IV heart failure, LVEF ≤ 35%, and ICD; Median FU 37.8 months

CASTLE-AF: Survival

Predictors of AF Recurrence:

- AF type - persistent
- LA diameter
- AF duration
- Low EF
- OSA
- Age
- COPD
- Prior AA drug failure
- Female
- Metabolic syndrome
- Structural heart disease
- Inflammatory factors
- Atrial fibrosis

Role of Late Gadolinium Enhancement MRI (LGE-MRI) in Identifying LA Wall Structural Remodeling

386 patients, 123 (31.9%) experienced recurrent atrial arrhythmias during 1-year FU
Extensive LGE (≥30% LA wall enhancement) predicts poor response to catheter ablation of AF

CABANA
(Catheter Ablation Vs. Antiarrhythmic Drug for AF)

- Hypothesis: LA catheter ablation for the purpose of eliminating AF is superior to rate control or rhythm control drugs for reducing total mortality and decreasing the composite endpoint of total mortality, disabling stroke, serious bleeding, and cardiac arrest
- Multicenter, prospective, randomized, open-label
- 1:1 randomization: RFA vs. drug therapy
- 2204 subjects, 119 sites

Late-Breaking Clinical Trial Presentation – HRS 2019 Boston, MA
Primary Endpoint (Death, Disabling Stroke, Serious Bleeding, or Cardiac Arrest) (ITT)

Ablation vs. Drug
Hazard ratio: 0.86 (95% CI, 0.65–1.15)
P=0.303

Event rate (%)

0 3 6 9 12 15

Months since randomization

Number at risk

<table>
<thead>
<tr>
<th></th>
<th>Drug</th>
<th>Ablation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1096</td>
<td>1108</td>
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<td>6</td>
<td>1036</td>
<td>1045</td>
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<tr>
<td>12</td>
<td>1006</td>
<td>1021</td>
</tr>
<tr>
<td>18</td>
<td>970</td>
<td>996</td>
</tr>
<tr>
<td>24</td>
<td>880</td>
<td>915</td>
</tr>
<tr>
<td>30</td>
<td>763</td>
<td>793</td>
</tr>
<tr>
<td>36</td>
<td>652</td>
<td>700</td>
</tr>
<tr>
<td>42</td>
<td>578</td>
<td>614</td>
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<td>48</td>
<td>499</td>
<td>535</td>
</tr>
<tr>
<td>54</td>
<td>418</td>
<td>432</td>
</tr>
<tr>
<td>60</td>
<td>312</td>
<td>309</td>
</tr>
</tbody>
</table>
Estimates of All-Cause Mortality Risk (ITT)

- Ablation vs. Drug
- Hazard ratio: 0.85 (95% CI, 0.60–1.21)
- P=0.377

**Number at risk**

<table>
<thead>
<tr>
<th></th>
<th>Drug</th>
<th>Ablation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1096</td>
<td>1108</td>
</tr>
<tr>
<td>6</td>
<td>1046</td>
<td>1058</td>
</tr>
<tr>
<td>12</td>
<td>1023</td>
<td>1035</td>
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<tr>
<td>18</td>
<td>992</td>
<td>1013</td>
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<tr>
<td>24</td>
<td>963</td>
<td>933</td>
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<tr>
<td>30</td>
<td>934</td>
<td>814</td>
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<tr>
<td>36</td>
<td>783</td>
<td>724</td>
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<td>42</td>
<td>679</td>
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<td>48</td>
<td>606</td>
<td>555</td>
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<tr>
<td>54</td>
<td>527</td>
<td>445</td>
</tr>
<tr>
<td>60</td>
<td>445</td>
<td>332</td>
</tr>
</tbody>
</table>

**Mortality rate (%)**

- Drug
- Ablation

**Months since randomization**

- 0
- 6
- 12
- 18
- 24
- 30
- 36
- 42
- 48
- 54
- 60
First Recurrence AF – Post Blanking* (ITT)

Ablation vs. Drug
Hazard ratio: 0.53 (95% CI, 0.46–0.61)
P<0.0001

Freedom from recurrence (%)

Months since end of blanking

Number at risk

<table>
<thead>
<tr>
<th>Drug</th>
<th>629</th>
<th>303</th>
<th>251</th>
<th>211</th>
<th>180</th>
<th>156</th>
<th>130</th>
<th>114</th>
<th>93</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ablation</td>
<td>611</td>
<td>430</td>
<td>380</td>
<td>327</td>
<td>290</td>
<td>239</td>
<td>199</td>
<td>162</td>
<td>133</td>
</tr>
</tbody>
</table>

*Using CABANA Monitors
Primary Endpoint (Death, Disabling Stroke, Serious Bleeding, or Cardiac Arrest (Per Protocol))

- Ablation vs. Drug
- Hazard ratio: 0.73 (95% CI, 0.54–0.99)
- P=0.046

Event rate (%) vs. Months since randomization

Number at risk:
- Drug: 1098, 954, 860, 778, 680, 566, 454, 396, 330, 275, 204
- Ablation: 987, 958, 937, 918, 849, 735, 648, 566, 494, 404, 291
## Complications of AF Ablation

<table>
<thead>
<tr>
<th>Complications</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air embolism</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Asymptomatic cerebral emboli</td>
<td>2-15%</td>
</tr>
<tr>
<td>Atrial esophageal fistula</td>
<td>0.02-0.11%</td>
</tr>
<tr>
<td>Cardiac tamponade</td>
<td>0.2-5%</td>
</tr>
<tr>
<td>Coronary artery stenosis/occlusion</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>Death</td>
<td>0.1-0.4%</td>
</tr>
<tr>
<td>Gastric hypomotility</td>
<td>0-17%</td>
</tr>
<tr>
<td>Mitral valve entrapment</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>Pericarditis</td>
<td>0-50%</td>
</tr>
<tr>
<td>Pericardial effusion</td>
<td>1.2-14%</td>
</tr>
<tr>
<td>Permanent phrenic nerve paralysis</td>
<td>0-0.4% (up to 9% cryo)</td>
</tr>
<tr>
<td>Pulmonary vein stenosis</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Silent cerebral ischemia</td>
<td>7%</td>
</tr>
<tr>
<td>Thromboembolism (CVA/TIA)</td>
<td>0.5-1%</td>
</tr>
</tbody>
</table>

Calkins 2017 HRS/EHRA/ECAS/APHRS/SOLAECE expert consensus statement on catheter and surgical ablation of AF. Heart Rhythm 2017;14:17e275-e244; Bhat et al., informahealthcare.com
### Cryoablation vs. RF Ablation for Treatment of Paroxysmal AF: Systematic Review & Meta-Analysis

<table>
<thead>
<tr>
<th>Adverse events</th>
<th>Cryoablation</th>
<th></th>
<th>RF</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Events</td>
<td>Incidence (%)</td>
<td>Ratio (%)</td>
<td>Events</td>
</tr>
<tr>
<td>Death</td>
<td>2</td>
<td>0.1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Pericardial</td>
<td>21</td>
<td>0.8</td>
<td>9</td>
<td>89</td>
</tr>
<tr>
<td>PNP</td>
<td>92</td>
<td>3.3</td>
<td>41</td>
<td>3</td>
</tr>
<tr>
<td>Stroke/TIA</td>
<td>8</td>
<td>0.3</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Vascular</td>
<td>57</td>
<td>2.1</td>
<td>26</td>
<td>91</td>
</tr>
<tr>
<td>Bleeding</td>
<td>21</td>
<td>0.8</td>
<td>9</td>
<td>100</td>
</tr>
<tr>
<td>Other</td>
<td>22</td>
<td>0.8</td>
<td>10</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>223</td>
<td>8.1</td>
<td>100</td>
<td>334</td>
</tr>
</tbody>
</table>

RF, radiofrequency ablation; PNP, phrenic nerve palsy; TIA, transit ischemic attack.

Chen et al., Europace 2017;19:784-94
Outcome Measures -

Clinical benefit seen with respect to:

- Reduction in time to AF recurrence
- Reduction in symptoms
- Improvement in QOL
- Reduction in LA size ("reverse remodeling")
- Reduction in LV volume
- Improvement in LV function (reverse "tachycardia-induced CM")

Other Outcome Measures, con… -

*Insufficient data with respect to:*

- Stroke risk
- Mortality
- Prevention tachycardia-induced CM

*Additional questions:*

- What about safety of discontinuing anticoagulation post-ablation?
- What about cost-effectiveness?

*Additional analysis of large, randomized, multi-center trials pending*
Indications for Catheter Ablation of AF to Maintain Sinus Rhythm

Refractory or intolerant to at least one AAD

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>COR</th>
<th>LOE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheter ablation is recommended for <em>paroxysmal symptomatic AF</em> refractory or intolerant to at least one Class I or III antiarrhythmic medication</td>
<td>I</td>
<td>A</td>
</tr>
<tr>
<td>Catheter ablation is reasonable for <em>persistent symptomatic AF</em> refractory or intolerant to at least one Class I or III antiarrhythmic medication</td>
<td>IIa</td>
<td>B-NR</td>
</tr>
<tr>
<td>AF catheter ablation may be considered for <em>long-standing persistent symptomatic AF</em> refractory or intolerant to at least 1 class I or III antiarrhythmic medication</td>
<td>IIb</td>
<td>C-LD</td>
</tr>
</tbody>
</table>

Calkins 2017 HRS/EHRA/ECAS/APHRS/SOLAECE expert consensus statement on catheter and surgical ablation of AF. Heart Rhythm 2017;14:17e275-e244.
Catheter ablation is reasonable for **paroxysmal symptomatic AF** prior to initiation of antiarrhythmic therapy with a Class I or III antiarrhythmic medication

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>COR</th>
<th>LOE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheter ablation is reasonable for <strong>persistent symptomatic AF</strong> prior to initiation of antiarrhythmic therapy with a Class I or III antiarrhythmic medication</td>
<td>IIA</td>
<td>C-EO</td>
</tr>
<tr>
<td>Catheter ablation is reasonable for <strong>long-standing persistent symptomatic AF</strong> prior to initiation of antiarrhythmic therapy with a Class I or III antiarrhythmic medication</td>
<td>IIB</td>
<td>C-EO</td>
</tr>
</tbody>
</table>

Calkins 2017 HRS/EHRA/ECAS/APHRS/SOLAECE expert consensus statement on catheter and surgical ablation of AF. Heart Rhythm 2017;14:17e275-e244.
## Indications for Catheter Ablation of AF In Populations Not Well Represented in Clinical Trials

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>COR</th>
<th>LOE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic AF:*</td>
<td>IIb</td>
<td>C-EO</td>
</tr>
<tr>
<td>Catheter ablation may be considered in select patients with paroxysmal or persistent asymptomatic AF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart Failure:</td>
<td>IIa</td>
<td>B-R</td>
</tr>
<tr>
<td>It is reasonable to use similar indications for AF ablation in selected patients with heart failure as in patients without heart failure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Older patients (&gt;75 years):</td>
<td>IIa</td>
<td>B-NR</td>
</tr>
<tr>
<td>It is reasonable to use similar indications for AF ablation in selected older patients with AF as in younger patients</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*A decision to perform AF ablation in an asymptomatic patient requires additional discussion with the patient because the potential benefits of the procedure for the patient without symptoms are uncertain.

Calkins 2017 HRS/EHRA/ECAS/APHRS/SOLAECE expert consensus statement on catheter and surgical ablation of AF. Heart Rhythm 2017;14:17e275-e244.
### Indications for Catheter Ablation of AF in Populations Not Well Represented in Clinical Trials

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>COR</th>
<th>LOE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tachy-Brady Syndrome:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is reasonable to offer AF ablation as an</td>
<td>Ila</td>
<td>B-NR</td>
</tr>
<tr>
<td>alternative to pacemaker implantation in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>patients with tachy-brady syndrome</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Athletes with AF:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is reasonable to offer high-level athletes</td>
<td>Ila</td>
<td>C-LD</td>
</tr>
<tr>
<td>AF as first-line therapy due to the negative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>effects of medications on athletic</td>
<td></td>
<td></td>
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<tr>
<td>performance</td>
<td></td>
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Calkins 2017 HRS/EHRA/ECAS/APHRS/SOLAECE expert consensus statement on catheter and surgical ablation of AF. Heart Rhythm 2017;14:17e275-e244.
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Craig 2014 AHA/ACC/HRS Guidelines, JACC 2014;64:e1-76
Conclusions

• AF is a commonly occurring arrhythmia in the U.S. and is now an “epidemic”
• Therapy for AF should involve symptomatic relief as well as reduction in thromboembolic risk
• There are multiple modalities for the treatment of AF, including rate control, rhythm control with antiarrhythmic drugs, or rhythm control with catheter ablation
• Regardless of therapeutic modality, decisions regarding anticoagulation to reduce thromboembolic risk should be based on CHA$_2$DS$_2$-VASc score
Conclusions, continued…

• Ablative therapy – should be considered for patients who have failed or cannot tolerated drugs for symptomatic paroxysmal or persistent AF, although occasionally it may be appropriate to consider as first-line therapy (shared decision-making)
• Randomized trial data does not currently support mortality reduction with ablation compared to medical therapy (with exception of patients with HF); however, efficacy with respect to reduction in AF recurrence has been demonstrated with treatment aimed at symptomatic improvement
• Future analysis of data from randomized trials will help to better identify long-term success rates in various cohorts & cost-effectiveness
4 Pillars of AF Care:

- Risk Factor Management
- Anticoagulation
- Rate Control
- Rhythm Control

Chamberlain et al., Am Heart J 2010;159:850-6
Potential Risk Factor Modifications to Reduce Incidence and Prevalence of AF

Risk Factors and Potential Lifestyle Modifications to Reduce AF

- **Alcohol Consumption**
  - Limit Alcohol Consumption to < 2 drinks/day

- **Obesity**
  - Weight Loss > 10% Body Weight

- **Diabetes Mellitus**
  - Blood Glucose Control – HbA1c < 7.0

- **Obstructive Sleep Apnea**
  - Continuous Positive Airway Pressure Utilization

- **Hypertension**
  - Maintain SBP < 140 mmHg but > 110 mmHg

Menezes et al., Prog CV Dis 2015;58:117-25
Shared Decision-Making

New bi-directional patient-centered view

Education
Empowerment
Partnership
Patient-centric endpoints

Patient-Centered Care Values & Preferences

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Integrated AF Care

Kirchhof Lancet 2017;390:1873-87

Target Audience:

All clinicians who contribute to the diagnosis, treatment, and ongoing management of patients with AFib are encouraged to attend this multidisciplinary program, including:

- **Physicians:** Primary Care Providers (Internists and Family Medicine), Cardiologists, Neurologists, Hospitalists, Geriatricians, Electrophysiologists
- **Allied Professionals:** RNs, NPs, PAs, Pharmacists, Medical Assistants, Administrators, Practice Managers
Thank you.

Questions?