Atrial Fibrillation

Javier E. Banchs MD, FACC, FHRS
Baylor Scott & White Health
Objectives

• Review the clinical presentations and treatment targets in AF

• Understand modifiable risk factors in Atrial Fibrillation (AF)

• Discuss stroke prevention strategies in AF
A new paradigm in Medicine

“My Apple Watch shows my heart rate is cero during my exercise”

...consumer electronics meets Health Care
24/7 Heart Rate
Charge 3 uses our most advanced heart rate sensors and algorithms to uncover meaningful insights on your heart.

- All Day Calorie Burn
  Know how many calories you’re really burning and use what you learn to reach your goals.

- Real-Time Heart Rate Zones
  See when you’re in Fat Burn, Cardio or Peak zones to make the most of every workout.

This watch has apps to keep an eye on your heart.
Get a quick read on your heart rate, or check your heart rhythm with the ECG app.¹
The Apple Heart Study

Original Article

Large-Scale Assessment of a Smartwatch to Identify Atrial Fibrillation

Marco V. Perez, M.D., Kenneth W. Mahaffey, M.D., Haley Hedlin, Ph.D.,
John S. Rumsfeld, M.D., Ph.D., Ariadna Garcia, M.S., Todd Ferris, M.D.,
Vidhya Balasubramanian, M.S., Andrea M. Russo, M.D., Amol Rajmane, M.D.,
Lauren Cheung, M.D., Grace Hung, M.S., Justin Lee, M.P.H., Peter Kowey, M.D.,
Nisha Talati, M.B.A., Divya Nag, Santosh E. Gummidi, M.S.,
Alexis Beatty, M.D., M.A.S., Melanne True Hills, B.S., Sumbul Desai, M.D.,
Christopher B. Granger, M.D., Manisha Desai, Ph.D., and
Mintu P. Turakhia, M.D., M.A.S., for the Apple Heart Study Investigators*

The Apple Heart Study

• 419,297 volunteers consented via iPhone App
  – 2,161 (0.52%) irregular heart rhythm
  – 450 returned ECG patches
  – 34% confirmed atrial fibrillation
  – PPV 0.84
  – 57% patients sought attention outside study

The Apple Heart Study

![Figure 2. Irregular Pulse Notifications, According to Age and Sex.](image)

Horizontal bars indicate 97.5% confidence intervals.

![Figure 3. Yield of Atrial Fibrillation on ECG Patch Monitoring.](image)

Horizontal bars indicate 97.5% confidence intervals.

Clinical presentation of AF

• Asymptomatic
  – Wellness monitoring
  – Incidental finding
  – Stroke
  – Critically ill

• Symptomatic
  – Palpitations, tachycardia, chest discomfort, dyspnea, syncope
  – Tachycardia induced cardiomyopathy
Asymptomatic AF

• Diagnosis confirmation
  – ECG
  – Ambulatory heart rhythm monitoring

• Patient education

• Treatment
  – Risk Factors Modification
Asymptomatic AF

• Diagnosis confirmation
  – ECG
  – Ambulatory heart rhythm monitoring
• Patient education
• Treatment
  – Risk Factors Modification
  – Additional treatment?
Asymptomatic AF

- Diagnosis confirmation
  - ECG
  - Ambulatory heart rhythm monitoring

- Patient education

- Treatment
  - Risk Factors Modification
  - Additional treatment (AF burden)
How Much AF is too Much AF?
Subclinical AF and Stroke

568 patients followed x 1 year with PPM and history of AF

<table>
<thead>
<tr>
<th>CHADS2 Score</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>≥ 3</th>
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<tr>
<td>NO or &lt; 5 min</td>
<td>1.7%</td>
<td>0%</td>
<td>0%</td>
<td>25%</td>
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<tr>
<td>5 min - &lt; 24h</td>
<td>1.8%</td>
<td>1.3%</td>
<td>2.4%</td>
<td>0%</td>
</tr>
<tr>
<td>&gt; 24h</td>
<td>0%</td>
<td>4.4%</td>
<td>4.4%</td>
<td>33%</td>
</tr>
</tbody>
</table>

P=0.035

Tachycardia Induced Cardiomyopathy
Natural History of Atrial Fibrillation

‘Upstream’ therapy of concomitant conditions

Anticoagulation

Rate control

Antiarrhythmic drugs

Ablation

Cardioversion

silent
paroxysmal
persistent
long-standing persistent
permanent

Guidelines for the management of atrial fibrillation (ESC)
Symptoms in AF

• Symptoms
  – Tachycardia
  – Irregular rhythm
  – Cardiomyopathy
Treatment of AF

• Risk factors modification
• Rate control
• Rhythm control
• Stroke prevention
Pathophysiology

**GENES**
**ENVIRONMENT**
**HEART DISEASE**

**LEFT ATRIAL DILATATION / REMODELING**
**AUTONOMIC IMBALANCE / HUMORAL ACTIVATION**
**INFLAMMATION / FIBROSIS**
**AUTOMATICITY / TRIGGERED ACTIVITY - SLOW CONDUCTION**

**TRIGGERS**
- PACs
- Atrial Tachycardia
- SVT

**AF**

**SUBSTRATE**
- Multiple Reentry
Risk Factors Modification

• HTN
• CAD
• Obesity
• Obstructive Sleep apnea
• Exercise
• Alcohol
• Smoking
AF Risk Factors

Population attributable fraction of major risk factors for atrial fibrillation in the Atherosclerosis Risk in Communities study

Alcohol

Exercise – or lack of

Figure 2
Overall risk of AF in relation to leisure time physical activity

- Low
- Moderate
- High
- Vigorous

Hazard Ratio

Physical activity level

Smoking

- Women’s Health Study  20,822
  HR 1.2 (1.06-1.57)

- CHARGE AF  18,556
  HR 1.44 (1.20-1.72)

Obstructive Sleep Apnea

<table>
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<tr>
<th>Condition</th>
<th>OR</th>
<th>95% CI</th>
<th>P</th>
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<tr>
<td>Body mass index</td>
<td>1.11</td>
<td>1.06-1.16</td>
<td>&lt;0.0001</td>
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<tr>
<td>Neck circ</td>
<td>1.02</td>
<td>0.97-1.07</td>
<td>0.439</td>
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<tr>
<td>Hypertension</td>
<td>1.27</td>
<td>1.01-1.61</td>
<td>0.039</td>
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<tr>
<td>Diabetes mellitus</td>
<td>1.23</td>
<td>0.96-1.57</td>
<td>0.104</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>2.19</td>
<td>1.40-3.42</td>
<td>0.0006</td>
</tr>
</tbody>
</table>

Proportion and 95% CI of patients with OSA

Adjusted OR and 95% CI for association between AF and OSA

Obesity

Arrest AF
Treatment

• Risk factors modification
• Rate control
• Rhythm control
• Stroke prevention
Rate Control

- Prevention of tachycardia induced cardiomyopathy
- Symptoms relief
Rate control interventions

- Beta blockers
- Calcium channel blockers
- Digoxin
- Amiodarone
- AV node ablation
Target Rate

Race II Trial

614 patients

Figure 2. Kaplan–Meier Estimates of the Cumulative Incidence of the Primary Outcome, According to Treatment Group.

The numbers at the end of the Kaplan–Meier curves are the estimated cumulative incidence of the primary outcome at 3 years.
Treatment

• Risk factors modification
• Rate control
• Rhythm control
• Stroke prevention
Rhythm control

• Cardioversion
  – TEE guided
  – AC x 3 weeks

• Antiarrhythmic drugs
  – Flecainide and propafenone
  – Dronedarone
  – Sotalol
  – Dofetilide
  – Amiodarone
### Antiarrhythmic Drugs

<table>
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<tr>
<th>DRUG</th>
<th>SAFETY</th>
<th>SIDE EFFECTS</th>
<th>OTHER</th>
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<tr>
<td>DISOPYRAMIDE*</td>
<td>QT•HF</td>
<td>GU•EYE</td>
<td>EFF•HCM</td>
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<tr>
<td>QUINIDINE*</td>
<td>QT</td>
<td>GI•TDP</td>
<td>EFF</td>
</tr>
<tr>
<td>FLECAINIDE</td>
<td>CAD•HF•COND•FLUTTER•BRUGADA</td>
<td>PRO ARR</td>
<td>RENAL•LIVER</td>
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<tr>
<td>PROPafenone</td>
<td>PRO ARR•BRADY</td>
<td>LIVER</td>
<td></td>
</tr>
<tr>
<td>DRONedarone</td>
<td>QT•HF</td>
<td>GI•BRADY</td>
<td>EFF•LIVER•PERS</td>
</tr>
<tr>
<td>Sotalol</td>
<td>QT•HF•\downarrow K•\downarrow Mg</td>
<td>TDP•BRADY</td>
<td>RENAL</td>
</tr>
<tr>
<td>DOFETilide</td>
<td>QT•\downarrow K•\downarrow Mg</td>
<td>TDP</td>
<td>RENAL•DRUG INT</td>
</tr>
<tr>
<td>AMIODARone</td>
<td>QT•COND•LUNG</td>
<td>BRADY•THYR•LIVER</td>
<td>MONITOR</td>
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</tbody>
</table>

* may increase morality – (pooled data)

January CT et al. J Am Col Cardiol 2014; 64:e1–76
2014 AHA/ACC/HRS Guidelines

![Diagram showing strategies for rhythm control in patients with paroxysmal and persistent AF.]

**Figure 7. Strategies for Rhythm Control in Patients With Paroxysmal* and Persistent AF†**

* Catheter ablation is only recommended as first-line therapy for patients with paroxysmal AF (Class IIa recommendation).
† Drugs are listed alphabetically.
# Depending on patient preference when performed in experienced centers.
§ Not recommended with severe LVH (wall thickness >1.5 cm).
¶ Should be used with caution in patients at risk for torsades de pointes ventricular tachycardia.
¶¶ Should be combined with AV nodal blocking agents.
AF indicates atrial fibrillation; AV, atrioventricular; CAD, coronary artery disease; HF, heart failure; and LVH, left ventricular hypertrophy.

January CT et al. JACC Vol. 64, No. 21, 2014: e1–76
Rhythm control

• Catheter based ablation
  – Radiofrequency ablation
  – Cryoballoon ablation
  – Surgical
  – Hybrid
Radiofrequency ablation

Cryoballoon Ablation
Cryoballoon Vs. Radiofrequency

A Primary Efficacy Endpoint

Hazard ratio, 0.96 (95% CI, 0.76–1.22)

P<0.001 for noninferiority

No. at Risk

<table>
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<tr>
<th></th>
<th>Cryoballoon</th>
<th>RFC</th>
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<tr>
<td>90-Day blanking period</td>
<td>374 338 242 194 165 132 107 70 57 34 12</td>
<td>376 350 243 191 149 118 93 58 44 25 12</td>
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</table>

CABANA
Catheter Ablation Versus Antiarrhythmic Drug therapy for Atrial Fibrillation Trial

• Randomized open label AF Ablation Vs. Drug Therapy
• International 126 sites
• 2,204 patients
• Primary endpoint: composite of death, stroke, bleeding, cardiac arrest
Cumulative risk of death, disabling stroke, serious bleeding, or cardiac arrest (primary end point by intention-to-treat analysis)

Hazard ratio, 0.86 (95% CI, 0.65-1.15); Log-rank P = .30

Event Rate, %

Time Since Randomization, mo

No. at risk
Drug therapy
Catheter ablation

1096 1036 1006 970 880 763 652 578 499 418 312
1108 1045 1021 996 915 793 700 614 535 432 309

Cumulative risk of death, disabling stroke, serious bleeding, or cardiac arrest (primary end point) per-protocol analysis

Freedom from recurrence of AF following the blanking period in 1240 patients who used the study electrocardiogram event recorders.

Hazard ratio, 0.52 (95% CI, 0.45-0.60); P < .001

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<th>Time Since End of Blanking, mo</th>
<th>Drug therapy</th>
<th>Catheter ablation</th>
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<tr>
<td>0</td>
<td>629</td>
<td>611</td>
</tr>
<tr>
<td>6</td>
<td>304</td>
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<td>12</td>
<td>252</td>
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<td>18</td>
<td>212</td>
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<td>24</td>
<td>181</td>
<td>291</td>
</tr>
<tr>
<td>30</td>
<td>157</td>
<td>241</td>
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<tr>
<td>36</td>
<td>131</td>
<td>201</td>
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<tr>
<td>42</td>
<td>115</td>
<td>163</td>
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<tr>
<td>48</td>
<td>94</td>
<td>134</td>
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</table>

CABANA
Catheter Ablation Versus Antiarrhythmic Drug therapy for Atrial Fibrillation Trial

• “On treatment”
• Primary endpoint on treatment: 7% (ABL) Vs. 10.9% p=0.006
• 33% reduction
• 40% mortality risk reduction with ablation (7.5% Vs 4.4%)
Treatment

- Risk factors modification
- Rate control
- Rhythm control
- Stroke prevention
Stroke Prevention

• Risk Assessment
• Anticoagulation
  – Warfarin
  – DOAC
• Left atrial appendage occlusion
Risk of Thromboembolism

\( \text{CHA}_2 \text{DS}_2 \text{-VASc} \)

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Score</th>
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<td>Heart Failure</td>
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<tr>
<td>HTN</td>
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<tr>
<td>Age:</td>
<td></td>
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<td>65</td>
<td>1</td>
</tr>
<tr>
<td>75</td>
<td>2</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1</td>
</tr>
<tr>
<td>Stroke/TIA</td>
<td>2</td>
</tr>
<tr>
<td>Vascular Dz</td>
<td>1</td>
</tr>
<tr>
<td>Sex Fem</td>
<td>1</td>
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</table>

(c) Adjusted stroke rate according to \( \text{CHA}_2 \text{DS}_2 \text{-VASc} \) score

<table>
<thead>
<tr>
<th>( \text{CHA}_2 \text{DS}_2 \text{-VASc} ) score</th>
<th>Patients (n=7329)</th>
<th>Adjusted stroke rate (%/year)</th>
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<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>0%</td>
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<tr>
<td>1</td>
<td>422</td>
<td>1.3%</td>
</tr>
<tr>
<td>2</td>
<td>1230</td>
<td>2.2%</td>
</tr>
<tr>
<td>3</td>
<td>1730</td>
<td>3.2%</td>
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<tr>
<td>4</td>
<td>1718</td>
<td>4.0%</td>
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<tr>
<td>5</td>
<td>1159</td>
<td>6.7%</td>
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<tr>
<td>6</td>
<td>679</td>
<td>9.8%</td>
</tr>
<tr>
<td>7</td>
<td>294</td>
<td>9.6%</td>
</tr>
<tr>
<td>8</td>
<td>82</td>
<td>6.7%</td>
</tr>
<tr>
<td>9</td>
<td>14</td>
<td>15.2%</td>
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</table>
Dabigatran

Figure 1. Cumulative Hazard Rates for the Primary Outcome of Stroke or Systemic Embolism, According to Treatment Group.

Rivaroxaban

**Figure 1.** Cumulative Rates of the Primary End Point (Stroke or Systemic Embolism) in the Per-Protocol Population and in the Intention-to-Treat Population.

Apixaban

A Primary Outcome: Stroke or Systemic Embolism

Hazard ratio, 0.79 (95% CI, 0.66–0.95)
P=0.01

No. at Risk
Apixaban 9120 8726 8440 6051 3464 1754
Warfarin 9081 8620 8301 5972 3405 1768

Edoxaban

A Stroke or Systemic Embolic Event

Hazard ratio and 97.5% confidence intervals
- High-dose edoxaban vs. warfarin, 0.87 (0.73–1.04); P=0.08
- Low-dose edoxaban vs. warfarin, 1.13 (0.96–1.34); P=0.10

**ENGAGE AF-TIMI 48**

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<tr>
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<th>No. at Risk</th>
<th>0</th>
<th>0.5</th>
<th>1</th>
<th>1.5</th>
<th>2</th>
<th>2.5</th>
<th>3</th>
<th>3.5</th>
<th>4</th>
<th>4.5</th>
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<td>Warfarin</td>
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<td>6798</td>
<td>6615</td>
<td>6406</td>
<td>6225</td>
<td>4593</td>
<td>2333</td>
<td>536</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>High-dose edoxaban</td>
<td>7035</td>
<td>6816</td>
<td>6650</td>
<td>6480</td>
<td>6283</td>
<td>4659</td>
<td>2401</td>
<td>551</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-dose edoxaban</td>
<td>7034</td>
<td>6815</td>
<td>6631</td>
<td>6461</td>
<td>6277</td>
<td>4608</td>
<td>2358</td>
<td>534</td>
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</table>


Baylor Scott & White Health
“Valvular” AF

• Evaluated heart valve = rheumatic or artificial (Type I)
  – Moderate-severe rheumatic Mitral stenosis
  – Mechanical prosthetic valves

• Evaluated heart valve = rheumatic or artificial (Type II)
  – All others
“Valvular” AF

• Evaluated heart valve = rheumatic or artificial (Type I)  
  – Moderate-severe rheumatic Mitral stenosis  
  – Mechanical prosthetic valves

• Evaluated heart valve = rheumatic or artificial (Type II)  
  – All others

WARFARIN OR DOAC
Idarucizumab for Dabigatran Reversal

Charles V. Pollack, Jr., M.D., Paul A. Reilly, Ph.D., John Eikelboom, M.B., B.S., Stephan Glund, Ph.D., Peter Verhamme, M.D., Richard A. Bernstein, M.D., Ph.D., Robert Dubiel, Pharm.D., Menno V. Huisman, M.D., Ph.D., Elaine M. Hylek, M.D., Pieter W. Kamphuisen, M.D., Ph.D., Jörg Kreuzer, M.D., Jerrold H. Levy, M.D., Frank W. Sellke, M.D., Joachim Stangier, Ph.D., Thorsten Steiner, M.D., M.M.E., Bushi Wang, Ph.D., Chak-Wah Kam, M.D., and Jeffrey I. Weitz, M.D.
Every minute matters...
FDA-approved immediate reversal agent for PRADAXA

When reversal of the anticoagulant effects of Pradaxa® (dabigatran etexilate) is needed:
- For emergency surgery/urgent procedures
- In life-threatening or uncontrolled bleeding

Stocked in 2,600+ institutions across ALL 50 states

This indication is approved under accelerated approval based on a reduction in unbound dabigatran and normalization of coagulation parameters in healthy volunteers. Continued approval for this indication may be contingent upon the results of an ongoing cohort case series study.1

1Accurate as of 07/07/2017.

Full Study Report of Andexanet Alfa for Bleeding Associated with Factor Xa Inhibitors


Alternatives to Anticoagulation
Watchman

Amplatzer (Amulet)

Lariat
Watchman

• CHA2DS2-Vasc score 3 or higher
• CHADS2 score 2 or higher
• Candidate for anticoagulation
• Reason to seek an alternative to long term anticoagulation
• No LAA thrombus
• Favorable LAA anatomy
Protect AF and PREVAIL 5 years

2 year follow up EWOLUTION trial

No AC in 72%
Natural History of Atrial Fibrillation

Guidelines for the management of atrial fibrillation (ESC)
Conclusions

• Treatment of AF is centered on risk factors modification, stroke prevention, rate control and suppression of symptoms

• Direct oral anticoagulants are preferred over warfarin for stroke prevention
Conclusions

• Left atrial appendage occlusion is not inferior and may be superior to warfarin for stroke prevention in patients with AF seeking an alternative to long term AC

• Catheter based ablation and antiarrhythmic agents could be effective in rhythm control but recurrence rates remain high
Additional Slides
Clinical Trials - First Line Randomized Multicenter ABL Vs. AAD

<table>
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<tr>
<th>Trial</th>
<th>Year</th>
<th>N</th>
<th>AF</th>
<th>F/U</th>
<th>Succ. ABL</th>
<th>Succ. AAD</th>
<th>Comp. ABL</th>
<th>Comp. AAD</th>
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<tr>
<td>RAAFT</td>
<td>2005</td>
<td>70</td>
<td>PAF</td>
<td>12 m</td>
<td>87%*</td>
<td>34%</td>
<td>9%</td>
<td>11%</td>
</tr>
<tr>
<td>MANTRA-PAF</td>
<td>2012</td>
<td>294</td>
<td>PAF</td>
<td>24 m</td>
<td>13%AF</td>
<td>19%AF</td>
<td>17%</td>
<td>15%</td>
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<tr>
<td>RAAFT-2</td>
<td>2014</td>
<td>127</td>
<td>PAF</td>
<td>24 m</td>
<td>45%*</td>
<td>28%</td>
<td>9%</td>
<td>4.9%</td>
</tr>
</tbody>
</table>

*p<0.04

Calkins H et al. Heart Rhythm 2017;14:e275–e444)
Clinical Trials - First Line Randomized Multicenter ABL Vs. AAD

## Ablation Vs. Drug Therapy

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Catheter Ablation</th>
<th>Anti-arrhythmic Drugs</th>
<th>Risk Ratio</th>
<th>Risk Ratio</th>
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<tbody>
<tr>
<td></td>
<td>Events</td>
<td>Total</td>
<td>Events</td>
<td>Total</td>
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<tr>
<td>2.1.1 Anti-arrhythmic Medication Naive</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Wazni 2005</td>
<td>4</td>
<td>33</td>
<td>22</td>
<td>37</td>
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<td>Nielsen 2012</td>
<td>22</td>
<td>138</td>
<td>42</td>
<td>148</td>
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<td>Morillo 2014</td>
<td>36</td>
<td>66</td>
<td>44</td>
<td>61</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>237</td>
<td>246</td>
<td>26.6%</td>
<td>0.52 [0.30, 0.91]</td>
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<tr>
<td></td>
<td>Total events</td>
<td>62</td>
<td>108</td>
<td></td>
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<tr>
<td></td>
<td>Heterogeneity: Tau² = 0.16; Chi² = 7.24, df = 2 (P = 0.03); I² = 72% Test for overall effect: Z = 2.32 (P = 0.02)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1.2 Previous Use of Anti-arrhythmic Medication</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Krittayaphong 2003</td>
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<td>77</td>
<td>53</td>
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<tr>
<td>Jais 2008</td>
<td>7</td>
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<tr>
<td>Forleo 2009</td>
<td>7</td>
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<td>Wilber 2010</td>
<td>35</td>
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<tr>
<td>Mont 2014</td>
<td>39</td>
<td>98</td>
<td>34</td>
<td>48</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>548</td>
<td>450</td>
<td>73.4%</td>
<td>0.37 [0.29, 0.48]</td>
</tr>
<tr>
<td></td>
<td>Total events</td>
<td>160</td>
<td>343</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heterogeneity: Tau² = 0.08; Chi² = 20.22, df = 7 (P = 0.005); I² = 65% Test for overall effect: Z = 7.48 (P &lt; 0.00001)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Total (95% CI)</td>
<td>785</td>
<td>696</td>
<td>100.0%</td>
<td>0.40 [0.31, 0.52]</td>
</tr>
<tr>
<td></td>
<td>Total events</td>
<td>222</td>
<td>451</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heterogeneity: Tau² = 0.12; Chi² = 38.98, df = 10 (P &lt; 0.0001); I² = 74% Test for overall effect: Z = 6.93 (P &lt; 0.00001) Test for subgroup differences: Chi² = 1.26, df = 1 (P = 0.26), I² = 20.8%</td>
<td></td>
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</tr>
</tbody>
</table>

CABANA
Catheter Ablation Versus Antiarrhythmic Drug therapy for Atrial Fibrillation Trial

• Primary endpoint: 8 (ABL) Vs. 9.2 %
• 17% mortality or CV hosp reduction with ablation (58.1% Vs 51.7%) p=0.001
• 47% reduction in AF recurrence p<0.0001
• 9.2% did not have ablation; 27.5% crossover from drug to ablation
10 years follow up

C) Recurrent atrial tachyarrhythmia: After the initial procedure

D) Recurrent atrial tachyarrhythmia: After the last procedure

Log-rank P<0.001

Interval 0-day 6-month 1-year 3-year 5-year 8-year 10-year
Paroxysmal AF
N of events 165 230 297 317 324 325
N of patients at risk 853 683 616 411 212 67 17
Event free rate 80.6% 72.9% 64.1% 60.1% 56.5% 55.4%

Non-paroxysmal AF
N of events 98 129 177 188 198 200
N of patients at risk 353 254 222 121 63 14 4
Event free rate 72.2% 63.3% 48.0% 42.5% 33.1% 26.6%

Persistent AF
N of events 48 69 102 111 119 121
N of patients at risk 230 181 159 90 49 10 3
Event free rate 79.0% 69.9% 54.0% 47.1% 36.6% 26.0%

Long-lasting AF
N of events 50 60 75 77 79 79
N of patients at risk 123 73 63 31 14 4 1
Event free rate 59.3% 51.2% 36.9% 33.6% 27.3% 27.3%

Interval 0-day 6-month 1-year 3-year 5-year 8-year 10-year
Paroxysmal AF
N of events 36 58 89 104 111 113
N of patients at risk 853 812 788 590 327 119 29
Event free rate 95.8% 93.2% 89.2% 86.3% 83.5% 81.8%

Non-paroxysmal AF
N of events 41 55 83 92 97 98
N of patients at risk 353 310 295 185 104 28 6
Event free rate 88.3% 84.4% 75.3% 70.8% 65.2% 62.6%

Persistent AF
N of events 17 26 41 47 50 51
N of patients at risk 230 211 201 132 72 21 5
Event free rate 92.6% 88.6% 81.3% 76.6% 72.3% 68.5%

Long-lasting AF
N of events 24 29 42 45 47 47
N of patients at risk 123 99 94 55 32 7 1
Event free rate 80.5% 76.4% 63.9% 59.7% 51.9% 51.9%