Does Atrial Fibrillation Ablation Reduce Cardioembolic Stroke

Vivek Y. Reddy, MD
Helmsley Trust Professor of Medicine
Director, Cardiac Arrhythmia Service
The Mount Sinai Hospital
• **Grant support / Consultant:**
  – Boston Scientific Inc, Coherex Medical Inc, Sentreheart Inc, St Jude Medical Inc

• I will be discussing the use of non-FDA approved catheter-based devices.
Paroxysmal AF: Catheter Ablation

Safety

- Ablation Group (6.8%, n=103)
  - 1 pericarditis
  - 1 pulmonary edema
  - 1 pericardial effusion (no tx needed)
  - 5 vascular complications
  - No Stroke/Embolism, Tamponade, Atrio-Esophageal fistula, PV stenosis, or Phrenic nerve paralysis

- AAD group (17.9%, n=56)
  - 3 life-threatening ventricular arrhythmias
  - 7 disabling symptoms requiring drug withdrawal

- One death in Ablation group, at 284 days, due to acute MI.

Wilber et al, JAMA, 2010
# Ablation vs AADs: 1 yr Success

<table>
<thead>
<tr>
<th>Study</th>
<th>AADs Success Rate</th>
<th>Ablation Success Rate</th>
<th>2nd Ablations</th>
<th>Still on AADs</th>
</tr>
</thead>
<tbody>
<tr>
<td>A4</td>
<td>23%</td>
<td>89%</td>
<td>80%</td>
<td>0%</td>
</tr>
<tr>
<td>Thermocool IDE</td>
<td>17%</td>
<td>63%</td>
<td>13%</td>
<td>7%</td>
</tr>
<tr>
<td>STOP-AF</td>
<td>7%</td>
<td>70%</td>
<td>19%</td>
<td>12%</td>
</tr>
<tr>
<td>CABANA Pilot</td>
<td>38%</td>
<td>61%</td>
<td>21%</td>
<td>28%</td>
</tr>
</tbody>
</table>
Long-term Outcome after PVI: Late Recurrence

- **Bertaglia E et al. Europace: 12:181, 2010**
- **Weerasooriya R et al. JACC 57:160, 2011**

Multiple Procedure Success

Parox AF

Persist AF

$P = NS$
Does this mean AF ablation doesn’t work, and so should not be performed?
Ablation vs Medications

Wilber et al, *JAMA*, 2010

Packer et al, *ACC*, 2010
Device Therapy for SCD and CHF

SCD-HeFT Outcomes:
Kaplan-Meier Estimates of All-Cause Mortality

Amiodarone
[5-year mortality = 34%]

Placebo
[5-year mortality = 36%]

ICD therapy
[5-year mortality = 29%]

Death or Any Hospitalization,
IV Rx >4hrs

Bardy et al, *NEJM*, 2005

Stroke Risk After Catheter Ablation?


1.1% risk for stroke

Nademanee et al, *JACC*, 2008

0.4% annual risk for stroke
Stroke Risk After Catheter Ablation?

Themistoclakis et al, *JACC*, 2010
Stroke Risk After Catheter Ablation?

- 4,212 consecutive patients who underwent AF ablation
- 16,848 age/gender matched controls with AF (no ablation)
- 16,848 age/gender matched controls without AF

Stroke Risk After Catheter Ablation?

- International 7-center registry of 1273 pts undergoing AF ablation
- Rates of stroke/death compared to:
  - Medically-treated patients from the Euro Heart Survey
  - Hypothetical cohort without AF

Stroke Incidence After MAZE

- Long-term outcome after MAZE surgery
- 265 patients followed for up to 11.5 years
- 19% had a prior CVA/TIA

Stroke Incidence After MAZE

Post-Ablation Use of CHADS\textsubscript{2} & CHA\textsubscript{2}DS\textsubscript{2}-VASc

Chao et al. JACC 58:2380-2385 (2011)
Rhythm Management as Stroke Prophylaxis?

2006 ACC/AHA/ACC Guidelines

1. Warfarin is recommended for all patients for at least 2 months after an AF ablation procedure.
2. Decisions regarding the use of Warfarin more than 2 months after ablation should be based on the patient’s risk factors for stroke and not on the presence or type of AF.
3. Discontinuation of Warfarin therapy post-ablation is generally not recommended in patients who have a CHADS\textsubscript{2} score 2.

Final Thoughts

- AF Catheter Ablation works to prevent symptoms
- We are not yet confident enough over the long-term to ensure no AF recurrence → Trials are underway
- Treat for stroke prophylaxis based on baseline risk