Substrate Modification with Aggressive Blood Pressure Control: SMAC-AF

Too little, too late?

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AF ablation is effective, but long term recurrence remains problematic.

- Wilber, DJ. *JAMA* 2010;303:333-340
- Weersooriya, R. *J Am Coll Cardiol*. 2011;57:160-6
- Santoro F. *JACCCEP*. 2015;1:164-173
- Pathak RK. *J Am Coll Cardiol* 2014;64:2222–3.
Does aggressive BP control prevent recurrent AF after ablation?

Increase in AF-related hospitalization HR 1.89 (1.01, 3.54)

Limitations:

Stepped Intervention:
1. Quinapril
2. Hydrochlorothiazide
3. Atenolol
4. Amlodipine
5. Terazosin

Treated median 3.5 months pre-ablation

Small sample size
How do we explain the differences between SMAC AF and ARREST AF?

**SMAC AF**
- Hazard Ratio 0.94, 95% confidence interval (0.65,1.38), p=0.763
- Standard BP Treatment
- Aggressive BP Treatment

**ARREST AF**
- Kaplan-Meier survival curves for Control and RF-Mx groups
  - Group: Control, RF-Mx
  - Follow-up (days): 0, 180, 360, 540, 720

Pathak RK. *J Am Coll Cardiol* 2014;64:2222–3.
Aggressive BP Reduction (in isolation): Too little, too late?

- Similar BP reduction appeared successful in ARREST trial
  - 34 ± 8 vs. 21 ± 3 mmHg

- AF substrate/disease progression is complex & occurs over a long period of time

- Targeting a single mechanism or risk factor in isolation is suboptimal
Aggressive BP Reduction (in isolation): Too little, too late?

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Thank you
Too little or too late?

<table>
<thead>
<tr>
<th>Age &gt; 61 yr</th>
<th>&lt; 61 yr</th>
<th>P value for interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Male</td>
<td>0.539</td>
</tr>
<tr>
<td>Body Mass Index &gt; 31 kg/m²</td>
<td>&lt; 31 kg/m²</td>
<td>0.996</td>
</tr>
<tr>
<td>Type of AF: Persistent</td>
<td>Paroxysmal</td>
<td>0.399</td>
</tr>
<tr>
<td>Baseline BP &gt; 140 mmHg</td>
<td>&lt; 140 mmHg</td>
<td>0.022</td>
</tr>
<tr>
<td>CHADS² score &gt; 2</td>
<td>&lt; 2</td>
<td>0.241</td>
</tr>
<tr>
<td>Left atrial size &gt; 42 mm</td>
<td>&lt; 42 mm</td>
<td>0.591</td>
</tr>
</tbody>
</table>

Aggressive BP Standard BP