Stroke Prevention in Patients with AF: Barriers to Treatment

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Disclosures

- Abbott
- Allergan
- ARCA biopharma
- Bayer
- BMS/Pfizer
- Boston Scientific

- German AFNet
- Gilead
- Janssen
- Medtronic
- NHLBI
- Sanofi
Top 10 Reasons Stroke Prevention is Underutilized

1. TWO
2. SEVEN
3. THREE
4. FOUR
5. ONE
6. EIGHT
7. FIVE
8. SIX
9. NINE
10. TEN
10. Contraindications to oral anticoagulation are common
Contraindications to Oral Anticoagulation (%)

n=1330 (13% overall)

O'Brien EC. Am Heart J. 2014;167:601-609
9. Physicians underestimate risk
Agreement between Physicians & Risk Scores

A

- CHADS2 Score
- Physician-Assigned Stroke Risk

B

- ATRIA Bleeding Score
- Physician-Assigned Bleeding Risk

Impact of 2014 ACC/AHA/HRS Guidelines Recommendations

- Overall
  - N in category: 7274, 9199
  - Total: 10131, 10131

- <65
  - N in category: 882, 1240
  - Total: 2047, 2047

- ≥65
  - N in category: 6394, 7963
  - Total: 8084, 8084

- Women
  - N in category: 3290, 4190
  - Total: 4289, 4289

- Men
  - N in category: 3990, 5012
  - Total: 5842, 5842

8. Aspirin is used in lieu of OAC
Treatment Across Risk Strata: NCDR PINNACLE Registry

# AHA/ACC/HRS 2014 AF Guidelines: Stroke Prevention for Nonvalvular AF

<table>
<thead>
<tr>
<th>Risk category</th>
<th>Recommended Therapy</th>
<th>Class &amp; Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHA$_2$DS$_2$VASc = 0</td>
<td>No therapy</td>
<td>Class 2A (LOE B)</td>
</tr>
<tr>
<td>CHA$_2$DS$_2$VASc = 1</td>
<td>Aspirin or oral anticoagulant</td>
<td>Class 2B (LOE C)</td>
</tr>
<tr>
<td>CHA$_2$DS$_2$VASc ≥2</td>
<td>Warfarin (INR 2.0 to 3.0)</td>
<td>Class I (LOE A)</td>
</tr>
<tr>
<td></td>
<td>Dabigatran, Rivaroxaban, or Apixaban</td>
<td>Class I (LOE B)</td>
</tr>
</tbody>
</table>

In high-risk patients NOACs more effective than ASA without increased bleeding

<table>
<thead>
<tr>
<th>Months</th>
<th>Apixaban</th>
<th>Aspirin</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>0.000</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>0.005</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>0.010</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>0.015</td>
</tr>
<tr>
<td>12</td>
<td>0.020</td>
<td>0.020</td>
</tr>
<tr>
<td>18</td>
<td>1.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Hazard ratio with apixaban, 1.13 (95% CI, 0.74–1.75)

P=0.57

No. at Risk
- Aspirin: 2791, 2738, 2557, 2140, 1571, 642
- Apixaban: 2808, 2759, 2566, 2120, 1521, 622
7. Bleeding scores confuse the issue
HAS-BLED scores and Outcomes by Treatment

Bleeding scores may help forecast net clinical benefit with alternatives to OAC

6. Physicians continue to place undue emphasis on the patient’s rhythm
Stroke risk increases with the “dose” of AF

OAC discontinuation after ablation is common and is associated with increased thromboembolism

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>HR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticoagulation use</td>
<td></td>
</tr>
<tr>
<td>Low risk patients (CHA$_2$DS$_2$-VASc 0 or 1)</td>
<td></td>
</tr>
<tr>
<td>Continuation</td>
<td>Reference</td>
</tr>
<tr>
<td>$\geq$3 mo off OAC</td>
<td>0.34 (0.04–2.62)</td>
</tr>
<tr>
<td>High risk patients (CHA$_2$DS$_2$-VASc $\geq$2)</td>
<td></td>
</tr>
<tr>
<td>Continuation</td>
<td>Reference</td>
</tr>
<tr>
<td>$\geq$3 mo off OAC</td>
<td>2.48$^*$ (1.11–5.52)</td>
</tr>
</tbody>
</table>
5. Physicians are less tolerant of bleeding than patients
Physician vs. Patient Thresholds for Anticoagulant Treatment (per 100 patients)

Devereaux P J et al. BMJ 2001;323:1218
4. Our risk scores need some help*

*i.e. they suck*
In patients with nonvalvular AF, the CHA$_2$DS$_2$-VASc score is recommended for assessment of stroke risk. *(Class I, Level of Evidence: B)*
How good are we at discriminating stroke risk in AF?

<table>
<thead>
<tr>
<th>Model</th>
<th>Outcome</th>
<th>C-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRACE Score</td>
<td>6-month survival after ACS</td>
<td>0.75-0.81</td>
</tr>
<tr>
<td>Seattle Heart Failure Model</td>
<td>1-year survival in HF</td>
<td>0.73</td>
</tr>
<tr>
<td>APACHE III</td>
<td>Survival to discharge following ICU admission</td>
<td>0.90</td>
</tr>
<tr>
<td>Model for End-Stage Liver Disease (MELD)</td>
<td>3-month survival in end-stage liver disease</td>
<td>0.80-0.87</td>
</tr>
</tbody>
</table>

CHADSVASC  C-statistic  0.55-0.64

3. Patient education falls short
The major risks of AF are (“Strongly Agree”):

- Stroke: 62.6%
- Heart Attack: 32.1%
- Sudden Death: 28.2%
- Bleeding: 25.4%
- No Risk: 7.1%
- Cancer: 6.3%
2. Failure to diagnose AF
Olmstead County Experience: 1 in 4 AF patients is asymptomatic

- 4618 with 1st ECG dx
- Asymptomatic – 25%
  - older, lower HR, >PersAF
  - 3-fold ↑stroke before AF diagnosis

Tsang, Gersh. *Can J Cardiol.* 2011
Cryptogenic Stroke & Underlying AF: CRYSTAL AF

OAC use:

ICM 10% vs.

Control 4.6%

Detection of Atrial Fibrillation by 12 Months

Hazard ratio, 7.3 (95% CI, 2.6–20.8)
P<0.001 by log-rank test

1. Inadequate emphasis/quality improvement efforts

(but this is changing)
Discharge on an approved OAC

p<.0001

Percent

Q1  Q2  Q3  Q4  Q5  Q6  Q7  Q8  Q9  Q10  Q11  Q12  Q13  Q14  Q15
85.7  76.7  82.1  84.3  88.6  91.9  90.8  91.3  92.3  94  95.3  94.5  93.1  95.4  96.8
So . . . What do patients want?
“Pill in Pocket” Anticoagulation

AF > 1 hour  NOAC x 30 days

REACT.COM
Rhythm Evaluation for AntiCoagulaTion with COntinuous Monitoring
