Anticoagulation in Non-valvar Atrial Fibrillation

**Determing Need for Anticoagulation**

- The need to anticoagulate is primarily based on ischemic stroke risk
- CHA2DS2-VASc is the recommended ischemic stroke risk tool
- Bleed risk and patient preference should also be considered
- Aspirin is NOT recommended for stroke prevention in patients with high stroke risk

<table>
<thead>
<tr>
<th>CHA2DS2-VASc Scoring Tool Condition</th>
<th>Points</th>
<th>Score</th>
<th>Yearly Stroke Risk (%)</th>
<th>Risk Management</th>
<th>AHA/ACC Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congestive heart failure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>High</td>
</tr>
<tr>
<td>Hypertension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Anticoagulate</td>
</tr>
<tr>
<td>Age &gt; 75 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Consider oral anticoagulant or ASA</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke/TIA or thromboembolism (prior)</td>
<td>2</td>
<td></td>
<td>1.3</td>
<td>0.0</td>
<td>Low</td>
</tr>
<tr>
<td>Vascular disease (MI, PAD, or aortic plaque)</td>
<td>1</td>
<td></td>
<td>3.2</td>
<td>1.1</td>
<td>Low</td>
</tr>
<tr>
<td>Age 65-74 years</td>
<td></td>
<td></td>
<td>4.0</td>
<td>1.4</td>
<td>Low</td>
</tr>
<tr>
<td>Sex Category (Female)</td>
<td></td>
<td></td>
<td>6.7</td>
<td>2.3</td>
<td>Low</td>
</tr>
<tr>
<td>Total score&gt; 2</td>
<td></td>
<td></td>
<td>9.8</td>
<td>3.4</td>
<td>No antithrombotic</td>
</tr>
</tbody>
</table>

- For additional information about anticoagulation in Atrial Fibrillation, visit [www.anticoagulationtoolkit.org](http://www.anticoagulationtoolkit.org)

**Anticoagulant Selection**

- Warfarin (Coumadin®)
  - Pros: Inexpensive, Can be monitored, Can be reversed, Less GI bleeding, Once daily dosing
  - Cons: Many food/drug interactions, Frequent INRs and dose changes, May require bridging among procedures, More intracranial bleeds
  - Dosing: Initial 5mg/day (consider 2.5mg if high bleed risk), Subsequent dosing based on INR with target range of 2-3
  - Contraindications/Precautions: Pregnancy (except mechanical heart valves), Concomitant use of antibiotics, antifungals, herbal products, and inhibitors/inducers of CYP2C9, 1A2, and/or C44
  - Assessment/Monitoring: Baseline: INR and CBC INR 3-5 days after initiation and approx. 7 days after dose changes. INRs can be gradually spaced out if stable

- Apixaban (Eliquis®)
  - Pros: Less major bleeding and lower all-cause mortality compared to warfarin, Only DOAC to not have higher risk of GI bleed compared to warfarin
  - Cons: More expensive, No accurate direct measurement, Not easily reversed (except dabigatran), Relatively heavy on renal elimination
  - Dosing: DOAC specific (see below)
  - Contraindications/Precautions: Pregnancy/nursing, BMI > 40, or weight > 186lb, Bariatric surgery, Significant renal dysfunction (CrCl <30 mL/min)
  - Assessment/Monitoring: Renal function, liver function, CBC before initiation and at least yearly. Assess pt at week 1, 3, and 3 months from initiation

- Dabigatran (Pradaxa®)
  - Pros: Has an effective reversal agent but may not be readily available at all facilities, Only DOAC to be superior to warfarin in ischemic stroke prevention
  - Cons: More expensive, No accurate direct measurement, Not easily reversed (except dabigatran), Relies heavily on renal elimination
  - Dosing: Warfarin bridging when INR > 3 and weight ≥110 kb, DOAC bridging when INR ≥2.5
  - Contraindications/Precautions: Prosthetic heart valves (CYP3A4 and P-gp), Severe hepatic impairment
  - Assessment/Monitoring: See DOAC info above. Use Cockcroft-Gault with actual weight to calculate CrCl

- Edoxaban (Savaysa®)
  - Pros: Less major bleeding compared to warfarin, once/daily dosing
  - Cons: Inferior stroke prevention in patients with CrCl 15-50 mL/min and drug interactions
  - Dosing: 30mg daily (CrCl 30-50 mL/min with dronedarone or ketocazole), 60mg daily (CrCl >50 mL/min)
  - Contraindications/Precautions: Prosthetic heart valves (CYP3A4 and P-gp), P-gp inhibitors if CrCl <30 mL/min
  - Assessment/Monitoring: See DOAC info above. Use Cockcroft-Gault with actual weight to calculate CrCl

- Rivaroxaban (Xarelto®)
  - Pros: Once/daily dosing, Should be taken with largest meal of the day, More GI bleeding compared to warfarin
  - Cons: Less major bleeding, Less major bleeding compared to warfarin, More GI bleeding than warfarin
  - Dosing: 20mg daily (CrCl 15-50 mL/min), 15mg daily (CrCl <15 mL/min)
  - Contraindications/Precautions: Prosthetic heart valves (CYP3A4 and P-gp), Combined P-gp and moderate CYP3A4 inhibitors if CrCl <15 mL/min
  - Assessment/Monitoring: See DOAC info above. Use Cockcroft-Gault with actual weight to calculate CrCl

**Anticoagulation**

- Watch for sx of bleeding (especially intracranial)
- Notify healthcare provider if any sx of bleeding but seek immediate medical care if serious bleeding
- Notify clinic before starting any new med (including OTC) or having proc.
- ASA/AASLDs can increase bleeding risk. Only use if clear indication.
- Avoid dangerous activities that could lead to injuries (use protective gear)
- Notify dentist or physician that you are on anticoagulant prior to procedure
- Don’t stop without consulting healthcare provider
- Provide written materials covering the above topics

- Maintain stable Vitamin K intake (eg, green leafy vegetables, broccoli, brussel sprouts, green tea)
- Notify if illness or change in health status (may effect INR)
- Alcohol can increase INR
- Follow-up: assess CBC, liver function, renal function (more frequently if renal insufficiency), weight, and age. Adjust dose per package insert dosing instructions (above), if necessary
- Periprocedural: If DOAC is to be interrupted, timing of last dose is based on procedure bleed risk, pt CrCl, and specific DOAC (see MAQI toolkit p. 56). Consider holding DOAC longer if patient on P-gp and CYP3A4 inhibitor. Bridging is rarely needed. DOAC can be restarted after day low risk procedure and 48-72 hours after higher risk procedure.
- Switching to another DOAC: discontinue current DOAC and start new one at next scheduled dose.
- Switching to warfarin: see DOAC package insert for instructions

- Warfarin-specific
- DOAC-specific

**Patient Education**

- Follow-up: at each flu, assess for compliance, sx of bleeding or thromboembolism, interacting medication, and reinforce patient education.
- Bleeding
  - Nutritional: minor bleeding common (epistaxis, bleeding gums, etc.) Not reason to d/c anticoagulant. Teach how to prevent/manage.
  - Major bleeds: In most cases, resuming anticoagulation after bleeding controlled is best (~14 days after GI, within 1 mo. for intracranial)
  - Periprocedural: Most pts don’t need to have anticoag, interrupted for low bleed risk proc. unless pt has high bleed risk (see table below). See warfarin and DOAC-specific peri-procedural info if interruption necessary.

- High risk pt.
  - Eg. major bleed <3 mos, platelet abnormalities (including ASA use), hx of bleeding during prior bridging
- Low risk proc.
  - Eg. minor dental and dermatological, cataract/glaucoma, diagnostic endoscopies
- High risk proc.
  - Eg. major surgeries, procedures in highly vascularized organs (eg, kidneys), spinal procedures

- Follow-up: INRs 3-5 days after re-starting or any changes that can effect INR (ex. med or diet change) and approx. 7 days after any dose changes.
- INRs can gradually be spaced out to monthly
- Dose changes per a standardized protocol
- Periprocedural: If high-risk proc. or high-risk pt. (see table bottom left), stop 5 days before. DO NOT bridge unless CHA2DS2-VASc ≥7 or stroke <3 mos. If bridging, start LMWH (UFH if CrCl >30) 3 days before proc. and stop 24 hrs before proc. (at least 4 hrs if UFH). Restart warfarin within 24 hrs of proc. at previous dose. Restart LMWH or UFH 24 hrs after low-risk proc. or 48-72 hours after high-risk proc. Stop LMWH/UFH when INR is therapeutic
- Switching to DOAC: stop warfarin and start DOAC when INR ≥2 (apixaban, dabigatran), ≤2.5 (edoxaban), ≤3 (rivaroxaban)

- Follow-up: assess CBC, liver function, renal function (more frequently if renal insufficiency), weight, and age. Adjust dose per package insert dosing instructions (above), if necessary
- Periprocedural: If DOAC is to be interrupted, timing of last dose is based on procedure bleed risk, pt CrCl, and specific DOAC (see MAQI toolkit p. 56). Consider holding DOAC longer if patient on P-gp and CYP3A4 inhibitor. Bridging is rarely needed. DOAC can be restarted after day low risk procedure and 48-72 hours after higher risk procedure.
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References


- Drug package inserts
  - Apixaban: https://packageinserts.bms.com/pi/pi_eliquis.pdf
  - Dabigatran: http://docs.boehringer-ingelheim.com/Prescribing%20Information/PIs/Pradaxa/Pradaxa.pdf
  - Edoxaban: http://dsi.com/prescribing-information-portlet/getPIContent?productName=Savaysa&inline=true

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