

Anticoagulation for Stroke Prevention in Atrial Fibrillation

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Society of Critical Care Medicine
Texas Chapter Symposium
September 17, 2016

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Disclosures

- No disclosures to report

Learning Objectives

1. Define the clinical implications of inadequate anticoagulation in patients with atrial fibrillation
2. Evaluate potential obstacles and solutions regarding treatment regimens for critically ill patients with limited financial resources

Atrial Fibrillation (AF)

- Common cardiac arrhythmia
- Clinical implications
 - Hospitalizations
 - Hemodynamic abnormalities
 - Heart failure
 - Thromboembolic events
 - Dementia
 - Mortality

- Thromboembolism occurring with AF
 - Greater risk of recurrent stroke
 - More severe disability
 - Mortality
- Stroke prevention
 - Control risk factors
 - Appropriate use of antithrombotic therapy

Stroke Risk Stratification

	Score		Adjusted Stroke Rate (% per y)
CHA ₂ DS ₂ -VASc		CHA ₂ DS ₂ -VASc†	
Congestive HF	1	0	0
Hypertension	1	1	1.3
Age ≥75 y	2	2	2.2
Diabetes mellitus	1	3	3.2
Stroke/TIA/TE	2	4	4.0
Vascular disease (prior MI, PAD, or aortic plaque)	1	5	6.7
Age 65-74 y	1	6	9.8
Sex category (i.e., female sex)	1	7	9.6
Maximum score	9	8	6.7
		9	15.20

Adapted from January et al, J Am Coll Cardiol 2014.

CHA₂DS₂-VASc Score

2014 AHA/ACC/HRS Guideline for the Management of Patients with Atrial Fibrillation

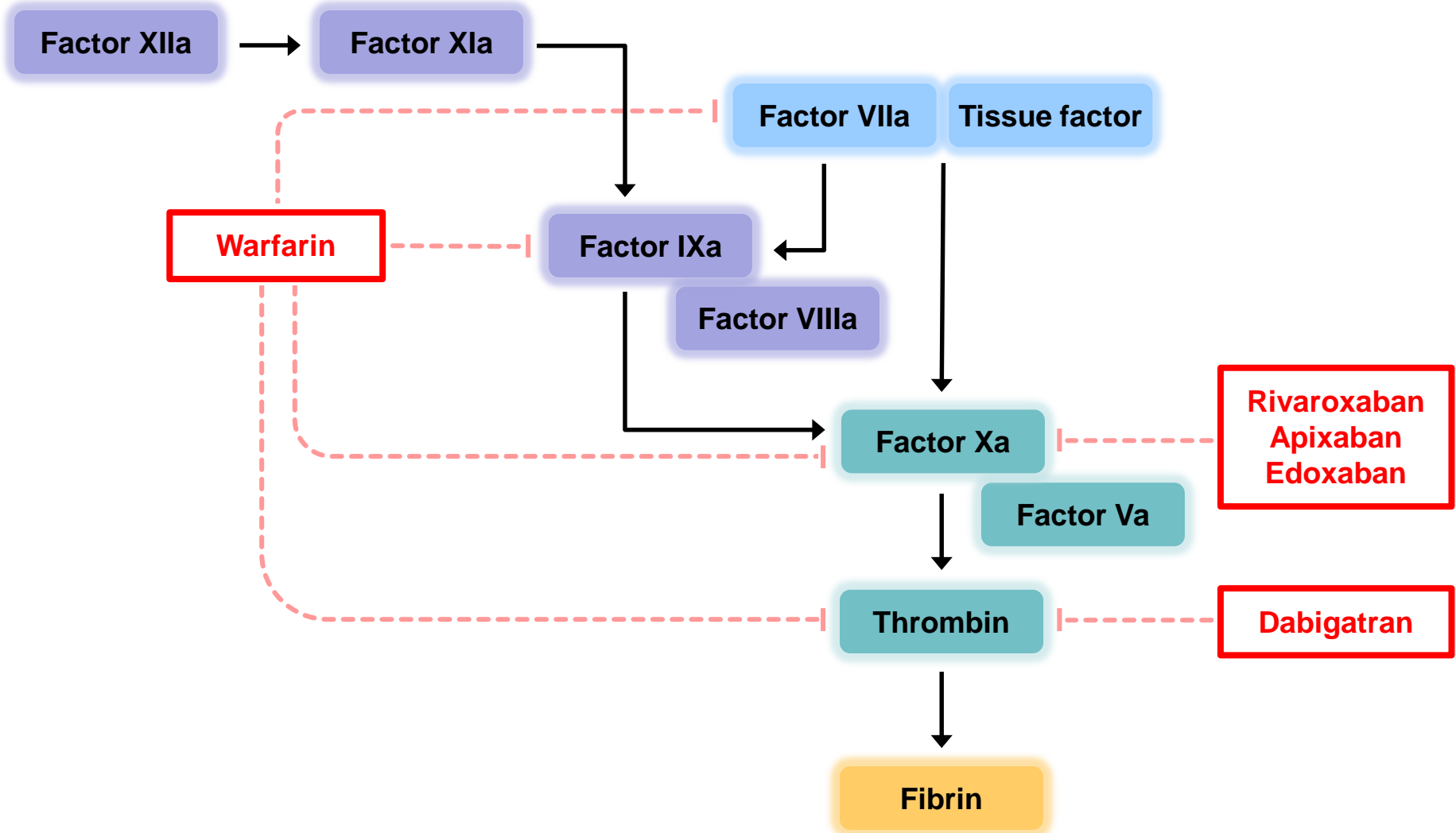
Score	Recommendation	LOE
0	Reasonable to omit antithrombotic therapy	B
1	No antithrombotic therapy or treatment with an oral anticoagulant or aspirin may be considered.	C
≥ 2	Oral anticoagulants recommended: <ul style="list-style-type: none">• Warfarin• Dabigatran, Rivaroxaban, Apixaban	A B

AHA: American Heart Association; ACC: American College of Cardiology; HRS: Heart Rhythm Society; LOE: Level of Evidence

- Antiplatelets
 - Aspirin
 - Aspirin + Clopidogrel
- Anticoagulants
 - Warfarin
 - Novel oral anticoagulants (NOACs)
 - Dabigatran, Rivaroxaban, Apixaban, Edoxaban
 - Parenteral anticoagulants
 - Heparin, Enoxaparin

- Aspirin
 - Not as effective compared to anticoagulation
 - Lower bleeding risk compared to warfarin
- Aspirin + Clopidogrel
 - Not more effective than anticoagulation
 - Adjusted-dose warfarin significantly better
 - Increased bleeding risk compared to aspirin monotherapy

Oral Anticoagulants



- Warfarin (Coumadin®)
 - Reduces risk of stroke and mortality compared with aspirin or no therapy
 - Safe in AF and valvular heart disease
- NOACs vs. Warfarin
 - As effective or better in preventing stroke
 - Lower rate of major bleeding

NOACs vs. Warfarin

	Dabigatran (RE-LY)	Rivaroxaban (ROCKET-AF)	Apixaban (ARISTOTLE)	Edoxaban (ENGAGE AF-TIMI)
CHADS₂ score (mean)	2.1	3.5	2.1	2.8
Dose	150 mg BID	20 mg daily	5 mg BID	60 mg daily
Stroke/systemic embolism	↓	↔	↓	↔
Ischemic stroke	↓	↔	↔	↔
Major bleeding	↔	↔	↓	↓
Intracranial bleeding	↓	↓	↓	↓
GI major bleeding	↑	↑	↔	↑

Adapted from Kirchof et al, Eur Heart J 2016. Hart et al, Ann Intern Med 2007. Connolly et al, NEJM 2009. Granger et al, NEJM 2011. Patel et al, NEJM 2011. Giugliano et al, NEJM 2013.

Oral Anticoagulants

	Warfarin	Dabigatran	Xa inhibitors
Dosing	Once daily	Twice daily	Once or twice daily
Dose adjustment	Based on INR	Renal	Renal, age, weight
Monitoring	Routine	No	No
Drug interactions	Numerous	Less than Warfarin	Less than Warfarin
Food interactions	Numerous	None	Minimal to none
Reversal agent	Vitamin K	Idarucizumab	None approved
Cost	\$4/month	~ \$400/month	~ \$400/month

- Heparin, Enoxaparin (Lovenox[®])
- To bridge or not to bridge?
 - Consider risk of thromboembolism vs. bleeding
 - Bridging beneficial in patients with mechanical heart valves

Inadequate Anticoagulation

- About half of patients with AF are being treated with anticoagulation
- Patients on warfarin spend less than two-thirds of the time within the therapeutic INR range
- One missed NOAC dose can increase risk of thromboembolism due to short half-life

Barriers to Anticoagulation

- Knowledge gaps
- Bleeding risk
- Drug-specific concerns
- Financial limitations
 - Drug acquisition
 - Drug monitoring

Drug Acquisition

- Warfarin
 - Generic availability
- Enoxaparin
 - Sanofi Patient Connection
- NOACs
 - Insurance formulary status
 - Patient assistance programs

NOACs

	Cost/Month	Patient Assistance
Dabigatran (Pradaxa®)	~ \$420	Pradaxa Savings <ul style="list-style-type: none">• Insured – as little as \$0/month• Uninsured – 30-day free trial
Rivaroxaban (Xarelto®)	~ \$430	Janssen CarePath <ul style="list-style-type: none">• Insured – \$0 copay/month• Uninsured – 30-day free trial Johnson & Johnson Patient Assistance Foundation
Apixaban (Eliquis®)	~ \$430	Eliquis 360 Support <ul style="list-style-type: none">• Insured – \$10/month (up to 24 months)• Uninsured – 30-day free trial
Edoxaban (Savaysa®)	~ \$350	Savaysa Support <ul style="list-style-type: none">• Insured – \$4/month

- Monitor warfarin at least weekly during initiation and monthly when stable
- Health centers/clinics
 - Federally Qualified Health Center
 - County healthcare assistance
 - Anticoagulation clinics

- AF confers an increased risk of stroke
- Anticoagulation therapy can prevent the majority of ischemic strokes in AF patients
- Selection of antithrombotic therapy should be based on discussion of risks and benefits and patient's preferences

Which score is recommended in current guidelines to assess stroke risk in patients with nonvalvular atrial fibrillation?

- A. ATRIA
- B. CHADS₂
- C. CHA₂DS₂-VASc
- D. HAS-BLED

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Which oral anticoagulant is recommended for patients with nonvalvular atrial fibrillation and a prior stroke?

- A. Apixaban
- B. Rivaroxaban
- C. Warfarin
- D. All of the above

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