

ANTICOAGULATION USE SAFETY

Patti Romeril, PharmD

Perioperative Anticoagulation Guidance Document

		Table 1. Perioperative Anticoagulation Management Recommendations Based on Risk Assessment																				
		Thromboembolic Risk																				
		High	Moderate	Low																		
<p>* CHA₂DS₂-VASc Score Calculation:</p> <table border="1"> <thead> <tr> <th colspan="2">CHA₂DS₂-VASc score</th> </tr> </thead> <tbody> <tr> <td>Congestive Heart Failure</td> <td>1</td> </tr> <tr> <td>Hypertension (>140/90 mmHg)</td> <td>1</td> </tr> <tr> <td>Age >= 75 years old</td> <td>2</td> </tr> <tr> <td>Diabetes Mellitus</td> <td>1</td> </tr> <tr> <td>Prior TIA or stroke</td> <td>2</td> </tr> <tr> <td>Vascular disease</td> <td>1</td> </tr> <tr> <td>Age 65-74</td> <td>1</td> </tr> <tr> <td>Sex category (female)</td> <td>1</td> </tr> </tbody> </table>		CHA ₂ DS ₂ -VASc score		Congestive Heart Failure	1	Hypertension (>140/90 mmHg)	1	Age >= 75 years old	2	Diabetes Mellitus	1	Prior TIA or stroke	2	Vascular disease	1	Age 65-74	1	Sex category (female)	1	<p>Mechanical heart valve patients:</p> <ul style="list-style-type: none"> Any mitral valve prosthesis Any caged-ball or tilting disc aortic valve prosthesis Recent (within 6 months) stroke or transient ischemic attack <p>Atrial fibrillation (AFib) patients:</p> <ul style="list-style-type: none"> CHA₂DS₂-VASc score* 7-9 Recent (within 3 months) stroke or transient ischemic attack Rheumatic valvular heart disease <p>Venous thromboembolism patients:</p> <ul style="list-style-type: none"> Recent VTE (within 3 months) Severe thrombophilia (e.g., deficiency of protein C, protein S, or antithrombin; antiphospholipid antibodies; multiple abnormalities) Myeloproliferative disorders 	<p>Mechanical heart valve:</p> <ul style="list-style-type: none"> Bileaflet aortic valve prosthesis and 1 or more of the following risk factors: atrial fibrillation, prior stroke or transient ischemic attack, hypertension, diabetes, congestive heart failure, age >75 years <p>Atrial fibrillation patients:</p> <ul style="list-style-type: none"> CHA₂DS₂-VASc score* 4-6 <p>Venous thromboembolism patients:</p> <ul style="list-style-type: none"> VTE within the past 3-12 months Non-severe thrombophilia (e.g., heterozygous factor V Leiden or prothrombin gene mutation) Recurrent VTE (>3 months) Active cancer (treated within 6 months or palliative) 	<p>Mechanical heart valve patients:</p> <ul style="list-style-type: none"> Bileaflet aortic valve prosthesis without atrial fibrillation and no other risk factors for stroke <p>Atrial fibrillation patients:</p> <ul style="list-style-type: none"> CHA₂DS₂-VASc score* 0-3 (assuming no prior stroke or transient ischemic attack) <p>Venous thromboembolism patients:</p> <ul style="list-style-type: none"> VTE >12 months previous and no other risk factors
		CHA ₂ DS ₂ -VASc score																				
		Congestive Heart Failure	1																			
		Hypertension (>140/90 mmHg)	1																			
Age >= 75 years old	2																					
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Vascular disease	1																					
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Sex category (female)	1																					
Procedure Bleeding Risk	High	<ul style="list-style-type: none"> Cardiovascular/thoracic surgery Intra-abdominal/pelvic surgery Major orthopedic surgery Neurosurgery Cardiac catheterization via femoral artery 	<p>Interruption: recommend interruption of anticoagulation for warfarin and DOAC patients</p> <p>Bridging: suggest bridging with warfarin patients only</p>	<p>Interruption: recommend interruption of anticoagulation for warfarin and DOAC patients</p> <p>Bridging: no longer recommend in general</p>	<p>Interruption: recommend interruption of anticoagulation for warfarin and DOAC patients</p> <p>Bridging: suggest no bridging</p>																	
	Moderate	<ul style="list-style-type: none"> SVT ablation ICD implant Endoscopy with biopsy Prostate biopsy Cardiac catheterization via radial artery 	<p>Interruption: recommend interruption of anticoagulation for DOAC patients and suggest interruption of anticoagulation for warfarin patients</p> <p>Bridging: suggest bridging with warfarin patients only</p>	<p>Interruption: recommend interruption of anticoagulation for warfarin and DOAC patients</p> <p>Bridging: no longer recommended</p>	<p>Interruption: recommend interruption of anticoagulation for warfarin and DOAC patients</p> <p>Bridging: suggest no bridging</p>																	
	Low	<ul style="list-style-type: none"> Minor dental Minor dermatologic Ophthalmologic Endoscopy without biopsy Thoracentesis 	<p>Do not interrupt anticoagulation</p> <p>Elective procedure: no warfarin interruption; hold DOAC per table below for low-risk procedure</p> <p>NSTEMI: no warfarin interruption; hold DOAC 24 hours in advance regardless of DOAC</p> <p>STEMI: no warfarin or DOAC interruption</p>																			

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Table 2. Direct Oral Anticoagulant (DOAC) Cessation/Re-initiation Guidance					
Anticoagulant	Duration of Hold Prior to Procedure		Day of Surgical Procedure	When to Re-Initiate After Procedure	
	Low/Moderate Procedural Bleed Risk	High Procedural Bleed Risk		Low/Moderate Procedural Bleed Risk	High Procedural Bleed Risk
Apixaban Edoxaban Rivaroxaban	24 - 48 hours	48 - 72 hours		≥ 24 hours post-op	<u>High thromboembolism risk:</u> 48 - 72 hours post-op <u>Low/moderate thromboembolism risk:</u> 120 - 168 hours post-op (5 -7 days)
Dabigatran (CrCl > 50 ml/min)	24 - 48 hours	48 - 72 hours			
Dabigatran (CrCl 30-50 ml/min)	48 - 72 hours	96 - 120 hours			

Table 3. Conventional Anticoagulation Cessation/Re-initiation Guidance							
Conventional Anticoagulant	Treatment Dosing				Prophylactic Dosing		
	Cessation			Re-initiation Post-Op		Cessation	Re-initiation Post-Op
	Above Goal INR	At Goal INR	Below INR Goal	Low Bleed Risk	High Bleed Risk		
Warfarin	5-7 days	5 days	3-4 days	12-24 hours		Not applicable	
	Reassess INR 24 hours prior to procedure.						
UFH	4-6 hours			12-24 hours	48-72 hours	4-6 hours	≥6-12 hours
LMWH	24 hours			24 hours	48-72 hours	30 mg BID: 12 hours 40 mg daily: 12-24 hours	
Fondaparinux	3-4 days			Consider a shorter acting agent until patient is tolerant to anticoagulation		≥48 hours	

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