

# ANTICOAGULATION GUIDELINES FOR NEURAXIAL PROCEDURES

Guidelines to Minimize

Risk Spinal Hematoma with Neuraxial Procedures \*\*



<b>PRIOR TO NEURAXIAL/NERVE PROCEDURE</b> Minimum time between last dose of antithrombotic agent AND neuraxial injection or neuraxial/nerve catheter placement	<b>WHILE NEURAXIAL/NERVE CATHETER IN PLACE</b> Restrictions on use of antithrombotic agents while neuraxial/nerve catheters are in place and prior to their removal	<b>AFTER NEURAXIAL/NERVE PROCEDURE</b> Minimum time between neuraxial injection or neuraxial/nerve catheter removal AND next dose of antithrombotic agent
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## ANTICOAGULANTS, INJECTABLE

<b>Heparin</b> 5000 units SQ q8h or q12h	4-6 hours verify normal aPTT	May be given; preferred over alternatives	1 hour
<b>Heparin</b> 7500 units SQ q8h or q12h	12 hours verify normal aPTT	May be given; preferred over alternatives	1 hour
<b>Heparin IV infusion</b>	4-6 hours verify normal aPTT	May be given; preferred over alternatives	1 hour
Dalteparin (Fragmin)		CONTRAINDICATED	
<b>Enoxaparin (Lovenox)</b> 40 mg SQ daily	$\geq 12$ hours	May be maintained with once daily dosing, without administration of any other antihemostatic drugs	4 hours
<b>Enoxaparin (Lovenox)</b> 30 mg SQ q12h	$\geq 12$ hours	CONTRAINDICATED Risk of spinal/epidural hematomas	4 hours
<b>Enoxaparin (Lovenox)</b> 1.5 mg/kg SQ daily or 1 mg/kg SQ q12h	$\geq 24$ hours		4 hours
Fondaparinux (Arixtra)	36-42 hours	CONTRAINDICATED	6 hours

## ANTICOAGULANTS, ORAL

<b>Apixaban (Eliquis)</b> 2.5 mg BID - 5 mg BID	3 days	CONTRAINDICATED	6 hours
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Rivaroxaban (Xarelto) 15-20 mg daily	3 days	CONTRAINDICATED	6 hours
<b>Betrixaban (Bevyxxa)</b> 80 mg daily	3 days	CONTRAINDICATED	5 hours
Edoxaban (Savaysa) 30-60 mg daily	3 days	CONTRAINDICATED	6 hours
Dabigatran (Pradaxa) 75-150 mg BID	CrCl < 30 mL/min: avoid NA CrCl 30-49 mL/min: 5 days CrCl 50-79 mL/min: 4 days CrCl ≥ 80 mL/min: 3 days Renal fxn unknown: 5 days	CONTRAINDICATED	6 hours
<b>Warfarin (Coumadin)</b>	4-5 days verify normal INR	check INR daily	remove when INR < 1.5
<b>DIRECT THROMBIN INHIBITORS, INJECTABLE</b>			
<b>Argatroban IV infusion</b>	Avoid neuraxial techniques		
Bivalirudin (Angiomax) IV infusion	Avoid neuraxial techniques		
<b>ANTIPLATELET AGENTS</b>			
<b>Aspirin</b>	May continue dosage	Avoid neuraxial techniques if early postoperative use of other anti-hemostatic drugs is anticipated	May continue dosage
<b>NSAIDs</b>	May continue dosage		May continue dosage
<b>Aspirin/dipyridamole (Aggrenox)</b>	24 hours	CONTRAINDICATED	6 hours
Cangrelor (Kengreal) IV infusion	3 hours	CONTRAINDICATED	8 hours
<b>Clopidogrel (Plavix)</b>	5-7 days	CONTRAINDICATED	Without LD: immediate With LD: 6 hours

Prasugrel (Effient)	7-10 days	CONTRAINDICATED	Without LD: immediate With LD: 6 hours
Ticagrelor (Brilinta)	5-7 days	CONTRAINDICATED	Without LD: immediate With LD: 6 hours
Abciximab (Reopro) IV infusion	24-48 hours	CONTRAINDICATED	Contraindicated for 4 weeks after surgery; monitor neurologic status if given after neuraxial technique
<b>Tirofiban (Aggrastat) IV infusion</b>	4-8 hours	CONTRAINDICATED	
Eptifibatide (Integrelin) IV infusion	4-8 hours	CONTRAINDICATED	
<b>THROMBOLYTIC AGENTS</b>			
<b>Alteplase (TPA)</b> 1 mg dose for catheter clearance		CONTRAINDICATED	
<b>Alteplase (TPA)</b> Full dose for stroke, MI, etc		CONTRAINDICATED	

*\*\*Guidelines do not address risks with multiple therapies or comorbidities that interfere with coagulation. Consult appropriate expert(s) as needed.*

#### **References**

1. Horlocker TT, Vandermeulen E, Kopp SL, et al. Regional Anesthesia in the Patient Receiving Antithrombotic or Thrombolytic Therapy: American Society of Regional Anesthesia and Pain Medicine Evidence-Based Guidelines (Fourth Edition). Reg Anesth Pain Med 2018; 43:263.
2. Gogarten W, Vandermuelen E, Van Aken H, et al. Regional anaesthesia and antithrombotic agents: recommendations of the European Society of Anaesthesiology. Eur J Anaesthesiol 2010; 27:999.

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