ANTICOAGULATION GUIDELINES FOR NEURAXIAL PROCEDURES

Stanford HEALTH CARE
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	PRIOR TO NEURAXIAL/NERVE PROCEDURE Minimum time between last dose of antithrombotic agent AND neuraxial injection or neuraxial/nerve catheter placement	WHILE NEURAXIAL/NERVE CATHETER IN PLACE Restrictions on use of antithrombotic agents while neuraxial/nerve catheters are in place and prior to their removal	AFTER NEURAXIAL/NERVE PROCEDURE Minimum time between neuraxial injection or neuraxial/nerve catheter removal AND next dose of antithrombotic agent
ANTICOAGULANTS, INJECTABLE			
Heparin 5000 units SQ q8h or q12h	4-6 hours verify normal aPTT	May be given; preferred over alternatives	1 hour
Heparin 7500 units SQ q8h or q12h	12 hours verify normal aPTT	May be given; preferred over alternatives	1 hour
Heparin IV infusion	4-6 hours verify normal aPTT	May be given; preferred over alternatives	1 hour
Dalteparin (Fragmin)		CONTRAINDICATED	
Enoxaparin (Lovenox) 40 mg SQ daily	≥ 12 hours	May be maintained with once daily dosing, without administration of any other antihemostatic drugs	4 hours
Enoxaparin (Lovenox) 30 mg SQ q12h	≥ 12 hours	CONTRAINDICATED Risk of spinal/epidural hematomas	4 hours
Enoxaparin (Lovenox) 1.5 mg/kg SQ daily or 1 mg/kg SQ q12h	≥ 24 hours		4 hours
Fondaparinux (Arixtra)	36-42 hours	CONTRAINDICATED	6 hours
ANTICOAGULANTS, ORAL			
Apixaban (Eliquis) 2.5 mg BID - 5 mg BID	3 days	CONTRAINDICATED	6 hours
Rivaroxaban (Xarelto) 15-20 mg daily	3 days	**CONTRAINDICATED**	6 hours

Betrixaban (Bevyxxa) 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
Warfarin (Coumadin)	4-5 days verify normal INR	**check INR daily**	remove when INR < 1.5
DIRECT THROMBIN INHIBITORS, INJECTABLE			
Argatroban IV infusion	Avoid neuraxial techniques		
Bivalirudin (Angiomax) IV infusion	Avoid neuraxial techniques		
ANTIPLATELET AGENTS			
Aspirin	May continue dosage	Avoid neuraxial techniques if early postoperative use of other anti-hemostatic drugs is anticipated	May continue dosage
NSAIDs	May continue dosage		May continue dosage
Aspirin/dipyridamole (Aggrenox)	24 hours	CONTRAINDICATED	6 hours
Cangrelor (Kengreal) IV infusion	3 hours	CONTRAINDICATED	8 hours
Clopidogrel (Plavix)	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
Tirofiban (Aggrastat) IV infusion	4-8 hours	CONTRAINDICATED	
Eptifibatide (Integrelin) IV infusion	4-8 hours	CONTRAINDICATED	
THROMBOLYTIC AGENTS			
Alteplase (TPA) **1 mg dose for catheter clearance**		CONTRAINDICATED	
Alteplase (TPA) **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, Vandermeuelen 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, Vandermeuelen E, Van Aken H, et al. Regional anaesthesia and antithrombotic agents: recommendations of the European Society of Anaesthesiology. Eur J Anaesthesiol 2010; 27:999.