Intermountain Healthcare

Guidelines for Neuraxial Anesthesia and Anticoagulation

NOTE: The decision to perform a neuraxial block on a patient receiving perioperative (anticoagulation) must be made on an individual basis by weighing the risk of spinal hematoma with the benefits of regional anesthesia for a particular patient.

Medication	***Prior to Catheter Placement*** (Minimum time between the last dose of anticoagulant and initial catheter placement)	***With Catheter in Place*** (When to restart anticoagulation therapy once the catheter has been placed)	***Prior to Catheter Removal*** (Time between the last dose of anticoagulant and catheter removal)	***After Catheter Removal*** (When to restart anticoagulation therapy once catheter has been removed)	***Additional Info***	***Half Life***
Heparin						
IV Heparin	Wait until PTT < 40 Usual hold time 4 hours	**Avoid While Catheter is in Place**		2 hours	Perform neuro check 12 hours after cath removal	1-2 hrs
SC Heparin (>5000 units)	Wait until PTT < 40 Usual hold time 12 hours					
SC Heparin TID (≤ 5000 units)	Hold AM dose and check PTT prior to placement	**No restrictions**	Hold AM dose check PTT prn		Use of compression device is also recommended	
SC Heparin BID (≤ 5000 units)						
Warfarin						
Warfarin (Coumadin®)	When INR <1.4 Usual hold time 4-5 days	**Avoid While Catheter is in Place**	May receive first dose 24 hours prior to cath removal but INR must be < 1.5 prior to removal	2 hours	Reversal – Vitamin K or FFP. Perform neuro check 24 hours after cath removal	20-60 hrs

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LMWH (Low Molecular Weight Heparins)						
Therapeutic Dosing: Enoxaparin (Lovenox®): 1mg/kg SC bid OR 1.5mg/kg daily Dalteparin: 120 units/kg BID OR 200 units/kg daily Tinzaparin: 175 units/kg daily	24 hours	**Avoid While Catheter is in Place**		4 hours	Hold time may be longer in patients with renal impairment (CrCl < 30ml/min)	4-7 hrs
Prophylactic Dosing: Enoxaparin (Lovenox®): 30 mg bid SQ, 40 mg SQ daily	At least 12 hours, 24 hours is recommended					
Factor X-a Inhibitors						
Fondaparinux (Arixtra®)	72 hours	**Avoid While Catheter is in Place**		12 hours	Consider longer hold time in patients with renal impairment (CrCl <50-30 mL/min) Contraindicated in CrCl < 30 mL/min	17-21 hrs
Rivaroxaban (Xarelto®)	24 hours			6 hours (24 hours for traumatic punctures)	Longer hold times in patients with renal impairment	5-9 hrs
Apixaban (Eliquis®)	48 hours			6 hours (24 hours for traumatic punctures)		6-12 hrs

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Direct Thrombin Inhibitors						
Argatroban	Wait until aPTT < 40	**Avoid While Catheter is in Place**		2 hours	Half-life in hepatic impairment ~ 181 min	40-50 min
Bivalirudin (Angiomax®)					Half- life with CrCl 10-29 mL/min ~ 57 min	25 min
Lepirudin (Refludan®)					Half- life with CrCl <15 mL/min up to 2 days	1-3 hrs
Dabigatran (Pradaxa®)	5 days			6 hours (24 hours for traumatic punctures)	Longer hold times in patients with renal impairment	8-17 Hrs
Anti-Platelet Agents* - See footnote on page 4 regarding risk of thrombosis if discontinued following stent placement						
Aspirin	**No restrictions**					
Clopidogrel (Plavix®)	7-10 days	**Avoid While Catheter is in Place**		2 hours		
Cilostazol (Pletal®)	42 hours			5 hours	Consider extending time prior to cath placement in patients with renal impairment	11-13 hrs
Dipyridamole/ASA (Aggrenox®)	24 hours			2 hours		
Prasugrel (Effient®)	7-10 days			6 hours		
Ticagrelor (Brilinta®)	5-7 days			6 hours		
Ticlodipine (Ticlid®)	10-14 days			2 hours		

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Fibrinolytics						
Streptokinase	10 days	**Avoid While Catheter is in Place**		10 days		18-83 min
Alteplase						26-46 min
Tenecteplase						115 min
Reteplase						13-16 min
Glycoprotein IIb/IIIa inihibitors						
Abciximab (Reopro®)	48 hours	**Avoid While Catheter is in Place**		2 hours		
Eptifibatide (Integrillin®)	8 hours					
Tirofiban (Aggrastat®)	8 hours					

*Perioperative antiplatelet management for patient with coronary stents (Please consult cardiology for patient on DAPT for stent <12 months):

Patients with recent coronary stent placement who require surgery present a complex treatment dilemma. These patients are typically on dual anti-platelet therapy (DAPT) - aspirin plus a P2Y12 platelet inhibitor (clopidogrel/Plavix, prasugrel/Effient, or ticagrelor/Brilinta). Prematurely discontinuing dual anti-platelet therapy after stent implantation can result in sub-acute stent thrombosis, which is associated with a high incidence of transmural myocardial infarction and death. Surgery creates an inflammatory pro-thrombotic state, which greatly increases the risk of thrombosis in stents that have not completely re-endothelialized. The risk of late stent thrombosis is particularly elevated in patients in whom aspirin and the P2Y12 platelet inhibitor are both stopped and then surgery is performed. Please see Intermountain guidelines for perioperative antiplatelet management for patients with coronary stents for detailed information.