

Anticoagulation Guidelines for Regional Anesthesia and Analgesia

(recommendations to avoid risk of neuraxial hematoma following neuraxial analgesic/anesthetic procedures.*)

Anticoagulant (half-life, in hours unless otherwise specified)	Anticoagulant Type	Minimum delay between last dose of anticoagulant and performance of neuraxial technique	Minimum delay between neuraxial technique and administration of anticoagulant	Other precautions
Heparin (Unfractionated) Intravenous (1-6h)	Pro-antithrombin III (anti II,X)	2-4h, or aPTT<30 or WNL	1 hour	
Heparin SQ BID ≤10,000u total (4h)	Pro-antithrombin III (anti II,X)	No restriction, caution during peak 1-4 post dose.	No restriction	
Heparin SQ TID (4h)	Pro-antithrombin III (anti II,X)	Insufficient data and caution advised. >6 hours**	Insufficient data (Many choose nadir of effect at >6h.**)	
Enoxaparin (Lovenox) (4-5h) QD prophylaxis (0.5 mg/kg) (40mg daily)	LMWH Anti-Xa	12 hours	2 hours	†
Enoxaparin (Lovenox) (4-5h) BID prophylaxis (0.5 mg/kg) (30mg BID)	LMWH Anti-Xa	12 hours	Not recommended with catheter. Initiate ≥2-4h post removal.	†
Enoxaparin (4-5h) BID therapeutic dose (≥0.5 mg/kg)	LMWH Anti-Xa	24 hours	Not recommended with catheter. Initiate ≥10-12h post removal.	†
Fondaparinux (Arixtra) (21h)	Pentasaccharide Anti-Xa	72 hours** or heparin assay.	Contraindicated for indwelling catheters. Initiate ≥12h post removal. **	
Rivaroxaban (Xarelto) (5-9 h)	Anti-Xa	48h** (Package insert states 18-24h)	6h, or 24h if traumatic insertion (package insert)	†,††
Warfarin (Coumadin) (60 h)	Vit K-dependent Factor Inhibition	INR NORMAL (≤ 1.2) after d/c of warfarin.	INR < 1.5 for catheter removal. Initiate after time of removal.	
Aspirin/NSAIDS (>72h)	Anti-Platelet	No restrictions	No Restrictions	
Clopidogrel (Plavix) (8 h)	Irreversible platelet aggregation inhibitor	7 days	Not recommended with catheter. Initiate ≥2h post removal.**	
Ticlopidine (Ticlid) (4-5 days)	Irreversible platelet aggregation inhibitor	14 days	Not recommended with catheter. Initiate ≥2h post removal.**	
Prasugrel (Effient) (7 h)	Irreversible platelet aggregation inhibitor	7**	Not recommended with indwelling catheter.	
Ticagrelor (Brilinta) (7-8.5h)	ADP reversible receptor blocker	5 days**	Not recommended with catheter. Initiate ≥2h post.**	††
Abciximab (Reopro) (30 minutes)	Glycoprotein IIb/IIIa inhibitor	48 hours	Not recommended with catheter. Initiate ≥2h post removal.	
Eptifibatide (Integrilin) (2.5h)	Glycoprotein IIb/IIIa inhibitor	8 hours	Not recommended with catheter. Initiate ≥2h post removal.	
Tirofiban (Aggrastat) (2h)	Glycoprotein IIb/IIIa inhibitor	8 hours	Not recommended with catheter. Initiate ≥2h post removal.	
Bivalrudin (Angiomax), Lepirudin, Desirudin, Argatroban	Thrombin (II) Inhibitor (IV)	Not recommended for neuraxial techniques. Insufficient data.	Not recommended for neuraxial techniques. Insufficient data.	
Dabigatran (Pradaxa) (17 h) (prolonged with CRI)	Thrombin (II) Inhibitor (oral)	5 days**	Not recommended with catheter. Initiate ≥2h post removal.**	†
Apixaban (Eliquis) (10h)	Oral Factor Xa Inhibitor	20-30h**	>5h**	††

Note: Recommendations are based on single drug use, combinations increase risk. Caution if traumatic neuraxial technique.

* Note that recommendation compliance does not eliminate the risk for neuraxial hematoma. Reference ASRAPM Evidence-Based Guidelines 2010: "Regional Anesthesia in the Patient Receiving Antithrombotic or Thrombolytic Therapy".

** NO current published guidelines.

† Caution with CRI, low weight, elderly.

†† T ½ doubled with strong CYP3A4 inhibitors (anti-fungals, antiretrovirals).