

Anticoagulation Guidelines for Neuraxial or Peripheral Nerve Procedures

Medication	Catheter Placement or Spinal Injection Minimum time between last dose of medication and spinal injection OR neuraxial/nerve catheter placement	Catheter Removal or Manipulation Minimum time between last dose of medication and removal of neuraxial/nerve catheter	First Dose AFTER Catheter Removal or Spinal Injection Minimum time between removal of neuraxial/nerve catheter or spinal injection and FIRST dose of medication
Heparin SQ 5,000 units BID or TID (≤15,000 units/day)	6 hours	6 hours	1 hour
Heparin SQ 7,500 units – 10,000 units SQ Daily or BID	12 hours AND normal coagulation status as evaluated by PTT	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	1 hour
Heparin SQ > 10,000 units/dose or >20,000 units/ day	24 hours AND normal coagulation status as evaluated by PTT	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	1 hour
Heparin IV Continuous Infusion	4-6 hours AND PTT <40 seconds normal coagulation status as evaluated by PTT	4-6 hours AND PTT <40 seconds	1 hour
Enoxaparin (Lovenox) 30-40mg SQ Daily	12 hours (longer in renal impairment)	12 hours (longer in renal impairment)	4 hours after removal AND ≥ 12 hours after placement
Enoxaparin (Lovenox) 30mg SQ BID (PROPHYLAXIS)	12 hours (longer in renal impairment)	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	4 hours after removal AND ≥ 12 hours after placement
Enoxaparin (Lovenox) 40mg SQ BID (PROPHYLAXIS)	24 hours (longer in renal impairment)	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	4 hours after removal AND ≥ 24 hours after placement
Enoxaparin (Lovenox) 60mg SQ BID (PROPHYLAXIS)	24 hours (longer in renal impairment)	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	4 hours after removal AND ≥ 24 hours after placement
Enoxaparin (Lovenox) 1mg/kg SQ BID or 1.5mg/kg SQ Daily	24 hours (longer in renal impairment)	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	4 hours after removal AND ≥ 24 hours after placement
Apixaban (Eliquis)	72 hours	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY if unanticipated dose is administered, wait 30 hours before catheter removal	6 hours
Rivaroxaban (Xarelto)	72 hours	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY if unanticipated dose is administered, wait 26 hours before catheter removal	6 hours
Edoxaban (Savaysa)	72 hours	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY if unanticipated dose is administered, wait 28 hours before catheter removal	6 hours



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Dabigatran (Pradaxa)	120 hours - unknown renal 72 hours - CrCl >80ml/min 96 hours - CrCl 50-79ml/min 120 hours - CrCl 30-49ml/min Safe timing has not been established for CrCl < 30ml/min.	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY if unanticipated dose is administered, wait 36 hours before catheter removal	6 hours
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Warfarin (Coumadin)	5 days <u>AND</u> INR < 1.5	<u>Not recommended</u> while catheter in place, <u>if</u> dose is given must remove catheter <u>within</u> 12-24 hours of first dose <u>AND</u> INR <1.5	2 hours
Fondaparinux (Arixtra)	Safe timing has not been established. Neuraxial procedures not recommended	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	6 hours
Argatroban	Safe timing has not been established. Neuraxial procedures not recommended	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	Safe timing has not been established
Bivalirudin (Angiomax)	Safe timing has not been established. Neuraxial procedures not recommended	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	Safe timing has not been established
Aspirin or NSAIDs	May be given; no time restrictions for catheter placement/removal or spinal injections		
Aspirin/Dipyridamole (Aggrenox)	24 hours	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	6 hours
Eptifibatide (Integrilin)	8 hours	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	4 <u>WEEKS</u>
Clopidogrel (Plavix)	5-7 days	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	May be restarted <u>IMMEDIATELY</u> after removal (wait 6 hours after removal if giving a <u>LOADING DOSE</u>)
Prasugrel (Effient)	7-10 days	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	May be restarted <u>IMMEDIATELY</u> after removal (wait 6 hours after removal if giving a <u>LOADING DOSE</u>)
Cilostazol (Pletal)	48 hours	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	6 hours
Cangrelor (Kengral)	3 hours	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	8 hours
Ticagrelor (Brilinta)	5-7 days	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	May be restarted <u>IMMEDIATELY</u> after removal (wait 6 hours after removal if giving a <u>LOADING DOSE</u>)
Alteplase (Activase)	Limited data. Neuraxial procedures not recommended. If unavoidable, wait ≥ 48 hours <u>AND</u> confirm normalized clotting factors including Fibrinogen	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	10 days



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Tenecteplase (TNKase)	Limited data. Neuraxial procedures not recommended. If unavoidable, wait \geq 48 hours <u>AND</u> confirm normalized clotting factors including Fibrinogen	REMOVE INDWELLING CATHETER BEFORE RESUMING THERAPY	10 days
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References:

1. Horlocker TT, 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 Anes Pain Med.* 2018; 43:263-309.
2. Narouze S., et al. Interventional Spine and Pain Procedures in Patients on Antiplatelet and Anticoagulant Medications: guidelines from the American Society of Regional Anesthesia and Pain Medicine, the European Society of Regional Anesthesia and Pain Therapy, The American Academy of Pain Medicine, the International Neuromodulation Society, the North American Neuromodulation Society, and the World Institute of Pain (Second Edition). *Reg Anes Pain Med.* 2018;43:225-262.