

DEPARTMENT OF ANESTHESIOLOGY



Standard Operating Procedure Title: Anticoagulation and neuraxial (epidural & spinals) blocks

Policy Number: C-51

Date Established: 6/16/08

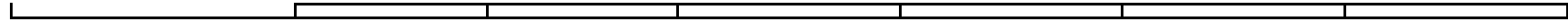
Date Reviewed: 4/26/16

Date Revised:

DRUG	USE WITH INDWELLING EPIDURAL	HOLD BEFORE NEURAXIAL BLOCK	HOLD BEFORE CATHETER REMOVAL	RESTART AFTER NEURAXIAL BLOCK	RESTART AFTER CATHETER REMOVAL	RESTART AFTER HEMORRHAGIC PROCEDURE
Heparin¹						
5000 IU SQ BID	Yes	No ²	4 hours	1 hour ³	None	None
Heparin IV	Yes	4 hours	4 hours (check a PTT)	1 hour after neuraxial block	1 hour after catheter removal	24 hours
LMWH						
0.5 mg/kg SQ q12h	No ⁴	10-12 hours	10-12 hours	6-8 hours	2-6 hours	24 hours
1 mg/kg SQ q12h	No	24 hours	24 hours	6-8 hours	2-6 hours	24 hours
1.5 mg/kg SQ q24h	No	24 hours	24 hours	6-8 hours	2-6 hours	24 hours
Warfarin (Coumadin)	No ⁵	5 days (check INR)	Check INR ≤ 1.5	Immediately (after single shot)	Immediately	Immediately
Aspirin	Yes ⁶	No	No	Immediately	Immediately	Immediately
NSAIDS	Yes ⁶	No	No	Immediately	Immediately	Immediately
COX-2 Inhibitors	Yes	No	No	Immediately	Immediately	Immediately
Clopidogrel (Plavix)	No	7 days	Not Applicable	Immediately	Immediately	Immediately
GP IIb/IIIa Inhibitors	No	According to drug ⁷	Not Applicable	Immediately	Immediately	Unknown

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¹ Concurrent use of other anticoagulants can increase risk of bleeding. Check platelet number of patients on heparin for > 4 days (HIT).

² May be preferable to give Heparin SQ after neuraxial block, but no specific contraindication.

³ Waiting 1 hour after procedure is ideal, but not a necessity.

⁴ Controversial. Some people feel comfortable maintaining epidurals with LMWH.

⁵ Can use warfarin with epidural as long as INR checked daily, less than 5 mg dose given, routine neurologic (sensory & motor) monitoring performed, catheter pulled before INR > 1.5, and neurologic monitoring continued for 24 hours after catheter removal

⁶ Increased risk of spontaneous bleeding when used in conjunction with other anticoagulants.

⁷ Return to normal platelet function -- eptifibatid & tirofiban (8 hours); abciximab (24-48 hours)

- I. Always consider Minimum Hemostatic Conditions for conduct of neuraxial regional anaesthetic-analgesic technique and profound peripheral blockade in the proximity of a non-compressible vessel
 - A. Functioning platelets $\geq 50K$
 - B. INR ≤ 1.5
 - C. aPTT ≤ 45 s (aPTT ratio ≤ 1.5)
 - D. Take into consideration borderline values and patients with co-morbidities that alter hemostasis or taking drugs that interfere with hemostasis
- II. Unfractionated subcutaneous heparin and Epidurals
 - A. ASRA states that it is safe to place an epidural at any time when a patient is receiving unfractionated heparin 5000 Units SQ for DVT prophylaxis.
 - B. An epidural should be pulled 4 hours after the last unfractionated heparin dose.
- III. Low Molecular Weight Heparin (LMWH) and Epidurals
 - A. The **Acute Pain Service (APS)** will attempt to find any preoperative LMWH orders prior to placing an epidural.
 - B. However, if the primary anesthesia team/nursing/surgical team discovers in their preoperative assessment a patient that is scheduled for an epidural and has an order for LMWH or has received LMWH, please let APS know **immediately**.
 - C. LMWH can be switched to unfractionated subcutaneous heparin, we can delay the LMWH dose, or we can abandon the epidural altogether. The patient should not be put at unnecessary risk.
 - D. If the patient is already on LMWH (inpatients), also please let APS know. Some of them are on 24-hour prophylactic dosing. With this dose, an epidural can be safely placed 12 hours after the last LMWH dose as long as there is at least 6 hours until the next dose.

References:

- 1) Horlocker, T. T., D. J. Wedel, et al. (2003). "Regional anesthesia in the anticoagulated patient: defining the risks (the second ASRA Consensus Conference on Neuraxial Anesthesia and Anticoagulation)." Reg Anesth Pain Med 28(3): 172-97.
- 2) Llau, J. V., J. De Andres, et al. (2007). "Anticlotting drugs and regional anaesthetic and analgesic techniques: comparative update of the safety recommendations." Eur J Anaesthesiol 24(5): 387-98.