ASRA Guidelines: Third Consensus Conference 2010

The risk of spinal/epidural hematoma must always be weighed against the potential benefits of the intervention; and assessed within the context of the specific patient.

ANESTHETIC CONSIDERATIONS:

- Patient Factors
  - Anticoagulation, especially more than one drug (ie anti platelet agents with heparins)
  - Co-existing thrombocytopenia, liver disease, alcoholism, or cancer
- Does patient require neuraxial anesthesia?
- Consider minimal concentration local anesthetics to allow early detection of motor blockade.
- What is the optimal timing for needle/catheter removal?

2010 ASRA GUIDELINES ON NEURAXIAL ANESTHESIA AND ANTICOAGULATION:

Unfractionated Heparin.

- During subcutaneous 5000U q12h prophylaxis there is no contraindication to the use of neuraxial techniques. The risk of neuraxial bleeding may be reduced by delaying the heparin until after the block. Epidural catheters should be removed just prior to the next dose of heparin and the dose delayed 2 hours.
- The risk of neuraxial bleeding may be increased in debilitated patients after prolonged therapy.
- Since heparin-induced thrombocytopenia may occur during heparin administration, patients receiving heparin for greater than four days should have a platelet count assessed prior to neuraxial block and catheter removal.
- Heparin 5000U sc q8h may lead to increased risk of bleeding. Risks and benefits should be assessed on an individual basis and avoid other medications that may alter coagulation (ie nsaids). ASRA advises that patients not receive q8h heparin while epidural analgesia is maintained, but recognizes that many centers do it.
- Neuraxial techniques with intra-operative iv heparin during vascular surgery:
- • Heparin administration should be delayed for 1 hour after needle placement.
- • Avoid if patient has other coagulopathies
- • Monitor neurological function postoperatively
- • Although the occurrence of a bloody or difficult neuraxial needle placement may increase risk, there are no data to support mandatory cancellation of a case. Direct communication with the surgeon and a specific risk-benefit decision about proceeding in each case is warranted.

Low Molecular Weight Heparin (LMWH)

- Preoperative LMWH
  - If LMWH has been administered preoperatively LMWH should be held for 24 hrs prior to a neuraxial technique.
- Postoperative LMWH
  - Avoid other drugs that affect hemostasis
  - Presence of blood during needle or catheter placement does not necessitate postponement of surgery. In those cases the first dose of LMWH should be delayed for 24 hrs postoperatively and it is the responsibility of the anesthesiologist to discuss this with the surgeon.
  - Twice daily dosing. It is recommended that the first dose of LMWH be administered no earlier than 24 hours postoperatively. Indwelling catheters should be removed prior to initiation of LMWH thromboprophylaxis.
  - Single daily dosing. It is recommended that the first postoperative LMWH dose be administered no sooner than 6-8 hours postoperatively. The second postoperative dose should occur no sooner than 24 hours after the first dose.

Oral Anticoagulants

- The anticoagulant therapy (warfarin) must be stopped 5 days prior to the planned procedure
- PT/INR measured prior to initiation of neuraxial block. INR should be within the normal range for any neuraxial technique
- Catheters should not be removed unless the INR is <1.5. Neurological assessments may be continued for 24 hours in certain instances

Antiplatelet Medications

- ASA and NSAIDs, when prescribed on their own, appear to present no added significant risk for the development of spinal hematoma in patients having epidural or spinal anesthesia.
- The suggested time interval between discontinuation of thienopyridine therapy and neuraxial blockade is 14 days for ticlopidine (Ticlid) and 7 days for clopidogrel (Plavix). There is no data available for Aggrenox so, until we have appropriate data to the contrary, we suggest discontinuation 7-14 days before neuraxial blockade.
- Following administration, the time to normal platelet aggregation is 24-48 hours for abciximab and 4-8 hours for eptifibatide and tirofiban. GP IIb/IIIa antagonists are contraindicated within four weeks of surgery.

Herbal Therapy

- The use of herbal medications alone does not create a level of risk that will interfere with the performance of neuraxial blocks.
- Time to normal platelet function variable:
  - Garlic: 7 days
  - Gingko: 36h
  - Ginseng: 24h

Direct Thrombin Inhibitors

- ASRA recommends against performance of neuraxial techniques in patients receiving these drugs

Fondaparinux
- Until there is more data, neuraxial techniques should be avoided unless under conditions used in clinical trials.

Peripheral Nerve Blocks
- For patients undergoing deep plexus or peripheral nerve blcok, it is recommended to follow the guidelines for neuraxial techniques

PUBLISHED RISK OF SPINAL EPIDURAL HEMATOMA
- Epidural < 1/150 000 – in patients with no risk factors
- Spinal <1/220 000 - in patients with no risk factors

	Relative Risk of Spinal Hematoma	Estimated Incidence for Epidural Anesthesia	Estimated Incidence for Spinal Anesthesia
No heparin			
Atraumatic	1.00	1:220,000	1:320,000
Traumatic	11.2	1:20,000	1:29,000
With aspirin	2.54	1:150,000	1:220,000
Heparin anticoagulation following neuraxial procedure			
Atraumatic	3.16	1:70,000	1:100,000
Traumatic	112	1:2,000	1:2,900
Heparin > 1 hr after puncture	2.18	1:100,000	1:150,000
Heparin < 1 hr after puncture	25.2	1:8,700	1:13,000
With aspirin	26	1:8,500	1:12,000

RISK FACTORS FOR SPINAL HEMATOMA
- Patient Factors
  - Female gender
  - increased age
  - decreased weight
  - concomitant hepatic/renal disease
  - Anatomic variables causing difficult catheter/needle placement: Ank spon, spinal stenosis
- Anesthetic Factors
  - Traumatic needle or catheter placement
  - epidural as compared to spinal
  - indwelling epidural catheter during LMWH administration
- Drug Factors
  - Length and intensity of anticoagulation
  - Immediate preoperative (or intraoperative) LMWH administration
  - Early postoperative LMWH administration
  - Concomitant antiplatelet or anticoagulant medications
  - Twice daily LMWH administration
  - Thrombolytic therapy is greatest risk factor for bleeding complication

REFERENCES

- ASRA Guidelines 2010 http://journals.lww.com/rapm/Fulltext/2010/01000/Regional_Anesthesia_in_the_Patient_Receiving.13.aspx
- NYSORA website: Diagnosis and Management of Intraspinal, Epidural and Peripheral Nerve Hematoma (03/15/09)