VUMC Regional Anesthesia in Trauma

Understanding differences between TEC, PVB, ESPB, Peripheral techniques

This document is NOT intended to decide which patients should receive a block. Once it is determined that a clinical situation warrants a procedure, this document can help guide 1) the decision to perform one technique over another and 2) the anticoagulation implications of this choice.

<table>
<thead>
<tr>
<th>Procedure Type:</th>
<th>Thoracic Epidural (TEC)</th>
<th>Paravertebral (PVB)</th>
<th>Erector Spinae (ESPB)</th>
<th>Peripheral (PNB)</th>
</tr>
</thead>
</table>
| Indications    | >3 Rib fx, especially below T3
  Bilateral rib fx or chest tube Moderate or high-risk* patients with any # rib fx Exploratory Laparotomy
| 2-5 Rib fx, any location
  Unilateral rib fx or chest tube Moderate or high-risk* patients with small # rib fx
  Bilateral placement possible
  May be placed at or above T4
| 2-10 Rib fx, any location
  Chest tube
  Low or moderate-risk patient, any # rib fx
  Bilateral placement possible
| Injury to extremity or joint (e.g. ankle, knee, shoulder, hand)
  Laparoscopy

| Prerequisites  | 1) Lateral decub or sitting positioning possible,
  2) No thoracic spine surgery planned,
  3) NO Enoxaparin ordered until after APS eval as it precludes TEC & PVB placement
| N/A

| Contraindications | Anticoagulants (see below)
  T-spine pathology or surgery
  Elevated ICP
| Anticoagulants (see below)
  T-spine pathology or surgery
| Recent or anticipated T-spine surgery
| Compartment syndrome

| Region Covered | 4-10 Levels
| 2-5 Levels
| 6-10 Levels

| Laterality     | Bilateral
| Unilateral (Bilateral with multiple catheters)
| Unilateral (Bilateral with multiple catheters)
| Unilateral

| Intensity      | Dense
| Dense
| Diffuse/inconsistent
| Dense

| Hypotension    | Potentially significant
| Minimal
| Diffuse/inconsistent
| Minimal

<table>
<thead>
<tr>
<th>Acceptable Anticoagulation at VUMC</th>
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<tbody>
<tr>
<td>Enoxaparin <strong>X</strong></td>
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<tr>
<td>Clopidogrel <strong>X</strong></td>
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<tr>
<td>Heparin IV gtt <strong>X</strong></td>
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<tr>
<td>Heparin subQ <strong>✓</strong></td>
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<tr>
<td>ASA, NSAIDs <strong>✓</strong></td>
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</tbody>
</table>
| Other anticoagulants
  Typically no, call APS w/ ?’s
| Enoxaparin subQ, prophylactic or therapeutic

* High risk denotes patients either at high risk for deterioration requiring intubation/respiratory support or at high risk for morbidity or mortality should deterioration occur

**Recommended:**
- Enoxaparin
- Clopidogrel
- Heparin IV gtt
- Heparin subQ
- ASA, NSAIDs

**Block Selection**

**Epidural vs. Paravertebral**

**TEC preferred:**
- Bilateral rib fx
- High # rib fx (6+)
- Diffuse pain
- Rib fx at T4 or below
- Open surgery

**PVB preferred:**
- Unilateral rib fx
- Low # rib fx (2-5)
- Limited area of pain
- Analgesic coverage needed above T4

**Epidural vs. Erector Spinae**

**TEC preferred:**
- Bilateral rib fx
- No anticoagulation
- Significant pain relief needed
- High risk patient
- High injury severity
- Open surgery

**ESPB preferred:**
- Unilateral fx
- Anticoagulated
- Modest pain relief needed
- Low risk patient
- Analgesic coverage needed above T4

**Paravertebral vs. Erector Spinae**

**PVB preferred:**
- < 6 rib fx
- No anticoagulation
- Significant pain relief needed in a limited area (2-5 dermatomes)
- 6+ rib fx
- Anticoagulated
- Modest pain relief needed in a broad area (>5 dermatomes)

**Provider preference plays a significant role, but listed factors may impact procedure selection**