

Protocol and Management Guidelines for PE/DVT Prophylaxis

I. Purpose

To prevent pulmonary embolism and deep vein thrombosis in trauma patients

II. Risk factors

- A. Age > 40
- B. ISS > 9
- C. Blood transfusion
- D. Surgical procedure within 72 hours
- E. Lower extremity fracture
- F. Pelvic fracture
- G. Immobilization
- H. PMH of DVT/PE
- I. Malignancy
- J. Extensive soft tissue trauma

III. High risk factors

- A. Age > 50
- B. ISS > 16
- C. AIS \geq 3 (any body region)
- D. GCS < 9
- E. Pelvic fracture and long bone fracture
- F. Venous injury

IV. Very High Risk Factors

- A. Spinal Cord Injury
- B. AIS (head and neck) \geq 3 & long bone fracture (upper or lower)
- C. Severe pelvic fracture (post elements), and long bone fracture (upper or lower)
- D. Multiple (\geq 3) long bone fractures

V. Physical Exam Findings

- A. Pulmonary Embolism- tachycardia, tachypnea, MS changes, diaphoresis
- B. Deep Vein Thrombosis- extremity pain, fever, localized edema/swelling, warmth/erythema

VI. Lab and Radiology Findings

- A. Blood gas – respiratory alkalosis, hypoxemia
- B. CXR – nonspecific, peripheral wedge defect
- C. Extremity Duplex – occlusive/non-occlusive thrombosis
- D. CT angio Chest – filling defect(s)

VII. PE/DVT Prophylaxis Protocol for Trauma Patients

- A. All trauma patients, unless otherwise specified, should receive PE/DVT prophylaxis with enoxaparin (Lovenox) 30 mg SQ Q 12 hr within 24 hrs of admission.
- B. Enoxaparin will be initiated post-operatively after orthopedic procedures, including major pelvic procedures. If the patient is already receiving enoxaparin, the dose will be held the morning of surgery (last dose at least 12 hrs pre-op).

VIII. Exceptions to PE/DVT Prophylaxis Protocol

Traumatic brain and spinal cord injury

- C. Enoxaparin will be initiated 72 hrs after the injury/procedure for the following patient groups:
 - 1. Intra-cranial hemorrhage
 - 2. S/P craniotomy
 - 3. Significant spinal injury
- D. After 72 hr window, patients with an intra-cranial hemorrhage and an ICP monitor in place will receive heparin 5000 units Q 8 hrs. After removal of the ICP monitor, patients will be started on enoxaparin 30 mg Q 12 hrs.

Epidural Placement

- E. Enoxaparin thromboprophylaxis will not be used 12 hours prior to epidural placement, while the catheter is indwelling, or for 24 hours after removal.
 - a. Heparin 5000 units Q 8 hrs and SCDs may be substituted for enoxaparin during the indwelling time.

Renal Impairment

- F. For patients with a significant rise in SrCr (> 50%) or a creatinine clearance < 30 mL/min, enoxaparin may be renally adjusted to 30 mg daily or subcutaneous heparin 5000 units Q 8 hrs may substituted for enoxaparin.
 - a. In patients on renal replacement therapy, heparin 5000 units Q 8 hrs is recommended over enoxaparin.

IX. IVC Filter Placement

- A. Refer to IVC filter protocol

X. Discharge Instructions for Ortho Patients

- A. High risk (Pelvic fractures and any lower extremity fracture above the ankle)
Enoxaparin 40 mg SQ Qday x 3 weeks

Updated April 2011
John Morris, MD
Mickey Ott, MD
Susan Hamblin, PharmD