Division of Acute Care Surgery Clinical Practice Policies, Guidelines, and Algorithms:
Venous Thromboembolism Prophylaxis
Clinical Practice Policy

A. High risk patients are those anticipated to be hospitalized > 24 hours and have one or more of the following risk factors:
   • Anticipated immobilization > 2 days
   • Previous history of DVT, PE or hypercoagulable disease
   • Head injury with GCS < 8 or unable to respond to commands
   • Pelvic fracture
   • Long bone fracture
   • Spinal fracture
   • Lower extremity venous injuries
   • Cancer
   • Obesity
   • Multiple rib fractures

If not contraindicated, patients will be treated with both anticoagulation and compression devices.

B. TED hose and sequential compression devices (SCD) should be used for all high-risk patients.
   • Sequential compression devices are contraindicated in patients with non-fixated fractures.
   • SCDs may be used on fractured extremities following open reduction and internal fixation.
   • SCD’s may not be able to effectively be placed over large open wounds or extremities with external fixators or splints. For these patients, arterial venous foot pumps can be used as long as the foot is not injured.

C. Relative contraindications to initial anticoagulation include:
   • On-going blood loss
   • Coagulopathy
   • Non-operative management of splenic injuries
   • Non-operative management of liver injuries.
   • Traumatic brain injury
   • History of heparin induced thrombocytopenia (consider consult hematology).

D. All high risk patients who do not have a contraindication should be started on chemical DVT prophylaxis:
   • The standard regimen for trauma patients is enoxaparin 30 mg SQ q12h.
   • Exceptions to this default regimen are as follows:
     o Patient weight < 45 kg = enoxaparin 20 mg SQ q12h
     o Patient weight ≥ 90 kg = enoxaparin 40 mg SQ q12h
E. Initiation of anticoagulation for at risk patient populations may be started according to relative contraindication:

- Non-operative management of spleen, liver, and renal injuries:
  - Grade 1 and 2 injuries – after 24 hours without blood loss (stable hematocrit, no blood transfusions)
  - Grades III, IV, and V – after minimum 48 hours without blood loss
- Trauma brain injuries:
  - May be started 24 hours after stable head CT and 48 hours after craniotomy.
  - Prophylaxis does not need to be held for EVD placement or removal.
- Epidural pain control:
  - If a pain consult is obtained for epidural placement, hold enoxaparin for 12 hours prior to epidural catheter placement and removal.
  - While the patient has an epidural in place, the preferred dose of enoxaparin is 40 mg every 24 hours. INR should be < 1.5 for placement or removal of catheter.
- Orthopedic Injuries:
  - Enoxaparin should not be routinely held for orthopedic procedures.

F. Patients with spine fractures

Non-operative spine trauma patients
- begin chemical DVT prophylaxis per protocol once the spine service has assessed the patient and determined that there is no emergent need for surgical intervention

Operative spine trauma patients
- hold chemical DVT prophylaxis 12 hours prior to surgery
- begin chemical DVT prophylaxis 24 hours after procedure stop time
  - enoxaparin: please state “spine surgery” and specify start time of 0400 or 1600 (first available time after 24 hours) in comment section of order.
  - heparin: please state “spine surgery” and specify start time of 0800, 1600, or 2400 (first available time after 24 hours) in comment section of order.
- perform q2 hour neurochecks for first 24 hours of chemical DVT prophylaxis
- patients will remain on Trauma or Neurosurgery service in the pre-operative period and 48 hours post-operatively

After discharge, spinal cord injury patients or spine fracture patients that are immobile should continue on chemical DVT prophylaxis with daily 325 mg aspirin for 12 weeks postoperatively.

Exceptions to this protocol will exist and should be communicated between faculty members.

G. Special Patient Populations with spine fractures

Patients with epidural hematoma at the level of spinal cord (C1-L2) diagnosed on MRI
- begin chemical DVT prophylaxis 48 hours after injury and stable neuro exam
- perform q2 hour neurochecks for first 24 hours of chemical DVT prophylaxis
- timing of ASA therapy initiation should be a faculty to faculty discussion

Blunt cerebrovascular injury (BCVI)
• Start ASA 325 mg upon diagnosis of BCVI regardless of operative or non-operative spine fracture
  --faculty discussion if presence of epidural hematoma as above

MA >72
• ASA will be initiated in addition to enoxaparin or heparin in absence of epidural hematoma

MA 65 - 71
• ASA initiation in addition to enoxaparin or heparin will occur after faculty to faculty discussion

H. Rapid thromboelastography (r-TEG) should be obtained on admission for all trauma Code 2 patients with complex orthopedic injuries.
References


