Important Note
The intent of the Albany Medical Center Best Practices Guidelines is to provide health care professionals with evidence-based recommendations regarding care of the trauma patient. The Best Practices Guidelines do not include all potential options for prevention, diagnosis, and treatment and are not intended as a substitute for the provider’s clinical judgment and experience. The responsible provider must make all treatment decisions based upon his or her independent judgment and the patient’s individual clinical presentation. Albany Medical Center and any entities endorsing the Guidelines shall not be liable for any damages, including without limitation any direct, indirect, special, incidental, consequential or punitive damages, related to any use of the information contained herein. Albany Medical Center may modify the Best Practices Guidelines at any time without notice.
AMC Trauma Practice Management Guideline: Venous Thromboembolism
Chemoprophylaxis

PURPOSE: Prevention of VTE in the trauma patient

Definitions:

Chemoprophylaxis: administration of medications for prevention of disease

Deep Vein Thrombosis (DVT): formation of a blood clot in the popliteal or iliofemoral veins

Pulmonary Embolism: blockage of the pulmonary artery or a branch of the pulmonary artery by a substance (air/blood/fat) that has travelled from elsewhere in the body

Venous Thromboembolism (VTE): Collective term for DVT and PE

Standard Risk: Low Molecular Weight Heparin (LMWH): Lovenox 40mg SQ QD
High Risk: Low Molecular Weight Heparin (LMWH): Lovenox 30mg SQ BID

Standard Risk Low Dose Heparin (LDH) unfractionated heparin 5000 units SQ BID
High Risk Low Dose Heparin (LDH) unfractionated heparin 5000 units SQ TID

Mechanical Prophylaxis: use of sequential compression devices

Policy Statement:

All trauma patients should be evaluated for chemoprophylaxis on admission
Any contraindications or relative contraindications should be considered prior to initiation
Contraindications include but are not limited to:
  Active bleeding
  History of Heparin Induced Thrombocytopenia (HIT)
  Planned epidural catheter or paravertebral catheter placement
Relative contraindications:
  Intracranial bleeding (SAH, EDH, SDH) in first 24 hours
  Spinal column fracture with associated hematoma
Special consideration:
  Renal failure- only case in which LDH should be considered in the traumatic patient
  Morbid obesity- should consider adjusted dosing based on weight
DVT prophylaxis should not be held by consulting services unless cleared with the attending of record; this includes holding prophylaxis the night prior to surgery or the day of surgery

Procedure Statement:

Patient is assessed for appropriateness of chemoprophylaxis upon admission
If chemoprophylaxis is not started on admission, it should be readressed daily
An order is to be entered in CPOE for chemoprophylaxis
SCD’s should be placed on all trauma patients if feasible

Background:

There are currently no prospectively validated assessment tools for VTE in trauma patients. Until there is further investigation we suggest using VTE prophylaxis guidelines instituted by EAST and the American College of Chest Physicians

Created: 12/2105
Reviewed: 4/2017
Revised: 1/2019
Risk factors for VTE after injury:

Level I recommendation- patients with spinal cord injuries and spinal fractures are at high risk

Level II recommendation
   Older age is an increased risk factor for VTE
   Increased ISS and need for blood transfusions appears to be associate with increased VTE risk
   Long bone fractures, pelvic fractures, and TBI are at increased VTE risk

Summary: Existing evidence supports increased risk of VTE in spinal fractures and spinal cord injury; there is conflicting literature with other reported risk factors including long bone fractures, pelvic fractures, and TBI

Guidelines for use of LDH and mechanical prophylaxis for prevention of VTE

Level I recommendations- none

Level II recommendations- There is little evidence to support the benefit of LDH as a sole agent in VTE prophylaxis in high risk (ISS>9) trauma patients.

Level III recommendations- LDH should be used on a case by case basis for DVT prophylaxis in patients for which bleeding could exacerbate injuries (TBI, spinal cord injury, solid organ injury being managed non-operatively) as there are few studies establishing its safety

There is limited data on the efficacy of SCD’s for VTE prophylaxis in trauma patients

Guidelines of use of LMWH in the prevention of VTE

Level I recommendations- none

Level II recommendations- LMWH should be used for VTE prophylaxis in trauma patients with the following injury patterns: pelvic fracture requiring operative fixation or prolonged bed rest, complex lower extremity fractures, and spinal cord injuries with complete or incomplete motor paralysis

Level III recommendations- Trauma patients with ISS>9 who can receive prophylaxis should receive LMWH as a primary mode of VTE prophylaxis. The use of LMWH or anticoagulation for several weeks post injury should be considered in high risk patients (elderly pelvic fracture patients, spinal cord injury patients, expected bedrest>5 days) and those who require prolonged hospitalization or rehabilitation

In summary- All trauma patients should receive VTE chemoprophylaxis as soon as feasible. LMWH is the preferred agent for chemoprophylaxis and should be continued until hospital discharge. Select patients should be considered for continued VTE chemoprophylaxis on discharge from the hospital
AMC Trauma Practice Management Guideline: Venous Thromboembolism Chemoprophylaxis

Post Discharge VTE chemoprophylaxis

1. **INDICATIONS:**
   a. Major spine fractures (with and without deficit) *
   b. Major pelvic fractures
   c. Long bone including femur, tibia
   d. Lower extremity fractures managed with external fixation

2. **DRUGS:**
   a. Low molecular weight heparin (Lovenox 40mg / day, for BMI \( \geq 40 \) Lovenox 50mg / day)
   b. Alternatives:
      i. Eliquis 2.5mg / BID
      ii. Xarelto 10 mg / QD
      iii. Pradaxa 150 mg QD
      iv. ASA 325 mg QD

3. **DURATION:**
   a. There was consensus that the patient be supplied with two weeks of medications and ensure that a follow-up be scheduled within that first two weeks after which the attending may decide whether to continue (2012 Chest Guidelines for Prevention of VTE in Orthopedic Surgery Patients recommend continue VTE prophylaxis for up to 35 days post-op)

* Chemoprophylaxis is not indicated post discharge for patients with a spinal column fracture such as transverse process, spinous process, compression fractures (+/- brace or collar) without neurologic deficit who are ambulatory

**REFERENCES**


Mayo Clinic-Rochester Trauma Center Practice Management Guidline for Venous Thromboembolism Chemoprophylaxis