

Protocol: Adult Venous Thromboembolism (VTE) Prophylaxis

Category:
Approval Date:
Review Date:

Clinical Practice
September 28, 2020
September 28, 2022

Applicable To:

- VUH Children's DOT VMG Off-Site Locations VMG VPH Other

Team Members Performing:

- All faculty & staff Faculty & staff providing direct patient care or contact MD House Staff APRN/PA RN LPN
- Other

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I. Purpose

To prevent pulmonary embolism (PE) and deep vein thrombosis (DVT) in burn patients

II. Risk Factors

Risk Factors	High Risk Factors	Very High Risk Factors
<ul style="list-style-type: none"> • Burn 10-19% TBSA • Age > 40 years • Central venous access • ISS > 9 • Blood transfusions • Surgical procedure within 72 hrs • Immobilization • Malignancy • Extensive soft tissue trauma • Hormone therapy • Obesity • AIS ≥ 3 (any region) 	<ul style="list-style-type: none"> • Burn 20-39% TBSA • Inhalation injury • Age > 60 years • ISS > 15 • GCS < 9 for > 4 hours • Major venous injury/repair • PMH of venous thromboembolism (VTE) • Lower extremity fracture • Multiple spinal fractures • Pregnancy 	<ul style="list-style-type: none"> • Burn ≥40% TBSA • Spinal cord injury with paraplegia or quadriplegia • Complex or multiple (≥ 2) lower extremity fractures • Major pelvic fracture • Multiple (≥ 3) long bone fractures (≥ 1 in the lower extremity) • Age ≥ 75 years with any high risk factor

III. Physical Exam Findings

- A. PE – tachycardia, tachypnea, decreased oxygen saturations, altered mental status, diaphoresis
- B. DVT – extremity pain, fever, localized edema/swelling, erythema

IV. 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)

V. VTE Prophylaxis Protocol for Burn Patients

- A. All burn patients, unless otherwise specified, should receive VTE prophylaxis with enoxaparin (Lovenox) 30 mg SQ Q 12 hr within 24 hrs of admission.
- B. *No doses of enoxaparin will be held for operative procedures unless requested by the operating attending.*

VI. Exceptions to the VTE Prophylaxis Protocol

- A. Renal Impairment: 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 SQ heparin 5000 units Q 8 hrs may be substituted for enoxaparin.
 - For patients on renal replacement therapy, heparin 5000 units Q 8 hrs is recommended over enoxaparin.
- B. Obesity: For adult patients with ≥ 20% TBSA burns and a BMI of ≥ 40 kg/m² (prior to injury), enoxaparin should be increased to 40 mg Q 12 hrs.

VII. LMWH Anti-factor Xa (Anti-Xa) Level Monitoring

- A. An Anti-xa level should be drawn in patients with the following characteristics:
 - a. Burn \geq 20% TBSA
 - b. Weight \geq 180 kg and any risk (all categories) factor
 - c. BMI \geq 40 kg/m² with any high or very high risk factor
 - d. Spinal cord injury with paraplegia, quadriplegia
 - e. Patients with concomitant trauma meeting criteria per trauma division's protocol
- B. Anti-Xa level peaks should be drawn 4 hours after the administration of enoxaparin. These labs should be ordered after the third dose of enoxaparin.
 - a. To order in WIZ: LMW Heparin Assay (must time correctly)
 - b. Goal peak is 0.2 to 0.4 IU/mL.
 - c. Once the goal range is reached, no further monitoring needed

VIII. IVC Filter Placement

- A. A prophylactic IVC filter may be considered in high risk burn patients with a contraindication, failure, or complications of anticoagulation
- B. Indications for a therapeutic IVC filter include patients with a known PE or lower extremity DVT and a contraindication, failure, or complication of anticoagulation.

IX. References

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2. Pannucci CJ, Osborne NH, Wahl WL. Venous thromboembolism in thermally injured patients: analysis of the National Burn Repository. *Journal of burn care & research : official publication of the American Burn Association*. 2011;32(1):6-12.
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