Venous Thromboembolism (VTE) Prophylaxis for Hospitalized Adult Patients

This practice algorithm has been specifically developed for MD Anderson using a multidisciplinary approach and taking into consideration circumstances particular to MD Anderson including the following: MD Anderson’s specific patient population; MD Anderson’s services and structure; and MD Anderson’s clinical information. Moreover, this algorithm is not intended to replace the independent medical or professional judgment of physicians or other health care providers. This algorithm should not be used to treat pregnant or lactating women.

Note: Use of Direct Oral Anticoagulants (DOAC) [apixaban, rivaroxaban, edoxaban, dabigatran] is not recommended for prevention of VTE in cancer patients as safety and efficacy data are lacking.

INITIAL EVALUATION

RISK

**HIGH RISK**
- Abdominal or pelvic surgery for cancer
- Major surgery with one or more VTE risk factors
- Hip or knee arthroplasty, hip fracture surgery

**MODERATE RISK**
- Patients with one or more VTE risk factors

**LOW RISK**
- Minor surgery with expected length of stay less than 24 hours
- Fully ambulatory with NO active cancer diagnosis and expected length of stay less than 48 hours

MANAGEMENT

Is patient a candidate for pharmacological prophylaxis?

- Yes
  - Pharmacological prophylaxis
    - Mechanical prophylaxis
    - Optional ambulation

- No
  - Initiate mechanical prophylaxis and reassess for contraindications daily
  - Optional ambulation

Is patient a candidate for pharmacological prophylaxis?

- Yes
  - Pharmacological prophylaxis
    - Optional mechanical prophylaxis
    - Optional ambulation

- No
  - Ambulation
    - Optional mechanical prophylaxis
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APPENDIX A: VTE Risk Factors
- Active cancer (or suspicion of cancer)
- Age 60 or older
- Prior VTE
- Advanced stage of cancer
- Medical comorbidities (infection, renal disease, pulmonary disease, congestive heart failure, arterial thromboembolism)
- Familial and/or acquired hypercoagulability
- Major surgery (abdominal, pelvic, orthopedic surgery)
- Central venous catheter/IV catheter
- Chemotherapy (especially bevacizumab, thalidomide/lenalidomide plus high-dose dexamethasone)
- Exogenous estrogen compounds (hormone replacement, contraceptives, tamoxifen/raloxifene, diethylstilbestrol)
- Erythropoietin stimulating agents
- Poor performance status
- Nephrotic syndrome
- Major trauma
- Spinal cord injury
- Smoking
- Obesity (BMI greater than 30 kg/m²)
- Pregnancy

HIT = heparin-induced thrombocytopenia

APPENDIX B: Relative Contraindications to Pharmacological Options for VTE Prophylaxis
- Active bleeding (cerebral, GI, GU)
- Thrombocytopenia (platelets less than 50 K/microliter)
- Anticipated thrombocytopenia
- Heparin-induced thrombocytopenia (HIT)
- Recent major surgery at high risk of bleeding
- Recent CNS bleed within 72 hours
- Neurosurgery within 72 hours
- Intracranial or spinal lesional at high risk of bleeding
- Recent GI bleed
- Underlying coagulopathy
- Patient on protocol that prohibits anticoagulation
- End of life care
- Uncontrolled hypertension (greater than 200 mmHg/120 mmHg)

APPENDIX C: Pharmacological Options for VTE Prophylaxis
1. Unfractionated Heparin 5,000 units subcutaneously every 8 hours
2. Enoxaparin 40 mg subcutaneously every 24 hours
3. Enoxaparin 30 mg subcutaneously every 12 hours
4. Enoxaparin 30 mg subcutaneously every 24 hours (creatinine clearance (CrCl) less than 30 mL/minute)
5. Dalteparin 5,000 units subcutaneously every 24 hours
6. For BMI greater than or equal to 40 kg/m²: enoxaparin 40 mg subcutaneously every 12 hours
7. For patients intolerant to heparin products or for those who prefer to avoid pork products: fondaparinux 2.5 mg subcutaneously every 24 hours
   (contraindicated if total body weight less than 50 kg and/or CrCl less than 30 mL/minute)
Note: Apixaban 2.5 mg by mouth every 12 hours or rivaroxaban 10 mg by mouth every 24 hours is recommended only for cancer patients with a history of HIT or when a patient prefers to avoid pork-derived products.

APPENDIX D: Mechanical Options for VTE Prophylaxis
- Sequential compression devices (SCDs)
- Graduated compression stockings (TED hoses)

APPENDIX E: Note
For patients intolerant to heparin products or for those who prefer to avoid pork products
- Fondaparinux 2.5 mg subcutaneously every 24 hours
- Enoxaparin 40 mg subcutaneously every 24 hours
- Dalteparin 5,000 units subcutaneously every 24 hours
- Fondaparinux 2.5 mg subcutaneously every 24 hours
   (contraindicated if total body weight less than 50 kg and/or CrCl less than 30 mL/minute)
Note: Apixaban 2.5 mg by mouth every 12 hours or rivaroxaban 10 mg by mouth every 24 hours is recommended only for cancer patients with a history of HIT or when a patient prefers to avoid pork-derived products.
SUGGESTED READINGS


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DEVELOPMENT CREDITS

This practice consensus algorithm is based on majority expert opinion of the VTE workgroup at the University of Texas MD Anderson Cancer Center. It was developed using a multidisciplinary approach that included input from the following clinical staff:

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