Short Clinical Guidelines: Deep Vein Thrombosis (DVT), Effective Care for Patients

Signs and Symptoms:
- Swelling of the extremity or along a vein in the extremity
- Pain or tenderness in the leg, which you may feel only when standing or walking
- Increased warmth in the area of the extremity that’s swollen or in pain
- Red or discolored skin on the extremity

Initial Assessment:
- Perform comprehensive history and physical examination
- Consider predisposing factors
  - Prior history of DVT
  - Hematologic disorders
  - Recent surgery, trauma or fracture
  - Immobilization
  - Recent or ongoing treatment for cancer
  - Pregnancy and the first 6 weeks after delivery
  - Recent central venous catheterization
  - Age
  - History of hormone replacement therapy
- Diagnostic testing (see fig. 1)
  - Ultrasound of affected limb
  - D-dimer test
  - Venography
- Assess patient/caregiver ability and compliance for outpatient therapy and need for home health resources

Initiating and Monitoring Treatment
- Baseline lab testing to include:
  - aPTT
  - PT
  - INR
  - CBC with platelet count
- Begin low molecular weight heparin (LMWH) (Fig.2)
  - Continue LMWH for at least 5 days in conjunction with warfarin and until INR is in range
  - Long-term LMWH therapy is safe and efficacious in patients with cancer
- Begin warfarin after first dose of LMWH and titrate to INR range of 2.0 to 3.0
  - Warfarin is an absolute contraindication in pregnancy; use LMWH only
- Frequent INR monitoring
  - At least 2 checks in first week of therapy
  - 1 to 2 times per week for weeks 2 and 3
  - Every 4 to 8 weeks when stable INR range
- Anticoagulation should be maintained for 3 to 6 months for DVT secondary to transient risk factors and more than 12 months for recurrent DVT

Developed by the Michigan Quality Improvement Consortium March 2010; adapted from the National Guideline Clearinghouse by the Riverside Physician Network Medical Practice Committee
Monitor common bleeding sites
  - Gums
  - Nose
  - GI
  - GU
  - Skin bruising

Compression stockings for a period of not less than 1 year
  - The evidence demonstrated a marked reduction in the incidence and severity of postthrombotic syndrome among patients wearing compression stockings within 1 month of diagnosis of DVT

Contraindications to Outpatient Anticoagulation Therapy *

- Pulmonary embolism
- Extensive iliofemoral thrombus
- Known potential for non-compliance (psychoses, dementia, diminished mental capacity)
- Active bleeding
- Severe hypertension
- Catheter-associated DVT
- Renal clearance < 30mL/min or creatinine > 2.5 mg/dL
- Thrombocytopenia < 100,000
- History of heparin-induced thrombocytopenia

* IVC filter should be considered if anticoagulation is insufficient or contraindicated

Patient/Caregiver Education

- Self-injection of LMWH
- Importance of not missing/modifying schedule and dosage of LMWH and warfarin without instruction by physician
- Importance of lab testing frequency
- Keep all appointments with physician
- Avoid use of products containing aspirin, NSAIDs
- Avoid alcohol consumption
- Dietary recommendations
- Signs and symptoms of medication side effects and pulmonary embolism
- Use of compression stockings
- Activity
- Travel considerations

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Fig. 1 – Assessment algorithm for DVT

*Alternatively, patients with low pretest probability can be tested with a sensitive D-dimer assay (e.g., enzyme-linked immunosorbent assay [ELISA]); if results are negative, no further testing is necessary.
**Some Low Molecular Weight Heparin* Options in Thromboembolic Disease**

<table>
<thead>
<tr>
<th>Heparin</th>
<th>Treatment Dose</th>
<th>Prophylactic Dose</th>
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</thead>
<tbody>
<tr>
<td>Dalteparin</td>
<td>100 units/kg sc q 12 h or 200 units/kg once/day</td>
<td>2500–5000 units once/day</td>
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<tr>
<td>FRAGMIN</td>
<td></td>
<td></td>
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<tr>
<td>Enoxaparin</td>
<td>1 mg/kg sc q 12 h or 1.5 mg/kg sc once/day</td>
<td>After abdominal surgery: 40 mg sc once/day</td>
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<tr>
<td>LOVENOX</td>
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<td>After hip or knee replacement surgery: 30 mg sc q 12 h</td>
</tr>
<tr>
<td>Tinzaparin</td>
<td>175 units/kg sc once/day (in patients with or without PE)</td>
<td>For unstable angina or non-Q wave MI: 1 mg/kg sc q 12 h</td>
</tr>
<tr>
<td>INNOHEP</td>
<td></td>
<td>For other patients not undergoing surgery: 40 mg sc once/day</td>
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