Duplex imaging of residual venous obstruction to guide duration of therapy for lower extremity deep venous thrombosis

Stephenson, JVS Venous and Lym Dis 2014

**RVO**

**Systematic review of studies evaluating recurrent VTE based on RVO (+) vs RVO (-) status**

<table>
<thead>
<tr>
<th>Source</th>
<th>Number</th>
<th>Duration</th>
<th>Overall recurrence</th>
<th>Percentage recurrence on RVO (+) (%)</th>
<th>Percentage recurrence on RVO (-) (%)</th>
<th>Difference in recurrence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cochrane Central Register of Controlled Trials</td>
<td>2006</td>
<td>1 year</td>
<td>13.0%</td>
<td>25%</td>
<td>10%</td>
<td>15%</td>
</tr>
<tr>
<td>Cochrane Database of Systematic Reviews</td>
<td>2008</td>
<td>2 years</td>
<td>16.7%</td>
<td>42/100 (42.0%)</td>
<td>35/100 (35.0%)</td>
<td>7%</td>
</tr>
<tr>
<td>Cochrane Database of Systematic Reviews</td>
<td>2010</td>
<td>2 years</td>
<td>17.8%</td>
<td>35/198 (17.8%)</td>
<td>27/158 (17.0%)</td>
<td>1%</td>
</tr>
<tr>
<td>Database of Abstracts of Reviews of Effects</td>
<td>2013</td>
<td>17 months</td>
<td>17.1%</td>
<td>35/198 (17.8%)</td>
<td>27/158 (17.0%)</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>17.8%</td>
<td>158/106 (14.9%)</td>
<td>158/106 (14.9%)</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Disclosure**

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C. R. Bard, Inc.

**References**

- Prandoni 2009
- Cosmi 2010
- Siragusa 2008
- Le Gai 2011
• 355 pts with 1st unprovoked VTE + anticoagulation > 6 mos had D-dimer while on VKA.
  - ASNL D-dimer continue VKA
  - NL D-dimer no VKA + re-test 1, 3, 5, 7, 9, 11, 13 mos

- Early conversion (< 90 d)
- Late conversion (> 90 d)
- No D-dimer conversion

Recurrent venous thromboembolism after discontinuing anticoagulation in acute proximal DVT or PE

Cumulative incidence of recurrent thromboembolism with idiopathic and secondary VTE

Prandoni, Haematologica 2007

D-dimer and residual vein obstruction as risk factors for recurrence during and after anticoagulation withdrawal in patients with a first episode of provoked deep-vein thrombosis

• 296 pts with 1st provoked proximal DVT treated for >3 mos VKA
  - D-dimer testing: Day 0 (T0) Day 30 (T1)
  - Residual vein obstruction (RVO) at T(0)
• Recurrent VTE 5.1% (3% per pt-year)

• Adjusted Hazard Ratio for recurrent VTE
  - D-dimer T0 4.2 (1.2 – 14.2) p = .02
  - D-dimer T1 3.8 (1.2 – 12.1) p = .02
  - RVO 1.1 (1.3 – 3.2) p = .90

Clinical Prediction Scores for Recurrent VTE

Kyrle, Thromb Haemost 2012

DASH Score and Recurrent VTE

Tosetto, J Thromb Haemost 2012

Grade of Recommendation

<table>
<thead>
<tr>
<th>Clinical Scenario</th>
<th>Grade of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximal DVT provoked by surgery, recommend 3 months AC</td>
<td>1B</td>
</tr>
<tr>
<td>Proximal DVT provoked by non-surgical transient risk factor, recommend 3 months AC</td>
<td>1B</td>
</tr>
<tr>
<td>Unprovoked DVT (distal or proximal), recommend &gt; 3 months AC over shorter period. After 3 months, evaluate risk-benefit of extended therapy.</td>
<td>1B</td>
</tr>
</tbody>
</table>

Kearon, Chest 2012


Eichinger, J Am Heart Assoc 2014
Summary

- The association between residual venous obstruction (RVO) and recurrent VTE is weak.

- D-dimer after completion of anticoagulant therapy is a predictor of recurrent VTE
  - Provoked DVT
  - Unprovoked DVT

- D-dimer can and should be used to tailor the duration of anticoagulant therapy.