A RCT comparing medical treatment vs thrombolysis and first rib resection for venous TOS – Paget Schroetter syndrome with subclavian vein thrombosis
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No conflict of interest

Treatment options

- Conservative
  - DOAC / anticoagulation (for at least 3 M)
  - Elastic stockings
- Invasive
  - Catheter directed thrombolysis
  - Decompression surgery
  - Based on surgeon’s preference:
    - Additional Percutaneous Transluminal Angioplasty (PTA) +/- stent
    - Post-op anticoagulation

Dutch Internal Medicine Guideline on antithrombotic management, 2015

Treatment options (2)

<table>
<thead>
<tr>
<th>Complication</th>
<th>Conservative Treatment (%)</th>
<th>Invasive Treatment (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-thrombotic syndrome (PTS)</td>
<td>26-66%</td>
<td>4.25%</td>
</tr>
<tr>
<td>Symptomatic pulmonary embolism</td>
<td>+/-7%</td>
<td>+/-1%</td>
</tr>
<tr>
<td>Rethrombosis rate</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Surgical complications*</td>
<td>-</td>
<td>3.25%</td>
</tr>
</tbody>
</table>

*E.g. pneumothorax, hemothorax, surgical site infection, brachial plexus injury.

Dutch Internal Medicine Guideline on antithrombotic management, 2015

Current evidence

- Only retrospective studies
- Small case series
- No comparative studies (with sufficient FU)
- No RCTs

Lack of high quality evidence
Varying guideline recommendations

Guideline recommendations

<table>
<thead>
<tr>
<th>Institution</th>
<th>Treatment</th>
<th>Evidence Level</th>
<th>Practice guideline comments</th>
<th>Procedural advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Committee for Standards in Haematology</td>
<td>Heparin anticoagulation for 5 days. Only after failed anticoagulation or thrombolysis treatment. (2C)</td>
<td>2B</td>
<td>No recommendations.</td>
<td></td>
</tr>
<tr>
<td>American College of Chest Physicians</td>
<td>Initially therapeutic LMWH, UFH or fondaparinux (1C).</td>
<td>1C</td>
<td>Only after failed anticoagulation or thrombolysis treatment. (2C)</td>
<td></td>
</tr>
<tr>
<td>International Society of Thrombosis and Haemostasis</td>
<td>Vitamin K antagonist for 3 months. Continued anticoagulation for persistent vTOS or severe PTS.</td>
<td>2C</td>
<td>No recommendations.</td>
<td></td>
</tr>
<tr>
<td>Dutch Internal Medicine guideline</td>
<td>DOAC anticoagulation treatment for at least 3-6 months.</td>
<td>2C</td>
<td>Only for patients with very severe TOS.</td>
<td></td>
</tr>
</tbody>
</table>

Peak et al, 2017
Grant et al, 2012
Vazquez et al, 2017
Kahn et al, 2006
Thomas et al, 2005
Sajid et al, 2007
Lugo et al, 2015
Doyle et al, 2013
### Guideline recommendations

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Initial treatment</th>
<th>Alternative treatment (1C)</th>
<th>Conclusion (1C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Committee for standards in Haematology</td>
<td>Heparin anticoagulation for 5 days.</td>
<td>CDT only in selected patients with severe symptoms (2C).</td>
<td>No routine CDT prior to decompression surgery (2B).</td>
</tr>
<tr>
<td>American College of Chest Physicians</td>
<td>Initially therapeutic LMWH, UFH or fondaparinux.</td>
<td>CDT only in selected patients with severe symptoms (2C).</td>
<td>Initially LMWH, UFH or fondaparinux (1C).</td>
</tr>
<tr>
<td>International Society of Thrombosis and Haemostasis</td>
<td>Warfarin for ≥3 months.</td>
<td>CDT only in selected patients with severe symptoms (2C).</td>
<td>Warfarin for ≥3 months (1C).</td>
</tr>
<tr>
<td>Dutch Internal Medicine Guideline</td>
<td>DOAC anticoagulation treatment for at least 3–6 months.</td>
<td>CDT only in carefully selected young patients with extensive thrombosis and risk of severe limb damage or limb loss.</td>
<td>DOAC anticoagulation treatment for at least 3–6 months.</td>
</tr>
</tbody>
</table>

### Conclusions

- Current evidence is insufficient to determine the most clinically- and cost-effective treatment
- A randomised controlled trial is highly warranted

### Research question

**Does surgical treatment, consisting of catheter directed thrombolysis and first rib resection, significantly reduce postthrombotic syndrome occurrence, compared to conservative therapy with DOAC anticoagulation, in adults with primary upper extremity deep vein thrombosis due to Paget-Schroetter syndrome?**

### Utopia trial

- **Design:** Multicenter randomised controlled trial
- **Population:** All adults with first case of primary UEDVT
- **Primary outcome:** Occurrence of postthrombotic syndrome according to the modified Villalta score
- **Secondary outcomes:**
  - Quality of life
  - Severity of PTS
  - Serious adverse events/ procedural complications
  - Cost-effectiveness

### Inclusion criteria:

- 18 years old
- Mentally competent
- Symptoms <14 days old

### Exclusion criteria:

- Secondary upper extremity deep venous thrombosis
- Any contra-indication for DOAC or catheter directed thrombolysis
- Any indication for lifelong anticoagulation treatment
• CTv is required to compare baseline characteristics of both groups. (what’s the underlying cause for thrombosis? vTDs or idiopathic?)

Invasive treatment
• Decompression surgery either through transaxillary or infraclavicular approach
• Percutaneous PTA or venolysis as indication

Conservative treatment
• Direct compression or incubation
• Minimum of 3 months

• Villalta score adapted for use in upper extremity
• Veines-Sym/QOL: Validated QOL questionnaire for venous disease.
• EQ5D: for cost-effectiveness analysis

Determine primary endpoint: Presence of PTS after 12 months follow up
• Control CTv to assess vein patency at last follow-up. Rethrombosis or (re)stenosis present?

Sample size & power calculation
• Sample size
  • Effect size: 20% PTS reduction in favour of invasive treatment
  • Two sided p-value: 0.05
  • Power: 80%
  • Estimated loss to follow up: 10%

• Total sample size: 78 patients per arm → 156 patients