Acute DVT: Modern Evidence That Suggests Intervention May Be Better

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Disclosures

Board Member – VIVA Physicians
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ACUTE DVT

- Annual US incidence 250,000 – 600,000
- As many as 50 percent of the cases of DVT are “silent.”
- More central the clot, the higher the likelihood of PTS
- AC only prevents propagation — not resolution
- SOX Trial – no benefit in preventing PTS

Treatment Goals:

1. Prevent Pulmonary Embolism
- The most devastating complication of acute DVT

2. Prevent recurrent DVT
- Inadequate treatment results in 20-50% risk of clinically significant recurrent thromboembolism

3. Minimizing the risk of the postthrombotic syndrome:
   - Pain, edema, hyperpigmentation, ulceration
   - Substantially increases socioeconomic morbidity
   - Common after conventional anticoagulation alone


Acute DVT Management

- Heparin/Coumadin
- TOAC’s
- Catheter Directed Thrombolysis
  - DVT involving lower popliteal segment
  - Pharmacomechanical Thrombolysis
  - Patent below knee popliteal vein

- Thrombolytic therapy still requires anticoagulation per ACCP guidelines

CDT improves patency and reduces PTS compared to anticoagulation

- Patency evaluated at 6 months f/u
- Post-thrombotic syndrome (PTS) rates at 6 and 24 months f/u
Catheter-Directed Thrombolysis Along with Mechanical Thromboaspiration versus Anticoagulation Alone in the Management of Lower Limb Deep Venous Thrombosis—A Comparative Study

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1Department of Cardiology, Sri Prasiddhan Institute of Cardiovascular Sciences and Research, Bangalore, Karnataka, India


- CDT group achieved:
  - Higher patency at 6 months f/u
  - Lower rate of PTS at 24 months f/u
  - Further improvement in PTS rates likely if more adjunctive procedures had been performed following CDT

Quality of Life Measures

Mean scale scores comparing patients who had either partial or complete lysis with lytic therapy vs. patients who had heparin treatment

<table>
<thead>
<tr>
<th>Scale item*</th>
<th>Complete + partial (mean ± SE)</th>
<th>Heparin (mean ± SE)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial contact mean, 16 months</td>
<td>0.83 ± 0.03</td>
<td>0.74 ± 0.03</td>
<td>.032</td>
</tr>
<tr>
<td>Health Utilities Index</td>
<td>75.01 ± 3.98</td>
<td>67.29 ± 4.78</td>
<td>.24</td>
</tr>
<tr>
<td>Role functioning physical</td>
<td>75.68 ± 4.57</td>
<td>56.59 ± 5.56</td>
<td>.013</td>
</tr>
<tr>
<td>Treatment satisfaction</td>
<td>86.59 ± 4.25</td>
<td>81.72 ± 5.18</td>
<td>.49</td>
</tr>
<tr>
<td>Stigma</td>
<td>85.98 ± 4.11</td>
<td>71.32 ± 5.00</td>
<td>.033</td>
</tr>
<tr>
<td>Health distress</td>
<td>82.48 ± 4.04</td>
<td>64.11 ± 4.91</td>
<td>.007</td>
</tr>
<tr>
<td>Overall symptoms</td>
<td>78.55 ± 3.44</td>
<td>55.56 ± 4.19</td>
<td>.001</td>
</tr>
</tbody>
</table>

Follow-up 22 months

<table>
<thead>
<tr>
<th>Scale item*</th>
<th>Complete + partial (mean ± SE)</th>
<th>Heparin (mean ± SE)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Utilities Index</td>
<td>0.71 ± 0.04</td>
<td>0.73 ± 0.07</td>
<td>.77</td>
</tr>
<tr>
<td>Health interference</td>
<td>68.25 ± 5.38</td>
<td>66.11 ± 8.63</td>
<td>.84</td>
</tr>
<tr>
<td>Role functioning physical</td>
<td>68.52 ± 5.14</td>
<td>56.07 ± 8.09</td>
<td>.23</td>
</tr>
<tr>
<td>Stigma</td>
<td>90.48 ± 4.11</td>
<td>69.50 ± 6.71</td>
<td>.014</td>
</tr>
<tr>
<td>Health distress</td>
<td>80.25 ± 4.19</td>
<td>56.32 ± 6.85</td>
<td>.006</td>
</tr>
<tr>
<td>Overall symptoms</td>
<td>74.11 ± 3.87</td>
<td>50.56 ± 6.66</td>
<td>.006</td>
</tr>
</tbody>
</table>

CONCLUSION: “Patients with iliofemoral DVT treated with catheter directed thrombolysis have better functioning and well-being, compared with patients treated with anticoagulation alone.”


Adjusted for propensity scores (education, marital status, age) and number of days since hospitalization.

*Higher scores represent higher functioning/less interference/fewer symptoms/less distress.
Pt will be maintained on long-term anticoagulation.
Study to evaluate correlation between residual thrombus and post-thrombotic syndrome (PTS)

- 71 consecutive IFDVT patients treated with CDT
- Blinded comparison of pre- and post-treatment phlebograms and evaluation of CEAP/Villalta scores

Greater thrombus removal gives lower PTS rate


Essentially no PTS with ≤ 10% residual thrombus

EJVES. 2012;44:210

Results by Group

Recurrent DVT

<table>
<thead>
<tr>
<th>75 Patients (Follow-up 35 months – mean)</th>
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<tbody>
<tr>
<td>≤ 50% Residual Thrombus (mean 16%)</td>
</tr>
<tr>
<td>&gt; 50% Residual Thrombus (mean 68%)</td>
</tr>
<tr>
<td>p=0.0014</td>
</tr>
<tr>
<td>Recurrence 5% (3/67)</td>
</tr>
<tr>
<td>Recurrence 50% (4/8)</td>
</tr>
</tbody>
</table>

US Augmented thrombolysis

Review of article of various DVT treatment strategies

- Baylor experience N=178
  - Acute (≤14 days) + chronic (>14 days) clots
  - Treatment: ultrasound accelerated thrombolysis and/or (pharmaco-)mechanical therapy (AngioJet or Trellis)

Chronic clots:
  - EKOS or EKOS+PMT results in a HIGHER RATE OF COMPLETE LYSIS THAN PMT alone

CDT vs. Pharmacomechanical

<table>
<thead>
<tr>
<th></th>
<th>CDT</th>
<th>PMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete lysis</td>
<td>70%</td>
<td>75%</td>
</tr>
<tr>
<td>Partial lysis</td>
<td>30%</td>
<td>25%</td>
</tr>
<tr>
<td>PTA / stenting</td>
<td>78%</td>
<td>82%</td>
</tr>
<tr>
<td>Clinical improvement</td>
<td>72%</td>
<td>81%</td>
</tr>
<tr>
<td>1 yr patency</td>
<td>64%</td>
<td>68%</td>
</tr>
<tr>
<td>ICU / hospital stay</td>
<td>2.4 / 8.4</td>
<td>0.6 / 4.6</td>
</tr>
</tbody>
</table>

Title: ATTRACT (Acute Venous Thrombosis: Thrombus Removal with Adjunctive Catheter-directed Thrombolysis)

PI: Dr. Suresh Vedantham

Sponsor: Washington University School of Medicine

Collaborator: Society of Interventional Radiology (SIR)

Data Coordination: McMaster University – Hamilton, Ontario

Funding Source: National Institutes of Health (NIH/BMB)

Design: Phase III, multicenter, open-label, assessor-blinded, randomized controlled trial; adjunctive CDT + standard DVT therapy versus standard DVT therapy alone

FULLY ENROLLED