Thrombolysis for DVT

Patient Selection and Pre Op Evaluation

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Disclosure

Anthony Comerota, M.D., FACS, FACC

I disclose the following financial relationship(s):
Speaker/Honoraria: BMS, Covidien
Which DVT patients benefit most by a treatment strategy of *thrombus removal*?

*Probably all…but for sure, patients with iliofemoral DVT*
Patient Selection

Why patients with iliofemoral DVT?

1. Most severe post-thrombotic morbidity
2. Highest venous pressures
3. Greatest recurrence
Findings

• 1 month observation was best predictor of long-term outcome (p<0.001)

• IFDVT patients had the most severe post-thrombotic morbidity (OR 2.23; p<0.001)
Thrombolysis for DVT

**Patient Selection**

- Observational Studies -

*Iliofemoral DVT Rx with anticoagulation alone at 5 years*

- Decreased QOL
- 95% chronic venous disease
- 15% venous ulceration
- 15-40% venous claudication

Delis KT et al
*Ann Surg* 2004;239(1):118

Akesson H
*Eur J Vasc Surg* 1990
### Arm - Foot Pressure Gradient

- **Post Thrombotic Limbs** -

<table>
<thead>
<tr>
<th>Location</th>
<th>Rest</th>
<th>Hyperemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iliofemoral</td>
<td>6.3 mmHg</td>
<td>8.9 mmHg</td>
</tr>
<tr>
<td>Femoral-popliteal</td>
<td>4.4 mmHg</td>
<td>7.3 mmHg</td>
</tr>
<tr>
<td>Popliteal</td>
<td>1.5 mmHg</td>
<td>3.1 mmHg</td>
</tr>
<tr>
<td>Controls</td>
<td>1.0 mmHg</td>
<td>2.7 mmHg</td>
</tr>
</tbody>
</table>

Hemodynamics of Venous Obstruction

Labropoulos N et al
Arch Surg 1997; 132:46
Intramuscular Pressures (mmHg)

- 12 Patients with iliofemoral DVT
- Venous thrombectomy
- Intramuscular pressures (wick)  
  *(Surrogate for venous pressure)*

**Anterior & Deep Posterior Compartments (Mean)**

**Pre-Op (Mean):**

**Post-Op (Mean):**

Reduction of pressure to normal after thrombus removal
Risk of Recurrence

1,149 Symptomatic DVT Rx’ed with Anticoagulation

Results

Overall recurrence @ 3 mos – 5.1%
Femoral vein thrombosis – 5.3%
Iliofemoral DVT – 11.8%

Risk for Recurrence

<table>
<thead>
<tr>
<th>Factor</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iliofemoral DVT</td>
<td>2.4</td>
</tr>
<tr>
<td>Cancer</td>
<td>2.6</td>
</tr>
</tbody>
</table>
Pre Op Evaluation

- Definition -

Before... Venous thrombectomy
Catheter-directed thrombolysis
It is important to know...

1. The extent of thrombosis (pop v. calf)?
2. Whether there is clot in the IVC?
3. Whether the patient has an asymptomatic PE
4. Whether there is a nondiagnosed malignancy?
5. If a thrombophilia is present?
Thrombolysis for DVT

Pre Op Evaluation

- Initial Diagnosis -

- Venous duplex confirms diagnosis
- May be falsely positive (noncompressible) distal to proximal outflow obstruction due to venous hypertension
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Pre Op Evaluation

Is There Clot in the IVC?

Is it important recognize this prior to treatment?
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Patient Selection

- Clot in Vena Cava -

Post CDT

Trapped in transit
Venous Thrombectomy

Caval Clot
If patient subsequently developed pleuritic chest pain 4 days later, and PE Dx made, then would patient be considered a failure of anticoagulation?

Is this important to diangose?
Is it important to identify an associated, but not previously diagnosed malignancy
Thrombolysis for DVT

Pre Op Evaluation

- Pre Treatment CT Scan -
Thrombolysis for DVT

Pre Op Evaluation

- Pre Treatment CT Scan -
Phlegmasia Cerulea Dolens

Mediastinal Lymphadenopathy
Phlegmasia Cerulea Dolens

Retroperitonal and Pelvic Lymphadenopathy
Pre Op Evaluation

- Thrombophilia -

The most important person affected by a thrombophilia evaluation is a first degree female relative of child-bearing, estrogen taking potential

NO!
Thrombolysis for DVT

Patient Selection and Pre Op Evaluation

- Summary -

- Iliofemoral DVT
- Know full extent of thrombus
  - IVC
  - Limitations of duplex
- Diagnose a symptomatic DVT and cancer
- Thrombophilia evaluation should be delayed