Calf muscle compartment pressure in acute iliofemoral DVT and the effect of early thrombus removal

Bo Eklöf MD, PhD
Peter Qvarfordt MD, PhD
Lund University, Sweden

Disclosures

• None

Options for Early Thrombus Removal

• Surgical thrombectomy
• Catheter directed thrombolysis
• Endovenous pharmacomechanical thrombolysis/thrombectomy

Treatment of Acute VTE

Venous thrombectomy for iliofemoral vein thrombosis—10-year results of a prospective RCT

Eur J Vasc Endovasc Surg. 1997

Intramuscular Pressure in the Lower Leg in Deep Vein Thrombosis and Phlegmasia Cerulea Dolens

Qvarfordt Ann Surg 1983

• Anterior tibial and posterior deep compartment
• Wick catheters
• Surrogate for venous pressure
• Before and after venous thrombectomy
22 patients with unilateral DVT
All had phlebography
Compartment pressures
  - Affected leg
  - Contralateral leg
Patients
  - Calf DVT #10
  - Iliofemoral DVT #8
  - Advanced Phlegmasia Cerulea Dolens #4

Influence of DVT on Compartment Pressures

Compartment Pressure Over Time


Mark H. Meissner, MD, Peter Gloviczki, MD, Anthony J. Comerota, MD, Michael C. Fyfe, MD, Bruce L. Flaker, MD, David L. Gillam, MD, Shawn M. Libby, MD, Robert S. MacAloney, MD, M. Hassan Murad, MD, Frank Padera, MD, Peter Pappas, MD, Joseph D. Ruffin, MD, Thomas W. Wakefield, MD

Precision in the diagnosis
- We recommend use of precise anatomic terminology to characterize the most proximal extent of DVT involving:
  - Iliofemoral veins with or without extension into IVC
  - Femoropopliteal veins
  - Isolated to the calf veins
- Contrary to simple characterization of a thrombus as proximal or distal – 1A

Indications for early thrombus removal
- First episode of acute iliofemoral DVT
- Symptoms <14 days in duration
- Low risk of bleeding
- Ambulatory with good functional capacity and an acceptable life expectancy
Techniques for Early Thrombus removal

- We suggest
  - percutaneous catheter-based techniques
    (pharmacologic or pharmacomechanical) as first-line therapy
  - pharmacomechanical thrombolysis to be considered over catheter-directed pharmacologic thrombolysis alone
    - if expertise and resources are available

Techniques

- We suggest
  - open surgical thrombectomy in selected patients who are candidates for anticoagulation but in whom thrombolytic therapy is contraindicated

Ongoing RCT’s on early thrombus removal in iliofemoral DVT

- CaVenT, Norway
  - CDT vs AK
  - 2 y FU = less PTS after CDT
- ATTRACT, USA
  - CDT/pharmacomechanical thrombolysis vs AK
- CAVA, The Netherlands
  - ultrasound-assisted thrombolysis vs AK

ATTRACT
Tony Comerota

- All 692 patients enrolled in December 2014
- Primary outcome PTS at 2 years
- Initial presentation for SIR in March 2017
- Simultaneous publication in NEJM

Early thrombus removal in acute iliofemoral DVT

- Immediately normalizes calf compartment pressures
- Reduces the severe PT syndrome
  - Will hopefully be confirmed by the ATTRACT trial