Thrombectomy for DVT: When, and How to Treat

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Disclosures

• Speaker's bureau/consulting: Cook Medical, Boston Scientific, Becton Dickinson/CR Bard, Medtronic, Penumbra, Tactile Medical, Philips

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“Open Vein” Hypothesis

Idea that residual thrombus is associated with poorer long-term outcomes (e.g., patency, PTS)

- CaVenT:
  - Significant inverse correlation between postlysis thrombus score and patency ($P = .040$) in femoral and iliofemoral DVT after 24 months

Study of 71 consecutive patients with iliofemoral DVT treated with CDT and/or pharmacomechanical thrombolysis.
Outcome scores from last encounter, mean follow-up duration 18.9 months.
• NIH sponsored, phase III, multicenter, randomized, open-label, assessor-blinded trial
• PCDT and standard therapy vs. standard therapy alone
• 692 patients
• Proximal DVT
  • Femoropopliteal segment or Iliofemoral segment
  • Combined primary endpoint
ATTRACTION – Primary outcome results

• No difference in PTS incidence or general/venous QOL between treatment (46.7%) vs and control arms (48.2%) (p=0.56)

• Higher major bleeding in PCDT (1.7 vs 0.3, p=(0.049) (none life threatening)
Endovascular Thrombus Removal for Acute Iliofemoral Deep Vein Thrombosis
Analysis From a Stratified Multicenter Randomized Trial

• 391 patients from the ATTRACT cohort
• Decreased moderate/severe PTS in treatment arm (18 vs 28%)
  • Moderate-severe symptoms
• Decreased severe PTS (8.7% vs 15%)
  • Severe symptoms
• Improvement in venous specific QOL

Take home: Apparent benefit in patients with moderate to severe symptoms at presentation
• Which baseline factors correlated with venous clinical outcomes at 24 months?
• Presenting Villalta of 10 or greater associated with over 1/3 reduction in moderate-severe PTS in the PCDT arm
• Consistent larger differences in Villalta and QOL between control and PCDT as presenting severity increased

Take home: Prospective validation of Villalta as an objective symptom metric for DVT
Pharmacomechanical Catheter-Directed Thrombolysis in Acute Femoral–Popliteal Deep Vein Thrombosis: Analysis from a Stratified Randomized Trial


- 300 patients with fempop DVT from the ATTRACT cohort
- No difference in moderate-severe PTS (Villalta ≥10)
- No difference in venous specific QOL
- Three major bleeds in PCDT arm, none in control arm

Take home: No apparent long-term benefit in this group of patients
ATTRACT – Perspective, defining the role of endovascular therapy

• Should PCDT be first line treatment in all proximal DVT?  **No**
  • Role in IFDVT with at least moderate to severe symptoms (Villalta 10 or greater)
  • FPDVT? Not routinely

• **BUT...the world is different**
  • Move to less lytic, mechanical-only devices
  • Move to single-session treatment
Mechanical thrombectomy is efficient...

• ...but uniquely operator dependent, which means:
• Possible differences in outcomes
• Possible difference in safety
• CDT is less efficient, carries bleeding risk, but is more reproducible
Single-arm, multicenter registry/IDE trials
Real-world (CLOUT), iliofemoral-only (BOLT, CLEAR DVT)
Will provide insight on device efficacy and procedure outcomes
BUT no comparator arm, non-uniform assessment of outcomes
At least one industry-sponsored RCT on the way
What about timing of intervention?

- ATTRACT trial includes patients up to 14 days
- CaVeNT up to 21 days
- But these are arbitrary – patients organize at different rates (immune-mediated response)
Can we develop non-invasive tests to identify thrombus age → guide intervention?

Should chronic fibrotic material be removed with clear downstream therapeutic benefit? Not clear
Summing up...when and how to treat

• Select patients that have been shown to benefit
  • IFDVT
  • Significant symptoms at presentation (use Villalta...>10 or more)
  • Within a short period of time from symptom onset

• Plenty of devices to choose from
  • No strong data to demonstrate superiority
  • Be familiar with strengths and weaknesses of a particular device
  • Greater experience with a device → better outcomes