Catheter Directed Thrombolysis for Peripheral Vascular Disease

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Presenter Disclosure

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Acute Limb ischemia (ALI)

- Sudden decrease or worsening of limb perfusion – duration < 2 weeks
- Threatened limb viability
- Catastrophic event: Mortality 15%, limb loss: 30%
- Medical management: anticoagulation
- Surgical management: thrombectomy +/- bypass
- Interventional management: Lysis +/- angioplasty/surgery
Catheter directed lysis

- Systemic lysis: high M&M, poor outcomes
- Catheter directed lysis allows local delivery of lytic agent into thrombus, reducing systemic complications
- Lytic agent exits catheter placed inside thrombus via side holes
- At GGH Alteplase (TPA) is agent of choice
- Maximum dose 30 mg
Contraindications

- Absolute:
  - Bleeding
  - Intracranial hemorrhage / mass
  - Compartment syndrome
  - Absolute contraindication to anticoagulation

- Relative:
  - TIA, Stroke
  - Major surgery, CPR within 2 weeks
  - Uncontrolled hypertension
  - Hepatic failure
  - Thrombocytopenia
  - Endocarditis
  - DIC
Indications

- Acute thrombosis, < 14 days
- Viable limb
- Patient can tolerate at least 6 hours of lysis
- Short Lysis 6-8 hrs: 2-5 mg/hr vs 20 hr: 1mg/hr
- Wire Test
Access: Contralateral common femoral artery (US guidance)
Infusion catheter - TPA
Concurrent Heparin Infusion via Sheath side arm
Thrombolysis

Thrombolytic medications

Clot

Catheter
Lysis

- 6-20 hours – in ICU
- General anesthesia may be necessary. Prefer alert but cooperative patient.
- Arterial Line for tight BP surveillance
- Foley – monitor U/O, hematuria
- Serial BW: CBC, D-dimer, Fibrinogen, INR, PTT, Lytes, Cr
- Neurovascular assessment both limbs, compartment syndrome, warmth, colour, swelling, trash foot?, embolic complications
- Sheath site hematoma
Initial DSA

Catheter has crossed Lesion

8 hr Lytic Infusion
Unmask focal stenosis
20 hr Lysis
Complications

- Bleeding
  - Cerebral
  - Retroperitoneal
  - Puncture site
  - GI
- Distal embolization
- Failure: 20%
- Limb loss
Conclusion

- Catheter directed lysis is an adjunct to traditional open surgical thrombectomy
- Better response is observed in bypass grafts & veins, helps dissolve thrombus rim left behind after surgical thrombectomy
- Unmasks responsible lesion, prevents open conversion
- Treats distal small vessel thrombosis, prevents outflow resistance
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