Diagnosis and Endovascular Treatment of Acute Limb Ischemia

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NCVH Shreveport
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Definition of Acute Limb Ischemia

- Sudden decrease or worsening perfusion causing a threat to limb viability
  - Less than 14 days
Causes of ALI

- Atherosclerosis
- Cardiogenic clots
- Trauma
- Bacterial or viral infection
- Inflammation
- Hypercoaguable blood disorders
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- Atherosclerosis
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Amputation Rates From ALI

Source: TASC
30-Day All-Cause Mortality

Sources: Dormandy, Earnshaw, Keeley, Dalby, Williams and Fang

* Treated with PCI
† Ischemic Stroke
Five-Year Mortality for ALI

*CAD defined as previous MI or unstable angina.
† Stroke defined as ischemic stroke.
Six year mortality in 65-75 age group.

Source: Weitz, Ljungman, Hartmann, Hunt and ACS
Diagnosis

• Medical history and physical exam: 5Ps
• Ankle-brachial index (ABI)
• Duplex ultrasound
• Arteriogram
  – CTA
  – MRA
  – DSA

  • Paresthesia
  • Pulseless
  • Pain
  • Poikilothermy
    – Cold
  • Paralysis
## Grading of ALI

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<thead>
<tr>
<th>Category</th>
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Treatment Options

• Medical management
  – Anticoagulants

• Open Surgery
  – Thrombectomy/embolectomy
  – Endarterectomy
  – Bypass
Treatment Options

• Endovascular intervention
  – Catheter-directed thrombolysis
  – Mechanical thrombectomy
  – Angioplasty/stenting

• Hybrid approaches
Combined Endovascular Therapy

- Peripheral Use of Angiojet
- Rheolytic Thrombectomy With Mid-Length Catheters
## PEARL Registry

<table>
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<tr>
<th>Treatment Patients(n)</th>
<th>Count</th>
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<tr>
<td>AngioJet Thrombectomy</td>
<td>77 (19%)</td>
</tr>
<tr>
<td>AngioJet + PMT</td>
<td>151 (37%)</td>
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<tr>
<td>AngioJet + CDT</td>
<td>116 (28%)</td>
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<td>66 (16%)</td>
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CDT, catheter-directed thrombolysis
PMT, pharmacomechanical thrombolysis

Amin. PEARL Registry Limb Ischemia. Charing Cross 2014
43% of patients treated for LI
39% of patients treated for DVT
15% of patients treated for AV
Other was collection of uses outside of categories shown
PEARL Registry

- 89% significant occlusion at baseline
- Full patency was achieved in 83%
- Limb salvage rate
  - 90.7%

15% of patients will die!
20% of patients will need amputation!
## Endovascular vs Open Treatment

### In Category II ALI

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<th>OS</th>
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<td>30-day mortality rate</td>
<td>5.4%</td>
<td>13.2%</td>
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<td>30 day amputation rate</td>
<td>6.5%</td>
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<td>1 year amputation rate</td>
<td>13.0%</td>
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<td>1 year primary patency rate</td>
<td>51%</td>
<td>57%</td>
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Technical success is higher with OR for patients presenting with failed bypass grafts

EVT: endovascular therapy 147 patients (154 limbs)
OS: open surgery 296 patients (326 Limbs)

Case Report

- 69 year-old male with history of PAD
- S/p above the knee Fem-pop bypass, and below the knee Fem-pop bypass
- Present with cold and acute pain in the right leg for 6 hours
- No pulse or Doppler signals in the right lower extremity
- Decrease sensation and motor function in the right foot
Case Report

Key Points
1. Grading of IIb acute leg ischemia
2. Mechanical and CD thrombolysis
Algorithm of ALI Management