**Veith 2018**

**DEBATE:**

**ENDO-FIRST IS BEST FOR ALL CLTI PATIENTS: RARELY ARE OPEN BYPASSES HELPFUL AND HOW OFTEN**

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**Disclosures**
- None relevant to this lecture

**CLTI (Rutherford 4-6)**
- Most commonly associated with multi-level disease
- 25-30% infrapopliteal only (mostly diabetic)
- Poor overall life expectancy (studies range in average life expectancy from 3-4 years)
- Substantial differences in outcomes within CLTI with far worse outcomes in those with poor overall health, advanced stage presentation, or poor runoff at the level of the foot.

**Rationale for Endovascular Therapy**

**First in CLI (MUCH LESS INVASIVE)**
- Patients are often old and infirmed. Many are not considered candidates because of overall health.
- Surgery requires:
  - Inflow
  - Outflow
  - Conduit (BTK patency ideally requires autologous vein)
  - Incision
- Active infection problematic for surgery (graft infection or sepsis)
- Extensive surgical scarring may compromise future rescue intervention
- Progressive disease (Interventions can be repeated easily)

**PTA as the First-Choice Revascularization in Diabetics with CLI:**
- Prospective Study 993 patients between 1999 and 2003
- Conclusion:
  - PTA was safe and feasible
  - Low complication rates (3.4%)
  - High follow up rates (97.8%)
  - Low major amputation rates (1.7%)
  - 5-Year clinical primary patency rates (88%)
  - Stressed a “MULTIDICIPLINARY” approach
  - Again > 90% long term LIMB SALVAGE

**Original Research**

**Determinants of Long-Term Outcomes and Costs in the Management of Critical Limb Ischemia: A Population-Based Cohort Study**

**Background**

The optimal treatment for critical limb ischemia remains controversial owing to conflicting conclusions from various studies.

**References**

Faglia, E., Dalla Paola, L. Graziani Eur J Vasc Endovasc Surg 29, 620-627 June 2005

**Faglia, E., Dalla Paola, L. Graziani Eur J Vasc Endovasc Surg 29, 620-627 June 2005**
The effectiveness of PTA for the treatment of CLI: 10-year experience

- Conclusion
  - 0.9% perioperative mortality
  - Overall technical success = 96.4% (N = 138)
  - Overall clinical success = 92.8% (mean follow up = 14.7 months)
  - Overall 5 year primary patency = 31.4%
  - Overall 5 year secondary patency = 79.6%
  - 5 year limb salvage = 89.1%

BASIL Trial – Bypass vs. Sub-Intimal Angioplasty in Severe Ischemia of the Leg

- 452 patients with CLI from BTK disease
- Multi-center: 27 UK Centers
- Randomized to fem-distal vs. endo revasc
  - 228 Fem-distal bypass
  - 224 Endovascular revascularization
- 30-day mortality low for both groups
- Endovascular:
  - Lower MI and infection rates
  - Lower cost (even with 28% vs. 17% 1 yr TVR)
  - Cost equal at 2 years/favoring surgery at 5 year

What has changed since Basil Trial

- Better crossing (Re-entry tools, dedicated crossing tools, better wires, retrograde access). In Basil only subintimal crossing.
- Markedly improved SFA/politeal interventional patency
  - DCB
  - DES
  - Wire interwoven nitinol stents (Supera)
  - Stent grafts with demonstrated patency equalling open surgery with PTFE grafts above the knee
- Improved Tibial patency
  - Coronary DES in proximal vessels
  - DCB (Lutonix trial)
  - Better medical therapy (PCSK9 inhibitors showing 30% plaque reduction at 70 weeks)

Decade of LE Endovascular Interventions

Intervention taking away surgical options?

- Extensive wire dissection beyond the point of vascular reconstitution. (BAD TECHNIQUE)
- Stenting across common femoral or a patent popliteal artery (BAD TECHNIQUE) Surgeons do not bypass to occluded popliteal arteries.
- Embolization compromising outflow (CAN MITIGATE THIS BY UTILIZING DISTAL PROTECTION)
Rationale for Endovascular Approach

- PRIMUM NON NOCERE (First do no harm) - Hippocratic oath
  - Entire procedure performed via a sheath from a remote site away from infection.
  - Less Pain
  - Shorter recovery time
  - No extensive scar created at access sites
  - THE ARGUMENT THAT INTERVENTION TAKES AWAY SURGICAL OPTIONS IS NOT VALID WHEN PERFORMED APPROPRIATELY.
  - BAD INTERVENTION OR BAD SURGERY TAKES AWAY TREATMENT OPTIONS.

Where is distal bypass indicated

- Large non-healing ulcers in patients with:
  - Good life expectancy
  - Good quality vein
  - Good outflow
  - Excellent surgical expertise
- Densely calcified long segment infrapopliteal disease where we don’t yet have an interventional solution that routinely achieves adequate flow
  - Even these areas may change if more effective tools solve the patency problems with long segment IP disease (SAVAL trial, Multiple DCB trials, Lithoplasty, etc.)