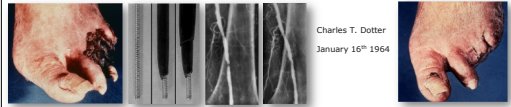




What Are The Best Current Techniques For Revascularizing BTK And Below-The-Ankle (BTA) Lesions Causing CLTI: Is Open Bypass Ever The Best ?



Charles T. Dotter
January 16th 1964



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Disclosure

Speaker name:
....Stefan Müller-Hülsbeck.....

I have the following potential conflicts of interest to report:

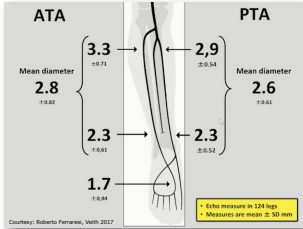
- Consulting: Terumo, Alvimedica, Concept Medical
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

I do not have any potential conflict of interest

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Below-the-Knee/Ankle (BTK / BTA) Revascularization

- Objectives and Outline
 - FACTS
 - Standards of Practice
 - Vascular Anatomy
 - Techniques & Devices
 - Reality & Daily Practice




ATA Mean diameter: 3.3 (±0.71), 2.8 (±0.87), 2.3 (±0.81), 1.7 (±0.64)
PTA Mean diameter: 2.9 (±0.54), 2.6 (±0.61), 2.3 (±0.52)

• BTK measure in 228 legs
• Measurements are mean ± SD mm

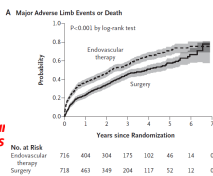
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VASCULAR Trials BTK: BEST-CLI trial



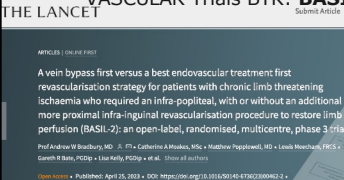
BEST-CLI trial
1830 pts
Surgery vs Any Endovascular Rx
Two cohorts – optimal / lacked vein

For pts with a saphenous vein suitable for bypass, surgery is significantly better than any endovascular therapy, for pts who lacked an adequate saphenous vein conduit, the outcomes in the two groups were similar.



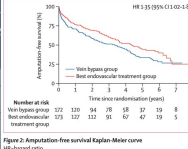
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VASCULAR Trials BTK: BASIL-2 trial




BASIL-2 trial
345 pts
Surgery vs Any Endovascular Rx

In conclusion, the BASIL-2 trial shows that a vein bypass first revascularisation strategy led to a 35% increased risk of major amputation or death in patients with CLTI ... compared with a best endovascular treatment first!



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VASCULAR Trials BTK: BEST-CLI trial vs. BASIL-2 trial

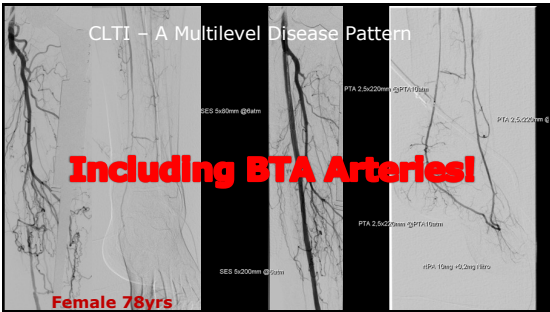


BEST-CLI evaluated outcome events as the primary endpoint, which includes major reinterventions in addition to major amputations and death.

BASIL-2 used amputation-free survival as the primary outcome and only included patients with lower leg lesions.

Only half of the CLI patients received a curative intervention or surgery.

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Cardiovasc Intervent Radiol (2021) 44:1309–1322
<https://doi.org/10.1007/s00270-021-02891-5>

CIRSE
 Check for updates

CIRSE STANDARDS OF PRACTICE 4.4.4.2 ARTERIAL INTERVENTIONS

CIRSE Standards of Practice on Below-the-Knee Revascularisation

Stavros Spiliopoulos¹ · Costantino Del Giudice² · Marco Manzi³ · Lazaros Reppas⁴ · Thomas Rodt⁴ · Raman Uberoi⁵

- Indications, contraindications and patient selection
- Patient preparation
- Procedural details and endovascular techniques
- Medication and post-procedural care
- Outcomes

<http://dx.doi.org/10.1007/s00270-021-02891-5>

Different zones of puncture of the BTA vessels

Zone 1 Distal
 Zone 2 Medial/Plantar
 Zone 3 Arch/digital arteries

Yea A, Litali N, Patrone L, Amiglierina A, Marzocchi A, Matafa M, Ferrara S, Tze and Tze for Limb and Critical Limb Ischemia. *Footwear Ergonomics*. 2018; 10(2): 113-120. doi: 10.1080/15439683.2018.1474564. Epub ahead of print. PMID: 30442106

Rodt T et al. Vascular Imaging of the Foot: The First Step toward Endovascular Revascularization. *Radiographics* 2011; 31:1627-1636

<http://dx.doi.org/10.1007/s00270-021-02891-5>

Direct Puncture of the Posterior Tibial Artery

Fluoroscopic guidance

21 gauge, 8 cm echogenic needle e.g. Cook, Merrit

0.018" Nitinol wire

<http://dx.doi.org/10.1007/s00270-021-02891-5>

Direct Puncture of the Dorsal Pedis Artery

Ultrasound guidance

21 gauge, 8 cm echogenic needle e.g. Cook, Merrit

0.018" Nitinol wire

<http://dx.doi.org/10.1007/s00270-021-02891-5>

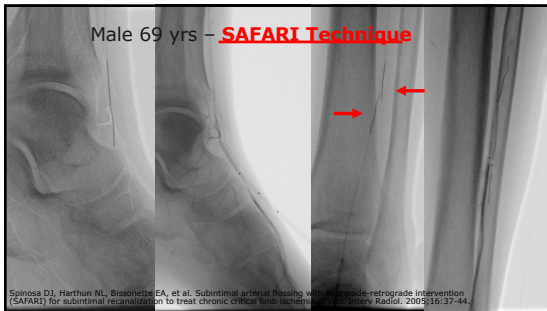
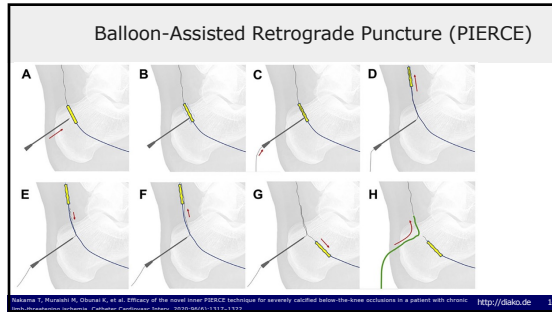
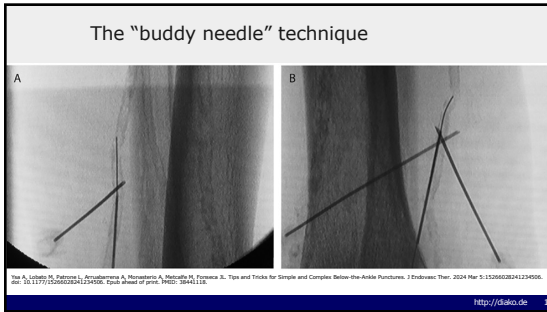
Direct Puncture of the Anterior Tibial Artery

LAO 45° RAO 30°

Popliteal artery
 Puncture needle
 AIA
 TPT
 Prominent Raport
 4fr TEMPO

Shimada M et al. Feasibility and safety of proximal anterior tibial artery direct puncture with a needle technique for the percutaneous occlusion with severe calcification. *Annals of Vascular Surgery - Small Reports and Interventions*, Volume 2, Issue 2, 2022, 100027

<http://dx.doi.org/10.1007/s00270-021-02891-5>



Device Portfolio

Guiding Catheter 4F

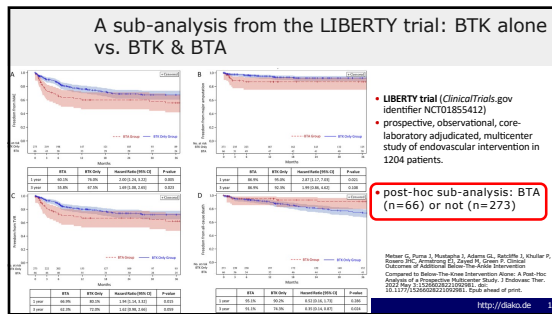
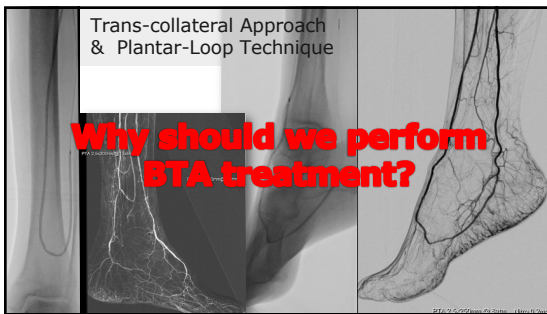
Guidewire 018' & 014'

Model	Length	Tip	Coil	Distal	Proximal
018'	1800	0.018	0.018	0.018	0.018
014'	1400	0.014	0.014	0.014	0.014

Support-Catheter

4F sheath 45cm
 4F micro-puncture 0.018
 4F BERN
 0.014 inch Command 14 ES*
 0.014 inch Traxess*
 BTA 2-4.5mm x 250mm-300mm
 PCB 5mm x 120 mm (Solution*)

http://dx.doi.org/10.1177/1526002413243456



A sub-analysis from the LIBERTY trial

Reiner G, Perna J, Mutsaers J, Adams GL, Sato RK, J. Shiller P, Rosero JC, Amelsson EJ, David H, Green P. Clinical Outcomes of Additional Below-The-Ankle Intervention Compared to Below-The-Ankle Intervention Alone in Patients with BTK Lesions Causing CLTI. JAMA. 2023;329(12):1053-1061.

Patients with disease requiring intervention to BTA lesions have a potential increased amputation rate in the short term, but **BTA intervention carries a potential survival benefit in the long term** when compared to BTK intervention alone.

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Reality & Daily Practice For Revascularizing BTK And Below-The-Ankle (BTA) Lesions Causing CLTI

- CLTI should be treated in specialized centers that offer both crural surgery and endovascular therapy (confirmed by BEST-CLI and BASIL-2).
- CLTI is often a multi-level disease pattern including infrainguinal, infrapopliteal and below-the-ankle.
- Endo first is often performed using dedicated techniques beyond crural bypass surgery, meaning additional successful foot revascularization achieves healing and avoids major amputation in persons with ischemic DFU and BTA arterial disease with low complications!

Is Open Bypass Ever The Best ?
Yes, but in selected cases only.

(Anesthesiology team) and resources are often lacking!

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Is Open Bypass Ever The Best ?





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