How to reconcile the discordant results between BEST-CLI and BASIL-2

Michael S. Conte MD
Professor and Chief, Division of Vascular and Endovascular Surgery
Co-Director, Heart and Vascular Center
University of California, San Francisco

Disclosures

- Abbott Vascular
- BioGenCell (research grant)
- Medistim
- Co-Chair, SVS PAD Guidelines (2015) and Global Vascular Guidelines (2019)
- Co-Chair, Executive Committee, BEST-CLI trial

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ORIGINAL ARTICLE

Surgery or Endovascular Therapy for Chronic Limb-Threatening Ischemia

A. Farber, M.T. Menard, M.S. Conte, J.A. Kaufman, R.J. Powell, N.K. Choudhry, T.H. Hamza, S.F. Assmann,* M.A. Creager, M.J. Cziraky, M.D. Dake, M.R. Jaff, D. Reid, F.S. Siami, G. Sopko, C.J. White, M. van Over, M.B. Strong, M.F. Villarreal, M. McKean, E. Azene, A. Azarbal, A. Barleben, D.K. Chew, L.C. Clavijo, Y. Douville, L. Findeiss, N. Garg, W. Gasper, K.A. Giles, P.P. Goodney, B.M. Hawkins, C.R. Herman, J.A. Kalish, M.C. Koopmann, I.A. Laskowski, C. Mena-Hurtado, R. Motaganahalli, V.L. Rowe, A. Scharzer, P.A. Schneider, J.J. Siracuse, M. Venermo, and K. Rosenfield, for the BEST-CLI Investigators†

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BEST-CLI Study Design: Two Parallel Trials

Patients with CLTI due to infrainguinal PAD
- **corroborated by hemodynamic criteria**
- **not at excessive risk for surgery**
- **eligible for open and endo**

- Duplex of GSV
- Imaging of index leg arteries
- Review by open and endo credentialed investigators

Cohort # 1 SSGSV → Stratification → 1:1 → Endovascular / Surgical

Cohort # 2 Alternative Conduit → Stratification → 1:1 → Endovascular / Surgical

Strata: Ischemic Rest Pain Alone vs. Tissue Loss
Significant Tibial Occlusive Disease vs. No Tibial Occlusive Disease

BEST-CLI Study Design: Endpoints

Primary Endpoint: Major Adverse Limb Event (MALE) or all-cause death
- All-cause death
- MALE
  - Above Ankle Amputation *or*
  - First Major Reintervention CLINICAL EVENTS COMMITTEE (CEC) ADJUDICATED
    - new bypass, surgical interposition graft, surgical thrombectomy, thrombolysis

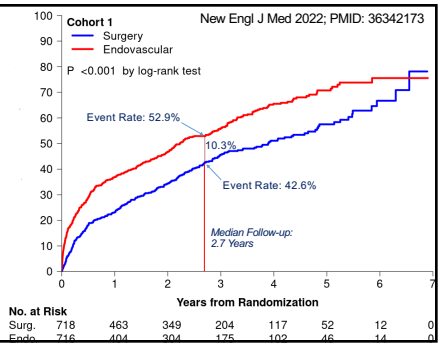
Safety Endpoints: MACE (Major Adverse Cardiovascular Events)
- All cause Death
- MI — CEC ADJUDICATED
- Stroke — CEC ADJUDICATED

Primary Endpoint, and Components of the Primary Endpoint - Cohort 1

	Surgery (n=709)		Endovascular (n=711)		HR (95%CI)	P-value
Primary						
MALE or all cause death	302	42.6%	408	57.4%	**0.68 (0.59,0.79)**	<0.001
Secondary						
Major Reintervention on the Index Limb	65	9.2%	167	23.5%	**0.35 (0.27,0.47)**	<0.001
Above-ankle amputation of the index limb	74	10.4%	106	14.9%	**0.73 (0.54,0.98)**	0.04
All cause death	234	33.0%	267	37.6%	**0.98 (0.82,1.17)**	0.81

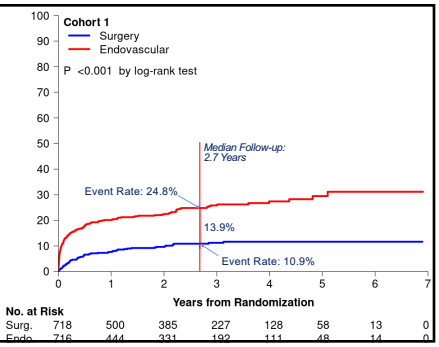
Primary Endpoint

MALE (Major Re-intervention, or Above-Ankle Amputation) or All-cause Death (%)



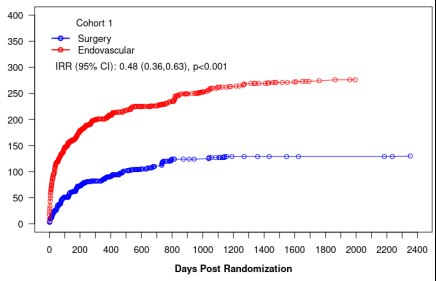
Primary Endpoint Component

Major Re-intervention (%)



Secondary Endpoint

Total Number of Major Re-interventions



IRR: Incidence Rate Ratio

Conte MS, et al. J Vasc Surg 2024; PMID 38368997

Cohort 2 top line endpoints

Primary Endpoint, and Components of the Primary Endpoint - Cohort 2

	Surgery (n=194)		Endovascular (n=199)		HR (95%CI)	P-value
Primary						
MALE or all cause death	83	42.8%	95	47.7%	**0.79 (0.58,1.06)**	0.12
Secondary						
Major Reintervention on the Index Limb	28	14.4%	51	25.6%	**0.47 (0.29,0.76)**	0.002
Above-ankle amputation of the index limb	29	14.9%	28	14.1%	**1.10 (0.65,1.87)**	0.72
All cause death	51	26.3%	48	24.1%	**1.15 (0.77,1.72)**	0.50

BEST-CLI: key clinical outcomes

- For CLTI patients who are suitable for either OPEN or ENDO and have an adequate GSV available (cohort 1), open bypass was a significantly more effective revascularization strategy:
  - ***32%*** *reduction in MALE or death*
  - ***65%*** *reduction in first Major Reintervention*
  - ***27%*** *reduction in Major Amputation;* ***32%*** *reduction in RAD*
  - ***Less than half*** *the total number of Major Reinterventions over time*
  - ***18%*** *reduction in recurrent CLTI events*
  - ***16%*** *reduction in total amputation events (minor or major)*
  - *Benefit of OPEN was evident across virtually every Subgroup*
    - ***Infrapopliteal disease, Diabetes, WIFI stage 4***

- N=345 patients (<20% size of BEST-CLI)
- **Eligible if "anticipated life expectancy > 6 months"**
- AFS 35% better for Endo arm after median 40 months FU
- Amputation (18% vs 20%) and MALE no different by ITT
- Driven by greater long-term mortality in the OPEN bypass arm
- Endo technical success 87%; similar to BEST-CLI (85% cohort 1)
- Surgical results (amputation, mortality) worse than BEST-CLI
  - Periop mortality for OPEN 6% vs 1.6% BEST CLI
- **Notably different patient population from BEST-CLI**
  - Higher mortality
  - Limited fem-pop disease
  - More than 1/3 had a prior index limb revascularization
- Underpowered for Limb events
- More granular comparisons needed esp. anatomic complexity

Apples and oranges? A comparison of BEST-CLI to BASIL-2

Michael S. Conte, MD,[a] and Leigh Ann O'Banion, MD,[b] San Francisco and Fresno, CA

Study populations	BEST cohort 1			BEST cohort 2			BASIL-2		
	Overall	Endovascular	Open	Overall	Endovascular	Open	Overall	Endovascular	Open
Total n	1434	716	718	396	199	197	345	173	172
Median follow-up, years	2.7			1.6			3.3		
Key demographics and comorbidities									
Age, years	66.6	67.0	66.6	68.6	68.8	68.4	72.5	72.5	72.4
Female sex	28.5%	28.9%	28.0%	28%	27.6%	28.4%	19%	18%	19%
White race	72.2%	74.2%	70.3%	70.5%	67.3%	73.7%	91%	91%	91%
Diabetes	71.8%	71.6%	72.1%	60.3%	58.3%	62.2%		69%	68%
ESRD	10.6%	11.8%	9.4%	11.4%	10.1%	12.8%		3%	6%
Prior revascularization[a]	5.4%	5.2%	5.6%	10.2%	10.1%	10.3%		39%	31%
CLTI definition/severity									
Tissue loss	79.7%	79.8%	79.7%	70%	69.8%	70.1%		89%	87%
Toe pressure (mm hg)	36.3	36.1	36.5	31.0	25.5	37.0		NA	NA
Significant IP disease	66.8%	67.1%	66.7%	63.7%	63.8%	63.5%		100%	100%
Endovascular procedures									
Treated by IP/IC		27.9%			10.9%			84%	
Levels treated									
Femoropopliteal		84%			92%			NA	
Infrapopliteal		56%			51%			100%	

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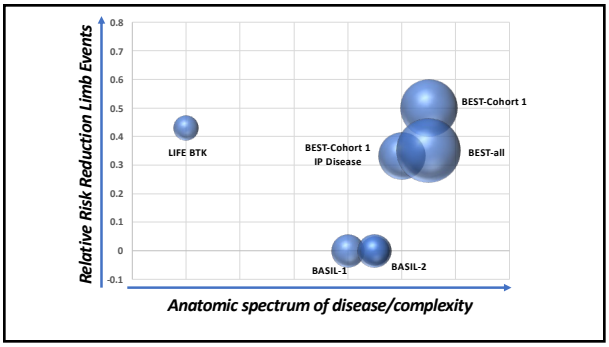
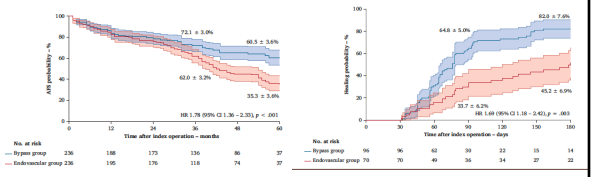
Study populations	BEST cohort 1			BEST cohort 2			BASIL-2		
	Overall	Endovascular	Open	Overall	Endovascular	Open	Overall	Endovascular	Open
Type of intervention[1]									
POBA		52.7%			47.2%			82%	
Atherectomy		13.6%			15.4%			0%	
DCB		27.8%			25.1%			13%	
BMS		39.3%			43.1%			16%	
DES		24.2%			21.5%			13%	
Open procedures									
Proximal anastomosis									
CFA/SFA			75.7%			85.3%			57%
Popliteal			15.7%			8.4%			40.6%
Distal anastomosis									
Above-knee popliteal			15.3%			23.2%			0%
Below-knee popliteal			24.7%			24.7%			1%
Tibial/pedal			51.4%			45.8%			95%
Primary end points									
AFS (BASIL-2)	NA	NA		NA	NA		63%	53%	
MALE or death (BEST-CLI)	37.1%	42.5%		47.7%	42.6%				
Death	37.6%	33%		24.1%	25.9%		45%	53%	
Major amputation	14.8%	10.3%		14.1%	15.2%		18%	20%	
Major reintervention[2]	23.3%	9.2%		25.6%	14.2%		NA	NA	
Any reintervention	44%	31%		43%	34%		32%	29%	
Perioperative outcomes									
ITT	15.3%	1.7%		19.4%	0%		13%	4%	



Editor's Choice – Infra-inguinal Endovascular Revascularisation and Bypass Surgery for Chronic Limb Threatening Ischaemia: a Retrospective European Multicentre Cohort Study with Propensity Score Matching

Jean-Baptiste Ricco [a,*,†], Richard J. Roiger [b,†], Fabrice Schneider [c], Farid Guetarni [d], Fabien Thaveau [e], Giulio Illuminati [f], Rocco Pasqua [f], Xavier Chaufour [g], Jean Porterie [h], Aurélien Hostalrich [g]



Endovascular therapy versus bypass for chronic limb-threatening ischemia in a real-world practice

Sina Zarrintan, MD, MS, MPH,[a] Shima Rahgozar, BA,[a] Elsie G. Ross, MD, MSc,[a] Alik Farber, MD, MBA, DFSVS,[b] Matthew T. Menard, MD,[c] Michael S. Conte, MD,[d] and Mahmoud B. Malas, MD, MHS, RPVI,[e] San Diego and San Francisco, CA; and Boston, MA

- VQI data (2010-2019) >36,000 first time infrainguinal procedures for CLTI

Table VII. Hazard ratios (*HR*) in cohorts of endovascular therapy (*ET*) vs bypass with great saphenous vein (*BWGSV*) and ET vs bypass with prosthetic graft (*BWPG*) after propensity score matching (PSM) (reference = bypass)

Outcome in matched cohorts	Two years		Four years	
	HR (95% CI)	*P* value	HR (95% CI)	*P* value
ET vs BWGSV				
All-cause mortality	1.44 (1.34-1.56)	**<.001**	1.34 (1.25-1.43)	**<.001**
Amputation	1.31 (1.17-1.46)	**<.001**	1.30 (1.17-1.44)	**<.001**
Amputation or death	1.38 (1.30-1.48)	**<.001**	1.32 (1.24-1.40)	**<.001**
ET vs BWPG				
All-cause mortality	1.11 (1.00-1.22)	**.042**	1.06 (0.98-1.16)	.156
Amputation	1.10 (0.95-1.29)	.198	1.07 (0.93-1.24)	.359
Amputation or death	1.07 (0.98-1.17)	.109	1.04 (0.96-1.12)	.322

CI, Confidence interval.
Boldface *P* values represent statistical significance.

Measuring effective revascularization in CLTI