Title

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Authors

Hamouda, Mohammed

Zarrintan, Sina

Vootukuru, Nishita R

et al.

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Difficult Decisions: What To Use When the Ideal Bypass Conduit is not Available in Critical Limb Ischemia Patients?

Mohammed Hamouda,[1] Sina Zarrintan,[2] Nishita R. Vootukuru,[3] Jon G. Quatromoni,[4] Mahmoud Malas,[5] Ann Gaffey[6]. [1]Center for Learning and Excellence in Vascular and Endovascular Surgery (CLEVER), Department of Surgery, Division of Vascular and Endovascular Surgery, UC San Diego, San Diego, CA; [2]Division of Vascular & Endovascular Surgery, Department of Surgery, University of California San Diego, San Diego, CA; [3]UCSD, Chandler, AZ; [4]Department of Vascular Surgery, Heart Vascular and Thoracic Institute, Cleveland Clinic, Cleveland, OH; [5]University of California San Diego, Division of Vascular and Endovascular Surgery, San Diego, CA; [6]University of California San Diego School of Medicine, San Diego, CA

Objectives: The optimal conduit for Infrainguinal bypass (IIB) is single-segment great saphenous vein (GSV). Unfortunately, GSV is not always available in patients with chronic limb-threatening ischemia (CLTI). Other graft choices include alternate autogenous veins (AV), prosthetic grafts (PG), or biologic grafts (BG). Current data regarding the durability and limb salvage rates of those options is scarce; hence, we aimed to investigate the impact of alternative graft types on postoperative and long-term outcomes on IIB in patients with CLTI.

Methods: The VQI database was queried for patients undergoing IIB from January 2012 to October 2023. Patients were stratified into three groups based on graft material used: AV (upper arm veins, short saphenous vein, or spliced autogenous vein), PG (Dacron or polytetrafluoroethylene), and BG (cadaveric, homograft, or xenograft). Composite vein and prosthetic graft were excluded. Logistic regression modeling analyzed differences for primary outcomes, which include in-hospital death, graft patency, major amputation, and blood transfusion. Multivariable Cox regression analysis, log rank test, and Kaplan-Meier estimates were used to report 1-year survival. Backward stepwise selection was implemented to identify significant variables for inclusion in the final models.

Results: A total of 16,810 IIB procedures have been analyzed, Seventy-three percent (12,366) of those procedures were performed using PG, while 16.84% (2831) and 9.60% (1613) were performed using BG and AV, respectively. Patients receiving AV had the longest operative time and were more likely to be male, White, obese, diabetic, and on statin. BG group had higher proportion of patients who are on dialysis, Hispanic, and with prior contralateral major amputation. Compared to AV, patients in the BG and PG groups had almost double the odds of in-hospital major amputation (BG: OR, 2.45; 95% CI, 1.49-4.06; $P < .001$; PG: OR, 1.91; 95% CI, 1.20-3.02; $P = .006$) (Table I). Furthermore, the AV group had the highest one-year survival compared to BG and PG (BG: HR, 1.40; 95% CI, 1.12-1.75; $P = .004$; PG: HR, 1.27; 95% CI, 1.05-1.54; $P = .014$) (Fig 1). BG was associated with two-thirds higher odds of graft occlusion compared to AV (OR, 1.67; 95% CI, 1.02-2.76; $P = .043$). PG and BG were both associated with lower risk of receiving more than two units of blood compared to AV ($P < .05$).

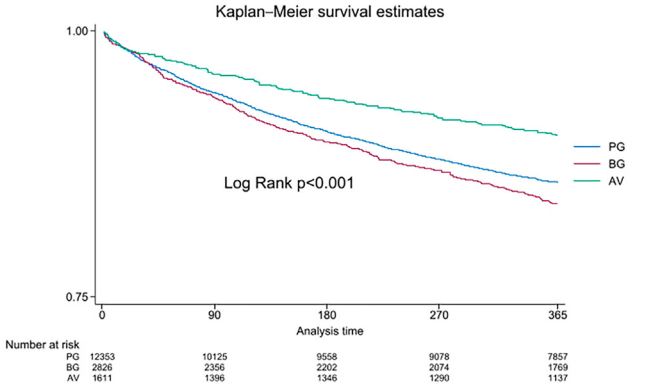

Fig. One-year survival of PG, BG and AV.

Conclusions: Alternative AV grafts provide better postoperative durability, freedom from in-hospital major amputation, and 1-year survival compared to PGs and BGs. Further evidence is required to support this conclusion.

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PC074

Proximal Anastomosis Configuration and Aortobifemoral Bypass Outcomes

Mustafa A. Khader,[1] Manuel Garcia-Toca,■ Jaime Benarroch-Gampel,■ Peter H'Doubler,■ Jay Miller,■ Yazan Duwayri,■ Olamide Alabi[2]. [1]Emory University School of Medicine, Atlanta, GA; [2]Division of Vascular Surgery and Endovascular Therapy, Emory School of Medicine, Atlanta, GA

Objectives: Aortobifemoral bypass (ABF) for the management of aortoiliac occlusive disease has a reported primary patency over 80% at 5 years. Little is known about how the proximal ABF anastomosis configuration (pABF) relates to patency over time. We hypothesize that end-to-side (E-S) pABF is associated with increased risk of loss of patency during follow-up (compared to end-to-end [E-E]).

Methods: We examined all patients who underwent ABF within the Vascular Quality Initiative (VQI) between 2009-2023. We excluded emergent ABF, concomitant aneurysmal disease, and those without documented long-term ABF patency. The exposure of interest was pABF. The primary outcome of interest was loss of patency and secondary outcome was mortality, both at 30 days and at long-term follow-up

Table. Outcomes of PG vs AV, BG vs AV, and PG vs BG

	PG vs AV		BG vs AV		PG vs BG	
	OR/HR (95% CI)	*P* value	OR/HR (95% CI)	*P* value	OR/HR (95% CI)	*P* value
In-hospital						
Death	1.27 (0.77-2.11)	.354	0.81 (0.45-1.47)	.496	1.49 (1.05-2.12)	.026
Occluded graft	0.83 (0.54-1.27)	.384	1.67 (1.02-2.76)	.043	0.74 (0.54-1.01)	.054
Major amputation	1.91 (1.20-3.02)	.006	2.45 (1.49-4.06)	<.001	0.86 (0.64-1.15)	.309
RTOR	0.86 (0.73-1.01)	.072	1.19 (0.96-1.48)	.118	0.77 (0.65-0.91)	.002
Transfusion > 2 pRBC	0.81 (0.68-0.96)	.017	0.72 (0.60-0.87)	.001	1.09 (0.94-1.27)	.269
Follow-up						
30-day mortality	1.02 (0.69-1.52)	.921	0.75 (0.48-1.20)	.232	1.42 (1.06-1.91)	.020
1-year mortality	1.27 (1.05-1.54)	.014	1.40 (1.12-1.75)	.004	0.99 (0.88-1.12)	.877

CI, Confidence interval; *HR*, hazard ratio; *OR*, odds ratio; *pRBC*, packed red blood cells; *RTOR*, return to operating room.