Title

Upper Extremity Arteriovenous Grafts Are Less Likely to Be Abandoned Compared With Autogenous Fistulas Despite a Higher Reintervention Rate

Journal

Journal of Vascular Surgery, 81(4)

ISSN

0741-5214

Authors

Patel, Nyah

Farber, Alik

King, Elizabeth

et al.

Publication Date

2025-04-01

DOI

10.1016/j.jvs.2024.12.091

Peer reviewed

Methods: All patients in the Vascular Quality Initiative dialysis module with a lower extremity arteriovenous fistula (AVF) or AV graft (AVG) created from 2011 to 2023 were retrospectively analyzed. Medications prescribed at discharge were organized into single antiplatelet (SAPT), dual antiplatelet (DAPT), and SAPT+AC. SAPT was divided into aspirin and clopidogrel. Univariable Kaplan-Meier (KM) and multivariable regression analyses were utilized to assess impact of discharge medication on survival and primary/secondary patency.

Results: We included 1,214 patients who underwent lower extremity dialysis access creation with 151 (12.4%) being AVFs and 1063 (87.6%) being AVGs. Of AVF patients, 41 were discharged on no medication (27.2%), 56 (37.1%) on SAPT (51 [91.1%] aspirin and 5 [8.9%] clopidogrel), 9 (6.0%) on DAPT, and 12 (8.0%) on SAPT+AC. Following AVG creation, 349 (28.7%) patients were discharged on no medications, 331 (27.3%) on SAPT (272 [82.2%] aspirin and 59 [17.8%] clopidogrel), 79 (6.5%) on DAPT, and 97 (8.0%) on SAPT+AC. KM and multivariable analyses showed no difference in survival, primary patency, or secondary patency based on medication following AVF creation. Following AVG creation, there was no difference in survival or primary patency. KM analysis of AVG suggested better secondary patency at 1 year with SAPT (no APT 72.4%; SAPT 80.7%; DAPT 65.2%; SAPT+AC 69.1%; $P > .05$) (Fig). Multivariable analysis showed decreased risk of losing secondary patency with SAPT (hazard ratio [HR], 0.20; 95% confidence interval [CI], 0.06-0.69; $P = .01$). Further, this decreased risk was observed with clopidogrel (HR, 0.04; 95% CI, 0.00-0.74; $P = .03$), but not for patients on aspirin (HR, 0.30; 95% CI, 0.08-1.10; $P = .07$).

Conclusions: This analysis suggests SAPT is protective for lower extremity AVG with clopidogrel showing statistically significant protection. This suggests that SAPT is a viable option for prolonging AVG patency. Further study on antiplatelet usage following lower extremity dialysis access creation is warranted.

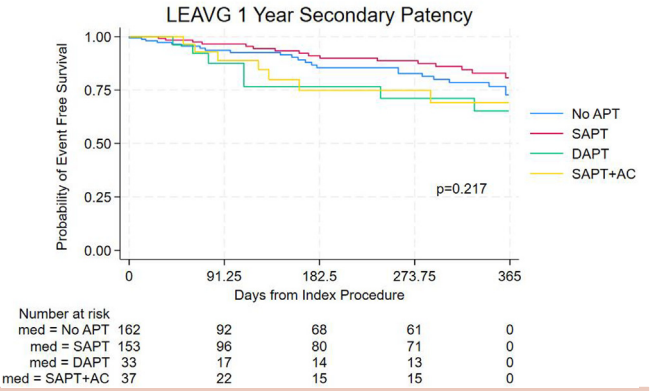

Fig.

Author Disclosures: G. Christy: Nothing to disclose; **D. Ebertz:** Nothing to disclose; **J. Siracuse:** Nothing to disclose; **M. R. Smeds:** Nothing to disclose.

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Upper Extremity Arteriovenous Grafts Are Less Likely to Be Abandoned Compared With Autogenous Fistulas Despite a Higher Reintervention Rate

Nyah Patel, MPH,[1] Alik Farber, MD, MBA,[1] Elizabeth King, MD,[1] Mahmoud Malas, MD, MHS,[2] Vipul Chitalia, MD, PhD,[1] Jesse Columbo, MD,[3] Phillip Goodney, MD,[3] Jeffrey Siracuse, MD, MBA[1]. [1]Boston University, Boston, MA; [2]University of California San Diego, San Diego, CA; [3]Dartmouth Hitchcock Medical Center, Lebanon, NH

Objectives: Upper-extremity arteriovenous (AV) accesses often require re-intervention. However, the frequency of multiple re-interventions and subsequent access failure is not well-characterized. Our goal was to evaluate the long-term re-interventions, risk factors, and outcomes after AV access creation.

Methods: We performed a retrospective review of index upper extremity AV access creations (2017-2019) within the Vascular Quality Initiative Medicare-linked VISION dataset for patients on dialysis. Re-interventions were defined as open or endovascular procedures on the access occurring 1 day or more after access creation. Access abandonment was defined as any new access creation, peritoneal dialysis, kidney transplant, or mortality following index access creation. Univariable, multivariable, Kaplan-Meier, and Cox regression analyses were performed.

Results: There were 2551 patients evaluated with an index AV fistula (AVF) (80.5%) or AV graft (AVG) (19.5%). Patients undergoing AVG were more likely older, female sex, non-White race, nonambulatory, not living at home, and have an inpatient procedure ($P < .05$). Re-intervention rates were 1.17/person-year for AVF, and 1.64/person-year for AVG. Within the first year, total re-interventions were 0 (36%), 1 (29.5%), 2 (15.4%), ≥3 (19.1%). On Kaplan-Meier analysis, freedom from new AV access creation at 3 years was 78% for AVF and 72% for AVG ($P < .001$). Freedom from tunneled dialysis catheter (TDC) placement at 3 years was 71% for AVF and 66% for AVG ($P = .19$).

On multivariable analysis, AVG was independently associated with an increased risk of any re-intervention compared with AVF (relative risk, 1.40; 95% confidence interval, 1.3-1.6; $P \leq .0001$). TDC placement was increasingly associated each subsequent reintervention but did not vary by access type (Table). There was an elevated risk of access abandonment with each subsequent reintervention reinterventions, however access abandonment was lower with an AVG compared with an AVF (Table).

Conclusions: Access creation reinterventions are common; more than 60% of patients required at least one procedure within the first year of access placement. Patients with AVG require more reinterventions, however have a lower rate of long-term access abandonment. Multiple endovascular re-interventions increase the risk of TDC placement within 2 years.

Table. Multivariable analyses for tunneled dialysis catheter (*TDC*) placement and access abandonment within 3 years

	TDC placement			Access abandonment		
Covariate	HR	95% CI	*P* value	HR	95% CI	*P* value
Re-interventions						
None	*Ref*	*Ref*		*Ref*	*Ref*	
1	1.57	1.21-2.03	.0007	1.55	1.32-1.82	<.0001
2	2.75	1.99-3.79	<.0001	2.02	1.63-2.51	<.0001
3	4.08	2.78-6	<.0001	2.52	1.92-3.32	<.0001
≥4	5.69	3.89-8.31	<.0001	2.28	1.71-3.06	<.0001
Access type						
AVF	*Ref*	*Ref*		*Ref*	*Ref*	
AVG	1.14	.91-1.43	.26	0.82	.7-.96	.015

AVF, arteriovenous fistula; *AVG*, arteriovenous graft; *CI*, confidence interval; *HR*, hazard ratio; *Ref*, reference.

Author Disclosures: N. Patel: Nothing to disclose; **A. Farber:** Nothing to disclose; **E. King:** Nothing to disclose; **M. Malas:** Nothing to disclose; **V. Chitalia:** Nothing to disclose; **J. Columbo:** Nothing to disclose; **P. Goodney:** Nothing to disclose; **J. Siracuse:** Nothing to disclose.

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Pilot Implementation of the Vascular Surgery Entrustable Professional Activities

M Libby Weaver, MD,[1] Thomas Serena, DO,[1] Ting Sun, PhD,[1] Kristyn Mannoia, MD,[2] Raghu Motaganahalli, MD,[3] Yana Etkin, MD,[4] Michael C. Soult, MD,[5] Brigitte K. Smith, MD, MHPE[6]. [1]University of Utah, Salt Lake City, UT; [2]Loma Linda University, Loma Linda, CA; [3]Indiana University, Indianapolis, IN; [4]Northwell Health, New York City, NY; [5]Loyola University Medical Center, Chicago, IL; [6]University of Wisconsin, Madison, WI

Objectives: Entrustable professional activities (EPAs) have been embraced by the medical education community as a framework to guide competency-based education systems. The Vascular Surgery Board and Association for Program Directors in Vascular Surgery