Western Vascular Society

38th Annual Meeting

September 9–12, 2023
Grand Hyatt Kauai Resort
Kauai, HI
www.westernvascularsociety.org

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MISSION, VISION, AND VALUES STATEMENTS

MISSION

To promote education, research, advocacy and leadership in the art and science of compassionate vascular health in the Western United States, Canada and the Pacific Rim

VISION

To inspire excellence and innovation in vascular surgery

VALUES

Education

We strive to continue to produce a high quality, balanced scientific meeting to attract the best and brightest into our field, expanding incorporation of new science, techniques and practices

Research

We encourage multi-center collaboration on research initiatives in the Western United States, Canada and the Pacific Rim

Public Awareness

We endeavor to increase public awareness of the prevalence of vascular disease and promote optimizing vascular health through public outreach.

Preserving and promoting the very rich academic heritage and tradition of the Western Vascular Society is of paramount importance.

Advocacy

We encourage professionalism, diversity, and inclusiveness at the highest levels for ethical and compassionate care for patients.

Career Development

We promote leadership development to the WVS membership to cultivate future vascular surgery leaders locally, regionally, nationally, and internationally.

DIVERSITY, EQUITY AND INCLUSION COMMITTEE MISSION

The Mission of the Diversity, Equity and Inclusion Committee for the Western Vascular Society is to promote an academically enriching and supportive climate that allows all members of the Society to thrive and succeed.

The Diversity, Equity and Inclusion Committee will collaborate with members to provide a comprehensive approach to diversity and inclusivity, access, and equity.

Through strategic planning and programmatic development the committee shall empower medical students, residents, fellows and members to build a diverse and inclusive society.

VASCULAR SURGERY INTEREST GROUP COMMITTEE MISSION

The Mission of the Vascular Surgery Interest Group Committee is to help promote the specialty of vascular surgery among medical students across the United States and to stimulate interest in training within the existing programs encompassed by the Western Vascular Society.

OFFICERS AND COMMITTEES

OFFICERS

Wei Zhou, MD — President
Roy M. Fujitani, MD — President Elect
Niten Singh, MD — Recorder
Ahmed Abou- Zamzam, Jr., MD — Secretary Treasurer
Jason Lee, MD — Secretary Treasurer Elect
R. Eugene Zierler, MD — Historian
Leigh Ann O'Banion, MD — VSIG Chair
Nii-Kabu Kabutey, MD — DEI Chair
Vincent Rowe, MD — Past President
Michael Conte, MD — Past President
Benjamin Starnes, MD — Past President

PROGRAM COMMITTEE

Elina Quiroga, MD — Chair
Jade Hiramoto, MD
Karen Woo, MD, PhD
Benjamin Brooke, MD

Ex-Officio Program Committee Members

Wei Zhou, MD — President
Roy M. Fujitani, MD — President Elect
Niten Singh, MD — Recorder
Ahmed Abou-Zamzam, Jr., MD — Secretary Treasurer

MEMBERSHIP COMMITTEE

Robert Chang, MD — Chair
Christian Ochoa, MD
Mahmoud Malas, MD

WVS REPRESENTATIVE TO THE SVS

Ahmed Abou-Zamzam, Jr., MD

LOCAL ARRANGEMENTS COMMITTEE CHAIR

Elna Masuda, MD

PAST MEETINGS

1986	Dana Point, CA	Organizing Committee
1987	Tucson, AZ	W. Sterling Edwards, MD
1988	Monterey, CA	Robert B. Rutherford, MD
1989	Kauai, HI	D. Eugene Strandness, Jr., MD
1990	Coronado, CA	Ronald J. Stoney, MD
1991	Rancho Mirage, CA	Victor M. Bernhard, MD
1992	Maui, HI	Wesley S. Moore, MD
1993	Sonoma, CA	John M. Porter, MD
1994	Santa Barbara, CA	Eugene F. Bernstein, MD
1995	Phoenix, AZ	Robert L. Kistner, MD
1996	Dana Point, CA	Jerry Goldstone, MD
1997	Lana'I, HI	Richard L. Treiman, MD
1998	Whistler, BC, Canada	Kaj H. Johansen, MD
1999	Lake Tahoe, NV	Ralph B. Dilley, MD
2000	Coeur d'Alene, ID	Peter F. Lawrence, MD
2001	Santa Fe, NM	William C. Krupski, MD
2002	Newport Beach, CA	Cornelius Olcott, IV, MD
2003	Kona, HI	Lloyd M. Taylor, Jr., MD
2004	Victoria, BC, Canada	J. Dennis Baker, MD
2005	Park City, UT	Gregory L. Moneta, MD
2006	La Jolla, CA	George Andros, MD
2007	Kona, HI	Jeffrey L. Ballard, MD
2008	Napa, CA	Alexander W. Clowes, MD
2009	Tucson, AZ	Fred A. Weaver, MD
2010	Sunriver, OR	Linda M. Reilly, MD
2011	Kauai, HI	Ronald L. Dalman, MD
2012	Park City, UT	William J. Quinones-Baldrich, MD
2013	Jasper, AB, Canada	Joseph L. Mills, Sr., MD
2014	Coronado, CA	Peter A. Schneider, MD
2015	Wailea, HI	Larry Kraiss, MD
2016	Colorado Springs, CO	William Pevec, MD
2017	Blaine, WA	Steven Katz, MD
2018	Santa Fe, NM	E. John Harris, MD
2019	Wailea, HI	York N. Hsiang, MB, MHSc
2020	Virtual	Benjamin W. Starnes, MD
2021	Teton Village, WY	Michael Conte, MD
2022	Victoria, BC, Canada	Vincent Rowe, MD

SECRETARY-TREASURERS

1986 - 1990	**Wesley S. Moore, MD**
1990 - 1993	**J. Dennis Baker, MD**
1993 - 1996	**P. Michael McCart, MD**
1996 - 1999	**Gregory L. Moneta, MD**
1999 - 2000	**Terence M. Quigley, MD**
2000 - 2002	**Julie A. Freischlag, MD**
2002 - 2005	**Jeffrey L. Ballard, MD**
2005 - 2008	**Joseph L. Mills, MD**
2008 - 2011	**Larry W. Kraiss, MD**
2011 - 2014	**E. John Harris, Jr., MD**
2014 - 2017	**York N. Hsiang, MB, MHSc**
2017 - 2020	**Roy M. Fujitani, MD**
2020 - 2023	**Ahmed Abou-Zamzam, Jr., MD**

RECORDERS

1987 - 1989	**Victor M. Bernhard, MD**
1989 - 1992	**Eugene F. Bernstein, MD**
1992 - 1995	**Peter F. Lawrence, MD**
1995 - 1998	**William C. Krupski, MD**
1998 - 2001	**Roy L. Tawes, MD**
2001 - 2004	**Ronald L. Dalman, MD**
2004 - 2007	**Peter A. Schneider, MD**
2007 - 2010	**William C. Pevec, MD**
2010 - 2013	**Steven Katz, MD**
2013 - 2016	**Benjamin W. Starnes, MD**
2016 - 2019	**Michael Conte, MD**
2019 - 2022	**Matthew Mell, MD**
2022 - 2025	**Niten Singh, MD**

NEW MEMBERS ELECTED IN 2022

Omar Al-Nouri

Cassra Arbabi

Samuel Chen

NavYash Gupta

James Iannuzzi

Cali Johnson

Kirk Lawlor

Miguel Manzur

Steven Maximus

Sammy Siada

Craig Weinkauf

Jeniann Yi

WVS PRESIDENTIAL GUEST LECTURERS

1986	**Emerick Szilagyi**
1987	**None**
1988	**James Stanley**
1989	**Brian Thiele**
1990	**Frank Veith**
1991	**Allan Callow**
1992	**Malcolm Perry**
1993	**Norman Hertzer**
1994	**Norman Browse**
1995	**Calvin Ernst**
1996	**Anthony Whittemore**
1997	**None**
1998	**None**
1999	**Jonathan Towne**
2000	**R. Thomas Grayston**
2001	**William Hiatt**
2002	**Thomas R. Russell**
2003	**None**
2004	**None**
2005	**Kevin G. Burnand**
2006	**Jean Pierre Becquemin**
2007	**None**
2008	**John H. N. Wolfe**
2009	**Jack L. Cronenwett**
2010	**None**
2011	**Germano Melissano**
2012	**Roy K. Greenberg**
	Hazim J. Safi
2013	**Spence M. Taylor**
2014	**Alan B. Lumsden**
2015	**Peter Gloviczki**
2016	**Alik Farber**
2017	**Bruce Perler**
2018	**Thomas Wakefield**
2019	**Thomas Forbes**
2020	**Gustavo Oderich**
2021	**Michael Belkin**
2022	**Gilbert Upchurch**
2023	**Alan B. Lumsden**

EDUCATIONAL INFORMATION

EDUCATIONAL OBJECTIVES & METHODS

The 38th Annual Meeting of the Western Vascular Society was established with the specific purpose of advancing the art and science of vascular surgery, a goal that directly addresses competence, practice performance, and patient outcomes. The majority of the educational content includes scientific presentations by members, sponsored guests, and residents, selected by the WVS Program Committee.

OVERALL LEARNING OBJECTIVES

This activity is designed for: vascular surgeons, vascular fellows, vascular residents, and general surgeons along with other individuals interested in vascular interventions and treatments. This meeting will feature original oral scientific presentations by members, sponsored guests, and trainees that will serve to expand our knowledge and illustrate the incorporation of new science, techniques, and practices in vascular surgery. CME and Self-Assessment credit hours for the program will be determined by AMEDCO in Joint provider ship with Western Vascular Society.

Upon completion of this course, participants will be able to:

- Understand the impact of physician-modified fenestrated-branched endovascular repairs of the aortic arch
- Recognize the differences between clinical outcomes of celiac artery coverage vs preservation during thoracic endovascular aortic repair
- Discuss how modified Harborview risk score accurately predicts mortality for patients with ruptured abdominal aortic aneurysms
- Explain enrichment of a CDH13 pathogenic variant in patients with thoracic aortic aneurysm and dissection
- Understand the role of evaluating growth patterns of abdominal aortic aneurysms among women
- Describe the role of follow-up compliance in patients undergoing AAA repair at VA hospitals

EDUCATIONAL INFORMATION continued

Upon completion of this course, participants will be able to:
(continued)

- Discuss the multidisciplinary approach to direct segmental artery revascularization to prevent spinal cord ischemia associated with endovascular thoracoabdominal aortic repair
- Understand the long-term functional outcomes of vascular amputees utilizing the lower extremity amputation pathway (LEAP)
- Recognize the effects of diagnostic accuracy of pedal acceleration time for detecting peripheral arterial disease
- Discuss how revascularization offers no long-term benefit to patients with intermittent claudication
- Explain the risks associated with prophylactic caval stenting in patients undergoing retroperitoneal lymph nymph node dissection
- Recognize the relevance of best-cli trial results in a tertiary care limb preservation program
- Consider the trends and outcomes of surgical reconstruction of the inferior vena cava following oncologic resections
- Discuss how vein compliance is superior to vein diameter for predicting unassisted AVF maturation
- Understand creating autogenous access in children and adolescents
- Discuss the outcomes of a multi-center evaluation of clopidogrel resistance and its role in predicting stent thrombosis in transcarotid artery revascularization
- Explain the optimal method of carotid revascularization in patients with recent myocardial infarction
- Discuss the report from a phase 2 prospective randomized placebo-controlled trial of autologous stem cells to treat patients with no option critical limb ischemia
- Understand study results on contralateral carotid artery surveillance following carotid endarterectomy
- Explain improved cognition and preserved hippocampal fractional anisotropy in subjects undergoing carotid endarterectomy

EDUCATIONAL INFORMATION continued

Upon completion of this course, participants will be able to:
(continued)

- Discuss the safety and efficacy of right atrial inflow balloon occlusion for zone zero thoracic endovascular repair
- Understand how angiotensin-converting enzyme inhibitors and angiotensin receptor blockers are associated with improved amputation free survival in chronic limb-threatening ischemia
- Explain the implementation of preoperative frailty screening and optimization pathway in vascular surgery clinic setting
- Discuss the surveillance and risk factors for early restenosis following transcarotid artery revascularization
- Consider how anesthetic modality does not impact cephalic basic arteriovenous fistula function at 12 months
- Understand revisions to promote maturation and short-term death after arteriovenous fistula creation
- Describe slowed abdominal aortic aneurysm growth in patients with concurrent malignancy
- Explain the assessment of ultrasound criteria for high-grade renal artery stenosis in transplant kidneys
- Discuss contemporary outcomes of thoracic endovascular aortic repair in patients with syndromic genetic aortopathy
- Understand the factors associated with ablation related thrombus extension (ARTE) following GSV closure with endovenous microfoam ablation (MFA)
- Understand how traumatic aortic disruption index (TADI) predicts mortality and urgency of stent grafting in blunt thoracic aortic pseudoaneurysms
- Appreciate different perspectives on gender differences in autonomy and performance assessments in a national cohort of vascular surgery trainees
- Explain how lipophilic statins a novel risk factor for paraplegia are after branched endovascular aortic aneurysm repair

EDUCATIONAL INFORMATION continued

Upon completion of this course, participants will be able to:
(continued)

- Consider the study results on left vertebral artery revascularization in distal aortic arch surgery
- Discuss how low thrombus burden is associated with an increased rate of endoleak following repair of juxtarenal aneurysm using physician modified endografts
- Explain the analysis based on endovascular therapy versus bypass for chronic limb-threatening ischemia in the real-world practice
- Understand the contemporaneous outcomes of the off-the-shelf gore thoracoabdominal multibranch endoprosthesis and custom physician-modified fenestrated branched endografts for complex abdominal and thoracoabdominal aortic aneurysms

EDUCATIONAL METHODS

Authored papers are supported by PowerPoint presentations.
Full papers have a primary discussant and ample time provided for questions and discussion from the audience. Panel and group discussions are encouraged using the WVS meeting app.

DISCLOSURE INFORMATION

In compliance with ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. All reported conflicts are managed by a designated official to ensure a bias-free presentation.

EDUCATIONAL INFORMATION continued

DISCLOSURE INFORMATION continued

NAME	COMMERICAL INTERTEST	ROLE
Shipra Arya	WL Gore and Associates	Speakers Bureau
Sukgu Han	Cook Medical	Consultant
	WL Gore and Associates	Consultant
	Medtronic	Consultant
	Terumo Aortic	Consultant
	WL Gore and Associates	Research Grant Site Principal Investigator
	WL Gore and Associates	Scientific/Medical Advisory Board Member
	Vestek	Scientific/Medical Advisory Board Member
Karthikeshwar Kasirijan	Shockwave	Speakers Bureau
	Abbott	Consultant
Larry Kraiss	Alucent Biomedical	Scientific/Medical Advisory Board Member
Gregory Magee	WL Gore and Associates	Consultant
Leigh Ann O'Banion	Medtronic	Research Grant Site Principal Investigator
	Shockwave	Research Grant Site Principal Investigator
	WL Gore and Associates	Other
	Abbott	Research Grant Site Principal Investigator
	ReFlow Medical	Scientific/Medical Advisory Board Member
Elina Quiroga	WL Gore and Associates	Consultant
	Boston Scientific	Consultant
Niten Singh	Cook Medical	Consultant
Jeniann Yi	Silk Road Medical	Consultant
	WL Gore and Associates	Speakers Bureau
Sara Zettervall	WL Gore and Associates	Scientific/Medical Advisory Board Member

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION

Continuing Education (CE) Language

Western Vascular Society
2023 WVS Annual Meeting
September 9-12, 2023
Kauai, HI

Joint Accreditation Statement

JOINTLY ACCREDITED PROVIDER™
INTERPROFESSIONAL CONTINUING EDUCATION

In support of improving patient care, this activity has been planned and implemented by Amedco LLC and Western Vascular Society. Amedco LLC is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team. Amedco Joint Accreditation #4008163.

Physicians (ACCME) Credit Designation

Amedco LLC designates this live activity for a maximum of 14.00 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION

American Board of Surgery (ABS) MOC

Successful completion of this CME activity, which includes participation in the evaluation component, enables the learner to earn credit toward the CME and/or Self-Assessment requirements of the American Board of Surgery's Continuous Certification program. It is the CME activity provider's responsibility to submit learner completion information to ACCME for the purpose of granting ABS credit. **You must request your certificate within 30 days of the activity to meet the deadline for submission to PARS.**

INSTRUCTIONS FOR CME CREDIT COLLECTION

To claim the 14.00 *AMA PRA Category 1 Credits*™

Physicians must complete the meeting evaluation that is available both on the meeting app and sent via email.

To claim the 9.25 credits for MOC Self Assessment, questions will be provided at the end of each session and available via email or on the meeting app. Certificates will be digitally created upon successful completion of both actions.

Alternatively, you can visit www.westernvascularsociety.org for links on the annual meeting page.

All credit collection must be completed by December 17, 2023.

INSTRUCTIONS TO AUTHORS

Authors presenting papers are reminded that the presentation of the paper shall be limited to the following:

RAPID FIRE PRESENTATION
2 minutes presentation, 3 minutes floor discussion

MINI PRESENTATION
4 minutes presentation, 6 minutes floor discussion

FULL PRESENTATION
8 minutes presentation, 2 minutes invited discussant, and 10 minutes floor discussion

INSTRUCTIONS TO AUTHORS

ROBERT HYE MEMORIAL BEST RESIDENT PRESENTATIONS

To honor the contribution of member Dr. Robert Hye, each year Western Vascular Society Program Chair elects judges to evaluate the best full presentation by a medical student or resident. There are three cash prizes $500, $250, and $100 and official commemorative certificates awarded at the final session of the meeting. In addition there is a certificate and $100 award for the best Rapid Fire Presentation. Hye award eligible presentations are designated on the scientific program.

FOUNDERS AWARD

The Western Vascular Society Founders Award recognizes the best paper presented at the annual meeting by a new member who is within three years of their acceptance to the Society. It is named for the original organizing committee that met in October of 1984 and established the Western Vascular Society. This group consisted of Drs. Wesley Moore, Victor Bernhard, Sterling Edwards, Jerry Goldstone, John Porter, Robert Rutherford, and D. Eugene Strandness. The first meeting of the Western Vascular Society was held in Laguna-Nigel, California from January 23 to 26, 1986. At that meeting, the organizing committee met as the Executive Council and approved bylaws for the new Society and accepted a proposed list of founding members from the Western region. The winner receives $1,000, and a commemorative plaque.

2020 Winner — Leigh Ann O'Banion, UCSF Fresno
2021 Winner — Sharon Kiang, Loma Linda University Medical Center
2022 Winner — Mimmie Kwong, UC Davis

INSTRUCTIONS TO AUTHORS

INVITED DISCUSSION

Two minutes and specifically critique the paper as presented. Visual aids may not be incorporated into the discussion. An electronic copy of the discussion is required to be submitted to the recorder.

MANUSCRIPTS

Authors of Full Presentations are REQUIRED to submit a manuscript of their presentation for possible publication in the Journal of Vascular Surgery Publications within one month of the Annual Meeting. The Editors of the ournal of Vascular Surgery Publications will determine the journal in which accepted manuscripts will be published.

The guidelines for submission of your Manuscript(s) may be found on the Journal of Vascular Surgery Publications website www.editorialmanager.com/jvs. Please refer to the "Instructions for Authors." Once the manuscript is submitted to the Journal by email, please send a confirmation of submission to Niten Singh, MD, singhn2@uw.edu.

SPONSOR ACKNOWLEDGEMENT

Western Vascular Society is grateful for the following companies for the educational grant support:

Boston Scientific

Cook Medical

W.L. Gore and Associates

Western Vascular Society is grateful for the following companies for the exhibit support:

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Shockwave Medical

Silk Road Medical

VIZ.ai

SILVER

BD

Centerline Medical

Endologix

Getinge

LeMaitre

Medtronic Peripheral

Penumbra

SCHEDULE AT A GLANCE

SATURDAY, SEPTEMBER 9, 2023

1:00 PM – 6:00 PM	Registration, Grand Ballroom Promenade
3:00 PM – 4:00 PM	Executive Council Meeting, Grand Boardroom
4:00 PM – 5:00 PM	Exhibit Set-Up, Grand 1, 6, 7
5:00 PM – 6:15 PM	Rapid Fire Session, Grand 2, 3, 4, 5
6:30 PM – 7:30 PM	Distal Bypass Competition, Grand 3
6:00 PM – 7:30 PM	Welcome Reception, Grand Ballroom Promenade

SUNDAY, SEPTEMBER 10, 2023

6:30 AM – 1:00 PM	Registration, Grand Ballroom Promenade
7:00 AM – 8:00 AM	Attendees and Sponsors Breakfast, Grand Garden
8:00 AM - 9:30 AM	Companion Breakfast, Donderos Restaurant
7:00 AM – 11:45 AM	Exhibits, Grand Ballroom
7:45 AM – 8:00 AM	Call to Order & Announcements
8:00 AM – 9:50 AM	Scientific Session I, Grand Ballroom 2, 3, 4
9:50 AM – 10:20 AM	Coffee Break with Educational Exhibitors, Grand 1, 6, 7
10:20 AM – 11:00 AM	Presidential Guest Lecturer
11:00 AM – 12:30 PM	Scientific Session II, Grand Ballroom 2, 3, 4
1:00 PM – 5:00 PM	Golf Tournament, Poipu Golf Course
6:00 PM – 8:00 PM	Western Family Dinner, Ilima Garden
7:30 PM – 9:00 PM	Past President Dinner - Private Event, Ilima Terrace

MONDAY, SEPTEMBER 11, 2023

6:30 AM – 1:00 PM	Registration, Grand Ballroom Promenade
7:00 AM – 7:30 AM	Terumo Aortic Breakfast Symposium
7:00 AM – 11:45 AM	Exhibits, Grand Ballroom
7:30 AM – 9:40 AM	Scientific Session III, Grand Ballroom 2, 3, 4
9:40 AM – 10:10 AM	Coffee Break with Educational Exhibitors, Grand 1, 6, 7
10:10 AM – 10:40 AM	Presidential Address: Wei Zhou, MD
10:40 AM – 12:00 PM	Scientific Session IV, Grand Ballroom 2, 3, 4
12:00 PM – 12:30 PM	WVS Business Meeting, Members Only
12:30 PM – 1:30 PM	Western United DEI Roundtable Luncheon Sponsored By Cook Medical
2:00 PM – 4:00 PM	Optional Event: Beach Horseback Riding Tour
6:00 PM – 7:00 PM	Private President's Reception, Donderos Restaurant
7:00 PM – 9:00 PM	Presidential Luau Banquet, Grand Garden Promenade

TUESDAY, SEPTEMBER 12, 2023

All events in the Grand Ballroom area unless otherwise noted

7:00 AM – 7:30 AM	Breakfast with Sponsors
7:00 AM – 11:00 AM	Exhibits
7:30 AM – 9:00 AM	Scientific Session V
9:00 AM – 9:30 AM	Coffee Break with Educational Exhibitors
9:30 AM – 10:40 AM	Scientific Session VI
10:40 AM – 11:00 AM	Awards
11:00 AM	Meeting Adjourns

SCIENTIFIC PROGRAM

Denotes Hye Resident Award Competition Eligible

Denotes Founders Award Competition Eligible

SATURDAY, SEPTEMBER 9, 2023

1:00 PM – 6:00 PM **REGISTRATION**

3:00 PM – 4:00 PM **EXECUTIVE COUNCIL MEETING**

4:00 PM – 5:00 PM **EXHIBIT SET-UP**

5:00 PM – 6:15 PM **RAPID FIRE SESSION**
PRESIDING: Elina Quiroga, MD
Leigh Ann O'Banion, MD

5:00 – 5:05 — RF1. Long-term Outcomes of Patients with Failed Previous Infrarenal Aortic Repairs Rescued Using Fenestrated Stent-grafts at Centers without Access to Custom Made Devices
Muhammad Ali Rana, MD
University of New Mexico

5:05 – 5:10 — RF2. Geriatric Syndromes are Associated with Increased Incidence of Postoperative Delirium and Worse Survival Following Open Abdominal Aortic Aneurysm Repair
Richard Gutierrez, BS
University of California, San Francisco

5:10 – 5:15 — RF3. Women have Higher Morbidity and Mortality Following Repair of Complex Aortic Aneurysms, Likely due to Symptomatic Presentation and More Extensive Aneurysms
Whitney Teagle
University of Washington

5:15 – 5:20 — RF4. Long Term Follow Up After Pediatric Traumatic Thoracic Aortic Injury
Kelsi Hirai, MD
Oregon Health and Science University

5:20 – 5:25 — RF5. Quality of Life Outcomes for Venous Thoracic Outlet Syndrome After Paraclavicular Decompression
Eileen Lu, MD
Cedars-Sinai Medical Center

5:25 – 5:30 — RF6. Impact of Below-the-Ankle Lesions on Wound Healing Following Bypass Surgery in Chronic Limb-Threatening Ischemia
Keisuke Miyake, MD
Osaka University

5:30 – 5:35 — RF7. Midaortic Syndrome Arc of Riolan Steal Physiology Resulting in Chronic Exertional Mesenteric Angina in Adults
Mennatalla Hegazi, MD
University of California Irvine Medical Center

5:35 – 5:40 — RF8. Early Experience with the Ambulatory Management of Acute Iliofemoral Deep Vein Thrombosis with May-Thurner Syndrome with Percutaneous Mechanical Thrombectomy, Angioplasty and Stenting
Daniel Nguyen, BS
Pima Heart and Vascular and The University of Arizona

5:40 – 5:45 — RF9. Long-Term Outcomes of Iliofemoral Endoconduits for Complex Endovascular Aortic Aneurysm Repair
Andres V. Figueroa, MD
University of Texas, Southwestern

5:45 – 5:50 — RF10. Use of Low Versus Standard Profile Stent Graft for Physician-Modified Fenestrated-Branched Endovascular Repair of Complex Abdominal and Thoracoabdominal Aortic Aneurysms
Alexander D. DiBartolomeo, MD
University of Southern California

5:50 – 5:55 — RF11. Early Outcomes for Endovascular Treatment of the Aortic Arch (Zone 0-2) Using the Thoracic Branch Device (TBE)
Haley Jiahui Pang, BS
University of Washington

5:55 – 6:00 — RF12. Outcomes of Pediatric Vascular Surgery: A Retrospective Analysis of Treatment Strategies and Complication Rates
Sina Asaadi, MD
Loma Linda University

6:00 – 6:05 — RF13. Using Vascular Deserts as a Guide for Limb Preservation Outreach Programs Successfully Targets Underserved Populations
Vanessa Mora, MD
University of California, San Francisco

6:05 – 6:10 — RF14. Same Day Discharge After Elective Open Arterial Surgery
Samantha Durbin, MD
Oregon Health & Science University

6:10 – 6:15 — RF15. Recovery of Healthcare Workers after Work-related Injury leading to Surgery for Thoracic Outlet Syndrome
Ben DiPardo, MD
University of California, Los Angeles

6:30 PM – 7:30 PM **DISTAL BYPASS COMPETITION**

6:00 PM – 7:30 PM **WELCOME RECEPTION**

SUNDAY, SEPTEMBER 10, 2023

6:30 AM – 1:00 PM **REGISTRATION**

7:00 AM – 8:00 AM **BREAKFAST**

8:00 am - 9:30 AM **COMPANION BREAKFAST** -
Donderos Restaurant

7:00 AM – 11:45 AM **EXHIBITS**

7:45 AM – 8:00 AM **CALL TO ORDER & ANNOUNCEMENTS**

8:00 AM – 9:50 AM **SCIENTIFIC SESSION I**
PRESIDING: Wei Zhou, MD
Niten Singh, MD, and Nii-Kabu Kabutey, MD

8:00 – 8:20 AM — 1. The Initial Results of Physician-Modified Fenestrated-Branched Endovascular Repairs of the Aortic Arch – Lessons Learned from the First 18 Cases
Alexander D. DiBartolomeo, MD
University of Southern California
Invited Discussant: Sara Zettervall, MD, University of Washington

8:20 – 8:30 AM — 2. Clinical Outcomes of Celiac Artery Coverage vs Preservation During Thoracic Endovascular Aortic Repair
Narek Veranyan, MD
University of California San Diego

8:30 – 8:50 AM — 3. Modified Harborview Risk Score Accurately Predicts Mortality for Patients with Ruptured Abdominal Aortic Aneurysms: A Validation Study
Andrew Warren, BS, BA
University of Washington
Invited Discussant: Mimmie Kwong, MD, University of California, Davis

Denotes Hye Resident Award Competition Eligible

8:50 – 9:00 AM — 4. Enrichment of a CDH13 Pathogenic Variant in Patients with Thoracic Aortic Aneurysm and Dissection: Proof of Concept for Validation of GWAS-Associated Variants
Derek Klarin, MD
Stanford University Health

9:00 – 9:20 AM — 5. Evaluating Growth Patterns of Abdominal Aortic Aneurysms Among Women
Gregory Brittenham, DO
University of California, Davis
Invited Discussant: Sharon Kiang, MD, Loma Linda University

9:20 – 9:30 AM — 6. Follow-up Compliance in Patients Undergoing AAA Repair at VA Hospitals
Sona Shahbazian, MPH
University of Arizona

9:30 – 9:50 AM — 7. Multidisciplinary Approach to Direct Segmental Artery Revascularization to Prevent Spinal Cord Ischemia associated with Endovascular Thoracoabdominal Aortic Repair
Anand V. Ganapathy, MD
University of Southern California
Invited Discussant: Karthikeshwar Kasirajan, MD, Stanford University

9:50 AM – 10:20 AM **COFFEE BREAK WITH EDUCATIONAL EXHIBITORS**

10:20 AM – 11:00 AM **PRESIDENTIAL GUEST LECTURER – Alan B. Lumsden, MD**
Evolution, Revolution or Extinction? Why Innovation in Practice and Diversity Will Power Vascular Surgery Growth

Denotes Hye Resident Award Competition Eligible

11:00 AM – 12:30 PM **SCIENTIFIC SESSION II**
PRESIDING: Wei Zhou, MD
Elina Quiroga, MD, and Karen Woo, MD, PhD

11:00 – 11:20 AM — 8. Long-term Functional Outcomes of Vascular Amputees Utilizing the Lower Extremity Amputation Pathway (LEAP)
Carolina Aparicio, MD
University of California, San Francisco – Fresno
Invited Discussant: Omar Al-Nouri, MD, University of California, San Diego

11:20 – 11:30 AM — 9. Diagnostic Accuracy of Pedal Acceleration Time for Detecting Peripheral Arterial Disease
Peta Tehan, PhD
Monash University, Melbourne, Australia

11:30 – 11:50 AM — 10. Revascularization Offers no Long-term Benefit to Patients with Intermittent Claudication: 5-year Results of Patient-Reported Outcomes
Teryn Holeman
University of Utah
Invited Discussant: Kay Goshima, MD, University of Arizona, Tucson

11:50 – 12:00 PM— 11. Prophylactic Caval Stenting in Patients Undergoing Retroperitoneal Lymph Nymph Node Dissection
Matthew Vuoncino, MD
University of California Davis

12:00 – 12:20 PM — 12. Relevance of BEST-CLI Trial Results in a Tertiary Care Limb Preservation Program
Iris H. Liu, MD
University of California, San Francisco
Invited Discussant: Vincent Rowe, MD, University of California, Los Angeles

Denotes Hye Resident Award Competition Eligible

12:20 – 12:30 PM — 13. Trends and Outcomes of Surgical Reconstruction of the Inferior Vena Cava Following Oncologic Resections
Pedro Juan Furtado Neves, MD
University of Colorado

1:00 PM – 5:00 PM **OPTIONAL EVENT: GOLF TOURNAMENT**

6:00 PM – 8:00 PM **WESTERN FAMILY DINNER**
Ilima Garden

MONDAY, SEPTEMBER 11, 2023

6:30 AM – 1:00 PM **REGISTRATION**

7:00 AM – 7:30 AM **TERUMO AORTIC BREAKFAST SYMPOSIUM**

7:00 AM – 8:00 AM **BREAKFAST SYMPOSIUM**

7:00 AM – 11:45 AM **EXHIBITS**

8:00 AM – 9:30 AM **COMPANION BREAKFAST -** Donderos Restaurant

7:30 AM – 9:40 AM **SCIENTIFIC SESSION III**
PRESIDING: Wei Zhou, MD
Benjamin Brooke, MD

7:30 – 7:50 AM — 14. Vein Compliance is Superior to Vein Diameter for Predicting Unassisted AVF Maturation
Curtis Woodford, MD
University of California, San Francisco
Invited Discussant: Elna Masuda, MD, Straub Medical Center, Hawaii

7:50 – 8:00 AM — 15. Creating Autogenous Access in Children and Adolescents
Lucas Phi, DO
University of Oklahoma

8:00 – 8:20 AM — 16. Multi-Center Evaluation of Clopidogrel Resistance and its Role in Predicting Stent Thrombosis in Transcarotid Artery Revascularization
Mimmie Kwong, MD
University of California, Davis
Invited Discussant: Jeniann Yi, MD, University of Colorado

Denotes Hye Resident Award Competition Eligible

Denotes Founders Award Competition Eligible

8:20 – 8:30 AM — 17. Optimal Method of Carotid Revascularization in Patients with Recent Myocardial Infarction
Sabrina Straus, BS
University of California, San Diego

8:30 – 8:50 AM — 18. Repost from a Phase 2 Prospective Randomized Placebo Controlled Trial of Autologous Stem Cells to Treat Patients with No Option Critical Limb Ishemia: The ACP-CLI Trial
Sally H.J. Choi, MD
University of British Columbia
Invited Discussant: Joy Garg, MD, Kaiser Permanente

8:50 – 9:00 AM — 19. Contralateral Carotid Artery Surveillance Following Carotid Endarterectomy: Long-term Results from a Large Integrated Regional Health System
Colleen P. Flanagan, MD
University of California, San Francisco

9:00 – 9:20 AM — 20. Improved Cognition and Preserved Hippocampal Fractional Anisotropy in Subjects Undergoing Carotid Endarterectomy
Caronae Howell, MD
University of Arizona
Invited Discussant: Shipra Ayra, MD, Stanford University

9:20 – 9:40 AM — 21. Right Atrial Inflow Balloon Occlusion for Zone Zero Thoracic Endovascular Repair: Safety, Efficacy and Predictors of Response
Gretl Wai Yin Lai, MD
Queen Mary Hospital, Hong Kong
Invited Discussant: Nasim Hedayati, MD, University of California, Davis

Denotes Hye Resident Award Competition Eligible

9:40 AM – 10:10 AM **COFFEE BREAK WITH EDUCATIONAL EXHIBITORS**

10:10 AM – 10:40 AM **PRESIDENTIAL ADDRESS**

10:40 AM – 12:00 PM **SCIENTIFIC SESSION IV**
PRESIDING: Wei Zhou, MD
Jade Hiramoto, MD
Ahmed Abou-Zamzam, MD

10:40 – 11:00 AM — 22. Angiotensin-Converting Enzyme Inhibitors and Angiotensin Receptor Blockers are Associated with Improved Amputation Free Survival in Chronic Limb-Threatening Ischemia
Nadin Elsayed, MD
University of California, San Diego
Invited Discussant: Leigh Ann O'Banion, MD, University of California, San Francisco - Fresno

11:00 – 11:10 AM — 23. Implementation of Preoperative Frailty Screening and Optimization Pathway in Vascular Surgery Clinic Setting
Shernaz S. Dossabhoy, MD, MBA
Stanford University Health


11:10 – 11:30 AM — 24. Surveillance and Risk Factors for Early Restenosis Following Transcarotid Artery Revascularization
Pedro Juan Furtado Neves, MD
University of Colorado
Invited Discussant: Nii-Kabu Kabutey, MD, University of California, Irvine


Denotes Hye Resident Award Competition Eligible

11:30 – 11:40 AM — 25. Anesthetic Modality Does Not Impact Cephalic Basic Arteriovenous Fistula Function at 12 Months
Ramsey Ugarte, MD
Harbor-UCLA

11:40 – 12:00 PM — 26. Short-Term Death and Revisions to Promote Maturation After Arteriovenous Fistula Creation
Karissa Wang, BS
University of California, Los Angeles
Invited Discussant: Larry Kraiss, MD, University of Utah

12:00 PM – 12:30 PM **WVS BUSINESS MEETING**
Members only

12:30 PM – 1:30 PM **WESTERN UNITED ROUNDTABLE DEI SYMPOSIUM**
Sponsored by Cook Medical

2:00 PM – 4:00 PM **OPTIONAL EVENT: HORSE BACK RIDING ON THE BEACH**

6:00 PM – 7:00 PM **PRIVATE PRESIDENT'S RECEPTION**
Donderos Restaurant

7:00 PM – 9:00 PM **PRESIDENTIAL BANQUET LUAU**
Grand Garden

Denotes Hye Resident Award Competition Eligible

TUESDAY, SEPTEMBER 12, 2023

7:00 AM – 7:30 AM **BREAKFAST WITH SPONSORS**

7:00 AM – 11:45 AM **EXHIBITS**

7:30 AM – 9:00 AM **SCIENTIFIC SESSION V**
PRESIDING: Roy M. Fujitani, MD
Sharon Kiang, MD

7:30 – 7:50 AM — 27. Slowed Abdominal Aortic Aneurysm Growth in Patients with Concurrent Malignancy
Elizabeth Lancaster, MD, MAS
Kaiser San Francisco
Invited Discussant: Amani Politano, MD, Oregon Health Sciences University

7:50 – 8:00 AM — 28. Assessment of Ultrasound Criteria for High-Grade Renal Artery Stenosis in Transplant Kidneys
Melissa D'Andrea, MD
University of Arizona

8:00 – 8:20 AM — 29. Contemporary Outcomes of Thoracic Endovascular Aortic Repair in Patients with Connective Tissue Disorders: A Multi-Centre National Study
Daniel Willie-Permor, MD, MPH, CPH
University of California, San Diego
Invited Discussant: Sukgu Han, MD, University of Southern California

8:20 – 8:30 AM — 30. Factors Associated with Ablation Related Thrombus Extension (ARTE) following GSV Closure with Endovenous Microfoam Ablation (MFA)
Amanda L. Chin, MD, MBA
University of California, Los Angeles

Denotes Hye Resident Award Competition Eligible

8:30 – 8:50 AM — 31. Traumatic Aortic Disruption Index (TADI) Predicts Mortality and Urgency of Stent Grafting in Blunt Thoracic Aortic Pseudoaneurysms
Sundeep Guliani, MD
University of New Mexico
Invited Discussant: Gregory Magee, MD, University of Southern California

8:50 – 9:00 AM — 32. Gender Differences in Autonomy and Performance Assessments in a National Cohort of Vascular Surgery Trainees
M. Libby Weaver, MD
University of Virginia

9:00 AM – 9:30 AM **COFFEE BREAK WITH EDUCATIONAL EXHIBITORS**

9:30 AM - 10:40 AM **SCIENTIFIC SESSION VI**
PRESIDING: Roy M. Fujitani, MD
Niten Singh, MD

9:30 – 9:40 AM — 33. Lipophilic Statins: A Novel Risk Factor for Paraplegia After Branched Endovascular Aortic Aneurysm Repair
Iris H. Liu, MD
University of California San Francisco

9:40 – 10:00 AM — 34. Left Vertebral Artery Revascularization in Distal Aortic Arch Surgery: Comparative Study of Patients with and Without Aberrant Left Vertebral Anatomy
Eimaan Shergill
University of British Columbia
Invited Discussant: Warren Gasper, MD, University of California, San Francisco

Denotes Hye Resident Award Competition Eligible

Denotes Founders Award Competition Eligible

10:00 – 10:10 AM — 35. Low Thrombus Burden is Associated with an Increased Rate of Endoleak Following Repair of Juxtarenal Aneurysm Using Physician Modified Endografts
Chase Nelson, BS
University of Washington

10:10 – 10:30 AM — 36. Endovascular Therapy Versus Bypass for Chronic Limb-Threatening Ischemia in the Real-World Practice: Propensity-Score Matched Analyses of a Medicare-Linked Database
Shima Rahgozar
University of California, San Diego
Invited Discussant: James Iannuzzi, MD, University of California, San Francisco

10:30 – 10:40 AM — 37. Contemporaneous Outcomes of the Off-the-shelf Gore Thoracoabdominal Multibranch Endoprosthesis and Custom Physician-Modified Fenestrated Branched Endografts for Complex Abdominal and Thoracoabdominal Aortic Aneurysms.
Alexander D. DiBartolomeo, MD
University of Southern California

10:40 AM – 11:00 AM **AWARDS**

11:00AM **MEETING ADJOURNS**

NOTES

SCIENTIFIC SESSION ABSTRACTS

SCIENTIFIC SESSION ABSTRACTS

1. THE INITIAL RESULTS OF PHYSICIAN-MODIFIED FENESTRATED-BRANCHED ENDOVASCULAR REPAIRS OF THE AORTIC ARCH – LESSONS LEARNED FROM THE FIRST 18 CASES

Alexander D. DiBartolomeo MD[1], Kayvan Kazerouni MD[2], Fernando Fleischman MD[2], Sukgu M. Han, MD MS[1]
[1]Division of Vascular Surgery and Endovascular Therapy, Keck Medical Center of University of Southern California, Los Angeles, CA, [2]Division of Cardiothoracic Surgery, Keck Medical Center of University of Southern California, Los Angeles, CA

Objectives: Physician-modified fenestrated-branched endografting (PM-FBEVAR) for the aortic arch provides a minimally invasive treatment option for patients who are high-risk for open repair. Improvements in technique have been gained with ongoing experience with these complex repairs. This study aims to describe outcomes of arch PM-FBEVAR and technical lessons.

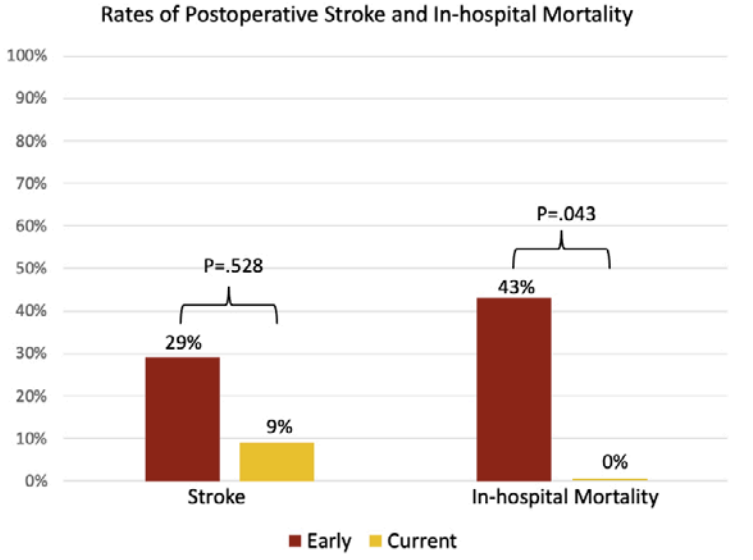
Methods: A retrospective review of consecutive patients who have undergone PM-FBEVAR with zone 0 proximal sealing at a single institution between 2019-2022 was performed. Cases completed during the first half of the study period (early) were compared to the second half (current). Modification technique changed to include a self-orienting spine trigger wire in the current group. Primary outcome was in-hospital mortality. Secondary outcomes included technical success and 30-day stroke.

Results: 18 patients underwent arch PM-FBEVAR, with 7 in the early group and 11 in the current group. High-risk comorbidities included COPD (43% vs 46%), prior open ascending aortic repair (57% vs 46%), and prior stroke (86% vs 27%), respectively (Table 1). Technical success was similar between groups (86% vs 82%, P=1.0). Fluoroscopy time (56 vs 27 min, P=.02) and in-hospital death (43% vs 0%, P=.043) were significantly lower in the current group. 30-day stroke rate (29% vs 9%, p=.528) was non-significantly lower in the current group (Figure 1). All-cause mortality was 85% vs 9% at median follow-up of 8 and 5 months. Three deaths in the early group were related to their aortic arch repair including aortic rupture during endograft advancement and two postoperative strokes.

Conclusions: There is a significant learning curve associated with PM-FBEVAR for the aortic arch. This study suggests that gained experience and use of the spine trigger wire technique to facilitate branch alignment can lead to a shorter procedure time and fewer complications.

Table 1. Patient demographics and characteristics

Variable	Early technique	Current Technique	Total	P-value
Age	75.9 ± 6.3	75.0 ± 8.2	75.3 ± 7.3	.817
COPD	3 (42.9%)	5 (45.5%)	8 (44.4%)	1.0
Stroke	6 (85.7%)	3 (27.3%)	9 (50%)	.050
Prior Open Ascending Aortic repair	4 (57.1%)	5 (45.5%)	9 (50%)	1.0
Indication				.915
Degenerative aneurysm	2 (28.6%)	4 (36.4%)	6 (33.3%)	
Post-dissection aneurysm	3 (42.9%)	3 (27.3%)	6 (33.3%)	
Acute dissection/PAU/IMH	1 (14.3%)	3 (27.3%)	4 (22.2%)	
Pseudoaneurysm	1 (14.3%)	1 (9.1%)	2 (11.1%)	
Symptomatic	4 (57.1%)	7 (70%)	11 (64.7%)	.644



Author Disclosures: A DiBartolomeo: Nothing to disclose, **K Kazerouni**: Nothing to disclose, **F Fleischman**: W. L. Gore & Associates, Cook Medical, Terumo Medical, Artivion; Consultant - Honoraria, **S M Han**: W. L. Gore & Associates, Cook Medical, Terumo, Vestek; Consultant - Honoraria, Scientific Advisory Board

2. CLINICAL OUTCOMES OF CELIAC ARTERY COVERAGE VS PRESERVATION DURING THORACIC ENDOVASCULAR AORTIC REPAIR

Narek Veranyan MD, Daniel Willie-Premor MD, MPH, CPH, Sina Zarrintan MD, MS, MP, Omar Al-Nouri DO, MS, Mahmoud Malas MD, MHS
UC San Diego Health

Objective: Adequate proximal and distal seal zones are necessary for successful TEVAR. Often, the achievement of an adequate distal seal zone requires celiac artery(CA) coverage by endograft with or without preservation of CA blood flow. The outcome of CA coverage was studied only in small case series. Our study aims to determine the difference in outcomes between CA coverage vs preservation during TEVAR using a multi-institutional national database.

Methods: VQI was reviewed for all TEVAR patients distally landing in Zone 6. The cohort was divided into coverage with revascularization of CA or coverage without revascularization. Demographic, clinical, and perioperative characteristics, as well as post-operative mortality, morbidities, and complications, were compared between the groups. Univariate and multivariate logistic regression analyses were performed.

Results: Out of 25,550 reviewed patients, 772 had a distal landing in zone 6. 212 (27.5%) were revascularized after coverage and 560 (72.5%) underwent coverage without revascularization. Indication for TEVAR: aneurysm in 431 (55.8%), dissection in 247(32.0%), or other in 94 (12.2%) cases. Table 1 demonstrates the differences in baseline and perioperative characteristics. There was a trend of increased intestinal ischemia requiring intervention in the non-revascularized group (1.9% vs 0.5%, p=0.077). After adjusting for potential confounders, CA coverage without revascularization was associated with more than a two-fold increase in overall 30-day mortality (OR: 2.70 95%CI: 1.12-6.46, p=0.026) (Table 2), about a three-fold increase in disease/treatment-related mortality (OR: 3.21, 95%CI: 1.02-10.13).

Conclusions: CA coverage during TEVAR is associated with significantly higher mortality. Revascularization of CA should be performed when possible. Further prospective studies with longer follow-ups should be done to confirm our findings and compare the open vs endovascular revascularization techniques on outcomes.

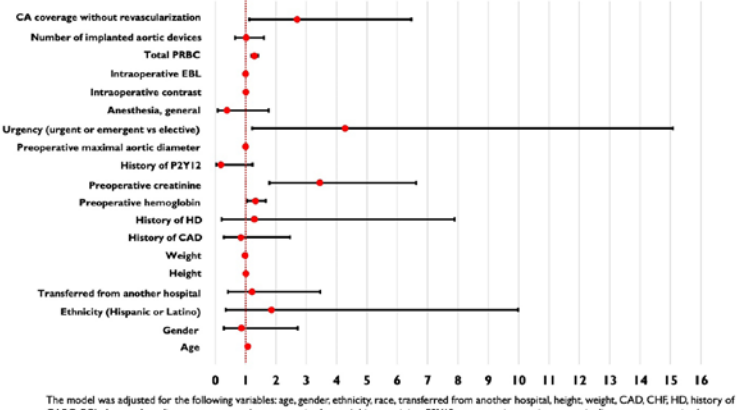
Author Disclosures: N Veranyan: Nothing to disclose, **D Willie-Premor:** Nothing to disclose, **S Zarrintan:** Nothing to disclose, **O Al-Nouri:** Nothing to disclose, **M Malas:** Nothing to disclose

Table 1. Association of Celiac artery revascularization status with baseline characteristics

Baseline Characteristic Variables		Celiac artery Status: Covered without revascularization	Celiac artery Status: Covered with revascularization	P-value
Age (years)*		72.72 ± 9.94	67.72 ± 13.20	<0.001
Gender (male)*		110 (51.9%)	246 (43.9%)	0.048
Ethnicity (Hispanic/Latino)*		8 (3.8%)	36 (6.4%)	0.156
Race*	White	21 (9.9%)	62 (11.1%)	0.189
	Black	31 (14.6%)	111 (19.8%)	
	other	160 (75.5%)	387 (69.1%)	
Transferred from another hospital*		66 (31.1%)	168 (30.0%)	0.760
Height (cm)†		168.97 ± 11.21	170.52 ± 13.16	0.129
Weight (kg) †		76.37 ± 18.77	80.17 ± 22.50	0.018
Decreased preoperative functional status*		97 (45.8%)	213 (38.0%)	0.051
History of CVD*		27 (12.7%)	74 (13.2%)	0.860
History of CAD*		36 (17.0%)	92 (16.4%)	0.854
History of CHF*		26 (12.3%)	73 (13.0%)	0.775
History of COPD*		80 (37.7%)	182 (32.5%)	0.170
History of Diabetes*		38 (17.9%)	87 (15.5%)	0.421
History of HD*		4 (1.9%)	17 (3.0%)	0.381
History of HTN*		186 (87.7%)	497 (88.8%)	0.694
History of smoking*		158 (74.5%)	432 (77.1%)	0.445
History of CABG*		23 (10.8%)	52 (9.3%)	0.513
History of PCI*		27 (12.7%)	68 (12.1%)	0.823
History of CEA or CAS*		9 (4.2%)	17 (3.0%)	0.406
History of aortic aneurysm repair*		51 (24.1%)	167 (29.8%)	0.112
History of prior bypass surgery*		15 (7.1%)	50 (8.9%)	0.408
History of PVI*		9 (4.2%)	39 (7.0%)	0.163
Preoperative hemoglobin†		12.05 ± 2.06	11.83 ± 2.110	0.188
Preoperative creatinine†		1.03 ± .44	1.13 ± .510	0.017
History of Aspirin*		112 (52.8%)	272 (48.6%)	0.291
History of P2Y12*		20 (9.4%)	38 (6.8%)	0.213
History of Statins*		122 (57.5%)	303 (54.1%)	0.391
History of Beta blockers*		141 (66.5%)	401 (71.6%)	0.167
History of ACE inhibitors*		95 (44.8%)	204 (36.4%)	0.033
History of Anticoagulants*		36 (17.0%)	81 (14.5%)	0.384
History of aortic surgery (open or endo)*		62 (29.2%)	205 (36.6%)	0.055
Preoperative maximal aortic diameter (mm) †		58.87 ± 15.19	56.04 ± 15.820	0.025
Presentation (ruptured or symptomatic)*		106 (50.0%)	290 (51.8%)	0.658
Urgency (emergent or urgent)*		73 (34.4%)	180 (32.1%)	0.545
Aortic pathology*	Aneurysm	138 (65.1%)	293 (52.3%)	<0.001
	Dissection	43 (20.3%)	204 (36.4%)	
	Other	31 (14.6%)	63 (11.3%)	
General anesthesia*		199 (93.9%)	547 (97.7%)	0.009
Contrast (ml) †		136.02 ± 76.66	132.59 ± 97.100	0.644
Crystalloids (ml) †		1797.62 ± 1135.84	1641.82 ± 1041.48	0.071
EBL (ml) †		249.79 ± 603.99	293.16 ± 678.07	0.414
Fluoroscopy time (min) †		31.40 ± 26.38	36.71± 32.27	0.020
Total PRBC (units)		3.01 ± 9.57	2.17 ± 5.74	0.230
Total procedure time (min) †		149.15 ± 87.07	155.66 ± 95.00	0.385
Number of aortic devices		2.25 ± 1.00	2.12 ± .89	0.080

*, presented as number of cases (%); †, presented as mean ± standard deviation; CVD, cerebrovascular disease; CAD, coronary artery disease; CHF, congestive heart failure, COPD, chronic obstructive pulmonary disease; HD, hemodialysis; HTN, hypertension; CABG, coronary artery bypass graft; PCI, percutaneous coronary intervention; CEA, carotid endarterectomy; CAS, carotid artery stenting; PVI, peripheral vascular intervention; ACE, angiotensin-converting enzyme; EBL, estimated blood loss; PRBC, packed red blood cells

Table 2. Postoperative Mortality Predictive Model



The model was adjusted for the following variables: age, gender, ethnicity, race, transferred from another hospital, height, weight, CAD, CHF, HD, history of CABG, PCI, abnormal cardiac stress test result, preoperative hemoglobin, creatinine, P2Y12, preoperative maximum aortic diameter, presentation(rupture, symptomatic non-ruptured, asymptomatic), urgency (emergent, urgent, elective), preoperative leg weakness, pathology (aneurysm, dissection, other), anesthesia, ASA class, intraoperative contrast, crystalloids, EBL

3. MODIFIED HARBORVIEW RISK SCORE ACCURATELY PREDICTS MORTALITY FOR PATIENTS WITH RUPTURED ABDOMINAL AORTIC ANEURYSMS: A VALIDATION STUDY

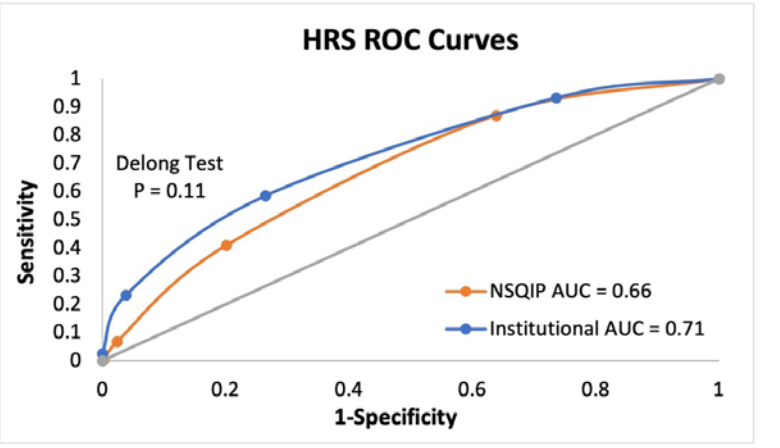
Andrew Warren BS, BA[1], Kirsten Dansey MD MPH[2], Jake Hemingway MD[2], Benjamin W. Starnes MD[2], Elina Quiroga MD[2], Niten Singh MD[2], Nam Tran MD[2], Sara L. Zettervall MD MPH[2]
[1]Pacific Northwest University of Health Sciences, Yakima, WA, [2]University of Washington Medicine, Seattle, WA

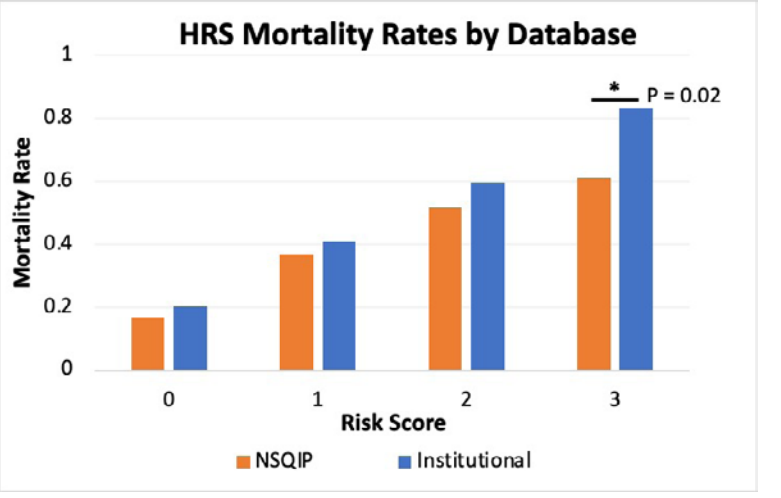
Objective: The modified Harborview risk score (HRS) was proposed as a simple measure to assess patient survival prior to ruptured abdominal aortic aneurysm (RAAA) repair using routinely collected labs and vital signs. However, validation has not been performed. This study aims to validate this score system using a large multi-institutional database.

Methods: Patients who underwent RAAA repair from 2011-2018 in NSQIP and all patients presenting to a single academic medical center with RAAA were included. The HRS was calculated by assigning 1 point to each of the following: age >76 years, creatinine >2 mg/dL, INR >1.8, systolic blood pressure <70 mmHg. Using a primary outcome measure of 30-day mortality, the receiver operating characteristic area under the curve (AUC) was calculated, with discrimination compared using a Delong test. Mortality rates for each score were compared between datasets using Pearson's Chi Squared test.

Results: ,375 patients were identified (958 NSQIP, 417 institutional). 336 patients scored 0 (267 NSQIP, 69 institutional), 604 patients scored 1 (428 NSQIP, 176 institutional), 344 scored 2 (225 NSQIP, 119 institutional), and 84 scored 3 (36 NSQIP, 48 institutional). Only 7 patients had a score of 4 (2 NSQIP, 5 institutional) precluding comparison. AUCs did not differ between datasets (Fig 1). 30-day mortality was 16% NSQIP vs 20% institutional for scores of 0, 37% NSQIP vs 41% institutional for scores of 1, 52% NSQIP vs 60% institutional for scores of 2, and 61% NSQIP vs 83% institutional for scores of 3. Score 3 was the only score with a significant mortality rate difference between datasets (P=0.02).

Conclusions: The Modified Harborview Risk Score is confirmed to be broadly applicable as a clinical decision-making tool for patients presenting with ruptured abdominal aortic aneurysms. This easily applicable model should be applied for all patients presenting with RAAA to assist with provider and patient decision making prior to repair.





Author Disclosures: A Warren: Nothing to disclose, **K Dansey:** Nothing to disclose**, J Hemingway:** Nothing to disclose, **B W Starnes:** Nothing to disclose, **E Quiroga:** Nothing to disclose, **N Singh**: Nothing to disclose, **N Tran:** Nothing to disclose, **S L Zettervall:** Nothing to disclose

4. ENRICHMENT OF A CDH13 PATHOGENIC VARIANT IN PATIENTS WITH THORACIC AORTIC ANEURYSM AND DISSECTION: PROOF OF CONCEPT FOR VALIDATION OF GWAS-ASSOCIATED VARIANTS

Shaunak Adkar[1,2,3,4], Dipti Tripathi[1,2,4], David Wu[1,2,4], Noishiki Chikage[1,2,4], Sabina Sorondo[1,2,3,4], Nicholas Leeper[1,2,4], Jason T. Lee[1,2,3,4], Nazish Sayed[1,2,4], Derek Klarin[1,2,3,4]

[1]Department of Surgery, Division of Vascular Surgery, Stanford University Stanford CA, [2]Stanford Cardiovascular Institute, Stanford, CA, [3]Palo Alto Veterans Affairs Hospital, [4]Baszucki Family Vascular Surgery Biobank

Objectives: Genome-wide association studies have provided insight into the genetic etiology of non-mendelian forms of thoracic aneurysms and dissection (TAAD). A lead candidate causal variant associated with TAAD, rs7500448, lies within an intron of CDH13 and modulates its expression. As mechanistic validation of this association can be accomplished through gene editing of human induced pluripotent stem cells (hiPSCs), we sought to examine the utility of our institution biobank to obtain peripheral blood mononuclear cells (PBMCs) harboring the pathogenic variant of CDH13 amongst patient undergoing TEVAR for TAAD and then reprogram these PBMCs to hiPSCs.

Methods: Full IRB consent was obtained from patients to harvest whole blood during their operation. PBMCs were isolated under standard conditions. PBMCs were genotyped at rs7500448 with Sanger sequencing and subsequently reprogrammed to hiPSCs. Validation of hiPSC pluripotency was confirmed via differentiation towards endodermal, mesodermal, and ectodermal lineages.

Results: Since October 2022, we isolated PBMCs from 10 consecutive patients undergoing TEVAR. Technical success for the procedures was 100%. Of patients with genotyped PBMCs, we observed enrichment of the rs7500448 risk allele (G) compared to reported allele frequency in the general population (50% vs 17%), with 25% homozygotes and 50% heterozygotes. The patient homozygous for the risk allele presented with the most severe clinical phenotype, a 5.5 cm extent 3 TAAA. Technical success of hiPSC derivation was 100%.

Conclusions: We demonstrate the utility of an institution biobank of PBMCs harvested during TEVAR to enrich for patients harboring pathogenic genetic variation and assess TAAA expressivity of patients with varying allelic dosage of pathogenic variants. Further studies are needed to fully elucidate associations between these variants and clinical presentation, treatment options, and outcomes for these complex patients.

Author Disclosures: S Adkar: Nothing to disclose**, D Tripathi:** Nothing to disclose**, D Wu:** Nothing to disclose**, N Chikage:** Nothing to disclose**, S Sorondo:** Nothing to disclose**, N Leeper:** Nothing to disclose**, J Lee:** Nothing to disclose**, N Sayed:** Nothing to disclose**, D Klarin:** Bitterroot Bio - Scientific Advisor – Consulting Fee

5. EVALUATING GROWTH PATTERNS OF ABDOMINAL AORTIC ANEURYSMS AMONG WOMEN

Kathryn DiLosa MD, MPH, Cara Pozolo MD, Lauren Cralle MD, Nasim Hedayati MD, Mimmie Kwong MD, Steven Maximus MD, Misty Humphries MD, MAS
UC Davis, Division of Vascular Surgery, Sacramento, CA

Objectives: Initially protected by estrogen, post-menopausal women may experience rapid abdominal aortic aneurysm (AAA) growth. Female AAA growth rate is poorly defined in the literature. Here we describe AAA growth in a cohort of women.

Methods: Women with AAA were retrospectively identified. Aortic imaging was reviewed, and measurement of maximum transverse and anterior-posterior diameters completed. Growth was stratified by the type of aortic pathology as well as size category (2.0-2.9 cm, 3.0-3.9, 4.0-4.9, 5.0+) at diagnosis.

Results: A cohort of 488 women was identified, 286 had multiple scans available for review. Mean age at initial diagnosis of the cohort was 75 (± 9.9). Stratified by type of pathology, mean age was 76 (±8.9) in patients with a fusiform AAA, 74 (±9.8) in ectasia, 65 (±13.7) in dissection, and 76 (±5.6) in saccular aneurysms.

Mean growth rate was highest in fusiform AAA, followed by dissection, ectasia, and saccular pathology (9.7 mm, 7.0, 3, 2.2 respectively, p<.001). (Table 1) Comparing mean growth by year, the highest mean growth was in fusiform AAA (3.6 mm vs 1.75 in dissection, p<.001).

Shapiro Wilk test demonstrated mean growth per year was nonnormally distributed with right skew (skew 8.6, p<.001). Stratified by diameter at time of diagnosis, mean growth/year increased with increasing size at diagnosis in fusiform AAA and dissection .91 mm, 2.34, 2.49, 6.16 vs .57mm, .94, 1.87, 2.66, respectively). This trend was also observed in fusiform AAA when reported as median with interquartile range (.32mm, .45, 1.6, 2.7). (Table 2)

History of smoking was associated with a higher mean growth/year (2.6 vs 3.3,p <.001). Conversely, patients with family history of AAA had a lower mean growth/year (3.2mm vs 1.5, <.001).

Conclusions: The rate of aneurysm growth in women varies by pathology and aneurysm size. As with men, a smoking history or larger aneurysm diameter at diagnosis is associated with increased rate of aneurysm growth.

Table 1: Mean aneurysm growth rate by type of pathology and size category at the time of diagnosis.

	Fusiform AAA Mean (SD) N=217	**Aortic Ectasia** Mean (SD) N=38	**Dissection** Mean (SD) N=28	**Saccular Aneurysm** Mean (SD) N=3	P value
Maximum growth (mm)	9.69 (±50.6)	2.2 (±2.5)	6.96 (±7.7)	3 (±2.7)	p<.001
Maximum growth by size category:*					
2.0-2.9 cm	4.78 (±6.1)	2.24 (±2.5)	1.75 (±3.5)	-	p=.001
3.0-3.9 cm	3.38 (±4.4)	-	5.08 (±5.4)	4.5 (±0.7)	p=.195
4.0-4.9 cm	8.22 (±6.9)	-	15.5 (±9.3)	-	p=.471
5.0+ cm	18.31 (±87.1)	-	8.57 (±8.8)	-	p<.001
Growth/year (mm)	3.59 (±12.2)	2.03 (±7.3)	1.45 (±1.8)	.48 (±0.5)	p<.001
Mean # years of follow up	3.59 (±12.2)	2.03 (±7.2)	1.45 (±1.8)	.48 (±0.5)	
Growth/year by size category:					
2.0-2.9 cm	.91 (±1.2)	2.03 (±7.3)	.57 (±1.1)	0 (±0)	p<.001
3.0-3.9 cm	2.34 (±10.0)	-	.94 (±.65)	.73 (±0.5)	p<.001
4.0-4.9 cm	2.49 (±3.1)	-	1.87 (±1.1)	-	p=.076
5.0+ cm	6.16 (±18.1)	-	2.66 (±3.1)	-	P<.001
Growth/month (mm)	.30 (±1.0)	.17 (±0.6)	.12 (±.2)	.04 (±.1)	p<.001
Mean # months of follow up	54.43 (±57.6)	60.81 (±57.1)	65.48 (±60.9)	70.2 (±77.9)	
Growth/month by size category:					
2.0-2.9 cm	.08 (±0.1)	.17 (±0.6)	.05 (±0.1)	0 (±0)	p<.001
3.0-3.9 cm	.19 (±0.8)	-	.08 (±0.1)	.06 (±.04)	p<.001
4.0-4.9 cm	.21 (±0.3)	-	.16 (±0.1)	-	p=.069
5.0+ cm	.51 (±1.5)	-	.22 (±0.2)	-	p<.001

*Size category determined by aneurysm diameter at the time of diagnosis. Maximum growth calculated by subtracting smallest measured diameter from the largest measured diameter. The total length of follow was determined for each patient and the growth divided over the total number of months and years of follow up to determine the average aneurysm growth.

Table 2: Median aneurysm growth by type of pathology and size category at the time of diagnosis.

	Fusiform AAA Median (IQR) N=217	**Aortic Ectasia** Median (IQR) N=38	**Dissection** Median (IQR) N=28	**Saccular Aneurysm** Median (IQR) N=3
Maximum growth (mm)	4 (9)	2 (4)	3 (12)	4 (5)
Maximum growth by size category:*				
2.0-2.9 cm	2 (5)	2 (4)	0 (3.5)	0 (0)
3.0-3.9 cm	2 (6)	-	2 (7)	4.5 (1)
4.0-4.9 cm	6.5 (10)	-	19 (12)	-
5.0+ cm	5 (12.5)	-	9 (15)	-
Growth/year (mm)	1.15 (3.1)	.34 (0.6)	1.00 (1.7)	.38 (1.07)
Mean # years of follow up	3.59 (±12.2)	2.03 (±7.2)	1.45 (±1.8)	.48 (±0.5)
Growth/year by size category:				
2.0-2.9 cm	.32 (1.0)	.34 (0.1)	0 (1.1)	0 (0)
3.0-3.9 cm	.45 (1.1)	-	.94 (0.8)	.73 (0.7)
4.0-4.9 cm	1.6 (2.2)	-	2.2 (1.6)	-
5.0+ cm	2.7 (4.8)	-	1.4 (4.7)	-
Growth/month (mm)	.10 (0.3)	.03 (0.1)	.01 (0.1)	.03 (0.1)
Mean # months of follow up	54.43 (±57.6)	60.81 (±57.1)	65.48 (±60.9)	70.2 (±77.9)
Growth/month by size category:				
2.0-2.9 cm	.03 (0.1)	.03 (0.1)	0 (0.1)	0 (0)
3.0-3.9 cm	.04 (0.1)	-	.08 (0.1)	.06 (0.1)
4.0-4.9 cm	.13 (0.2)	-	.18 (0.1)	-
5.0+ cm	.23 (0.4)	-	.11 (0.4)	-

Author Disclosures: K DiLosa: Nothing to disclose**, C Pozolo:** Nothing to disclose**, L Cralle:** Nothing to disclose, **N Hedayati:** Nothing to disclose, **M Kwong:** Nothing to disclose, **S Maximus:** Nothing to disclose, **M Humphries:** Nothing to disclose

6. FOLLOW-UP COMPLIANCE IN PATIENTS UNDERGOING AAA REPAIR AT VA HOSPITALS

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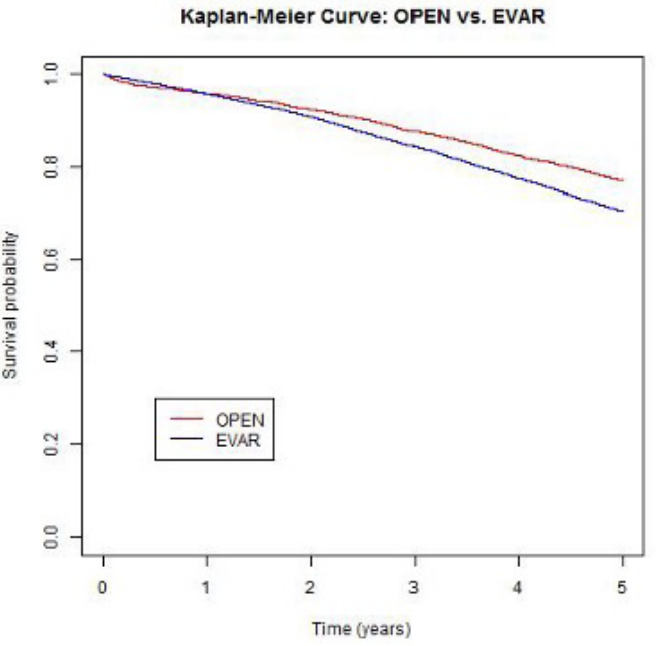
Objectives: The Society for Vascular Surgery guidelines recommend annual imaging surveillance following endovascular aneurysm repair (EVAR). Adherence with this guideline is low outside of clinical trials and compliance at Veteran Affairs (VA) hospitals is not yet well established. We examined imaging follow-up compliance and mortality rates after abdominal aortic aneurysm (AAA) repair at VA hospitals.

Methods: We queried the VA Surgical Quality Improvement Program (VASQIP) database for elective infrarenal AAA repairs then merged follow-up abdominal ultrasound or CT scan and mortality information. Mortality rate was derived using Kaplan-Meier estimation. Generalized Estimating Equation with a logit link and a sandwich standard error estimate was performed to compare the probability of having annual follow-up imaging between procedure types and to identify variables associated with follow-up imaging for EVAR patients.

Results: Between 2000 and 2019, 14,255 EVAR and 5,908 Open repairs were performed. The 30-day mortality for Open and EVAR procedures was 0.82% and 0.37% respectively. Despite higher perioperative mortality, Open surgical repair was associated with lower long-term mortality after adjusting age, sex, ASA classification and pre-op renal failure with an adjusted hazard ratio of 0.88(CI: 0.84-0.92, P<0.01) (Fig 1). At 1 year post-EVAR, follow-up imaging rate was 69.2%. Follow-up rate after 5 years post-EVAR was 45.6%. Older age, a history of smoking or drinking, baseline hypertension, known cardiac disease, and longer hospital length of stay were independently associated with poor follow-up after EVAR.

Conclusions: Patients undergoing elective Open AAA repair in the VA hospital system had lower long-term mortality and higher rates of follow-up when compared to patients who underwent endovascular repair. Patient factors associated with poor follow-up compliance were identified, which presents an opportunity for improving post-EVAR surveillance.



Author Disclosures: S Shahbazian: Nothing to disclose, **Y Abuhakmeh**: Nothing to disclose, **Y Ashouri:** Nothing to disclose, **C Hsu**: Nothing to disclose, **P Devito**: Nothing to disclose, **W Zhou**: Nothing to disclose

7. MULTIDISCIPLINARY APPROACH TO DIRECT SEGMENTAL ARTERY REVASCULARIZATION TO PREVENT SPINAL CORD ISCHEMIA ASSOCIATED WITH ENDOVASCULAR THORACOABDOMINAL AORTIC REPAIR

Anand V. Ganapathy[1], Alexander D. DiBartolomeo[1], William J. Mack[2], Gregory A. Magee[1], Anastasia Plotkin[1], Joseph N. Carey[3], Jonathan J. Russin[2], Sukgu M Han[1]

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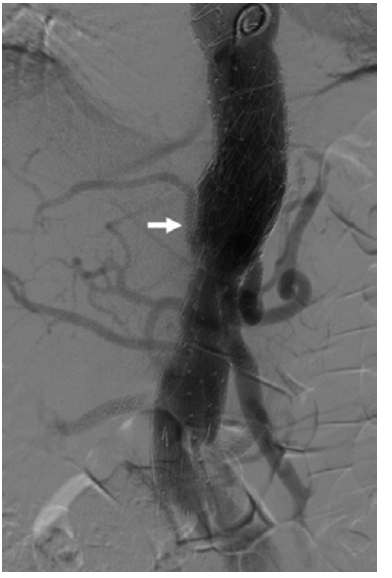
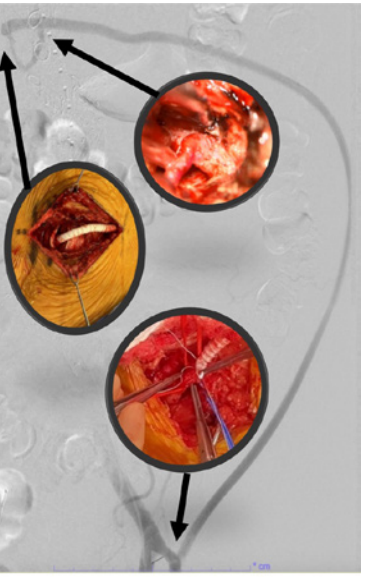
Objective: Despite advances in complex endovascular aortic repair techniques, spinal cord ischemia (SCI) remains a devastating complication. Current preventive strategies focus on augmentation of spinal perfusion through collateral networks. Novel techniques to preserve key segmental arteries have been described. We describe our multi-disciplinary approach and early outcomes of direct segmental artery revascularization, using fenestrated/branched incorporation of segmental arteries, and extra-anatomic bypasses, during or prior to fenestrated-branched endovascular aortic repairs(FBEVAR).

Methods: A retrospective review of consecutive patients who underwent FBEVAR with segmental artery revascularization from 2018 to 2022 was performed. Patient characteristics, intra-operative details, and outcomes including SCI and branch occlusion were evaluated.

Results: Among 318 patients undergoing FBEVAR during the study period, 12 patients were included in the study. Fourteen segmental arteries were incorporated, using directional branches (6) (Figure 1), unstented fenestrations (2), and stented fenestration (3). Three segmentals received extra-anatomic femoral-to-radicular artery bypass using a composite graft of Polytetrafluoroethylene (PTFE) and saphenous vein (Figure 2). There were no in-hospital mortalities. One patient died of intracranial hemorrhage from a fall after discharge. Tarlov grade II SCI were seen in 2 patients (1 endovascular, 1 extra-anatomic bypass), which improved to grade IV before discharge. At median follow-up of 390 days, 3 segmentals occluded (1 extra-anatomic bypass, 2 endovascular branches) with no new SCI symptoms.

Conclusions: In patients at high risk for SCI undergoing FBEVAR, direct revascularization of an intercostal or lumbar artery is feasible using endovascular or extra-anatomic bypass approach. Further work to identify segmentals providing significant spinal collateral flow is planned.





Author Disclosures: A V Ganapathy: General Inception; Consultant - Consulting Fees, **A DiBartolomeo:** Nothing to disclose, **W J Mack:** Rebound Therapeutics, Viseon, Imperative Care, Integra, Q'Apel, Stream Biomedical, Spartan Micro; Egret, Cerebrotech, Endostream, Viseon, Truvic, Radical Catheters, Vastrax, Borvo; Consultant - Consulting Fees, Investor - Stock Options, **G A Magee:** W. L. Gore & Associates and Silk Road; Consultant - Consulting Fees, **A Plotkin:** Nothing to disclose, **J N Carey:** Nothing to disclose, **J J Russin:** Nothing to disclose, **S M Han:** W. L. Gore & Associates, Cook Medical, Terumo, and Vestek; Consultant – Honoraria, Scientific Advisory Board Member

8. LONG-TERM FUNCTIONAL OUTCOMES OF VASCULAR AMPUTEES UTILIZING THE LOWER EXTREMITY AMPUTATION PATHWAY (LEAP)

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Objectives: Enhanced recovery after surgery (ERAS) pathways lead to improve perioperative outcomes for vascular amputees, however long-term data and functional outcomes are lacking. This study evaluated patients treated by the Lower Extremity Amputation Pathway (LEAP) and identified predictors of ambulation.

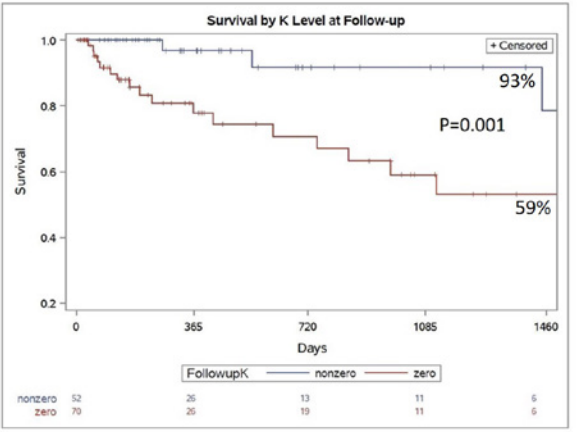
Methods: A retrospective review of LEAP patients who underwent major amputation from 2016 to 2022 for WIfI Stage V disease was performed. LEAP patients were matched 1:1 with retrospective controls (NOLEAP) by hospital, need for guillotine amputation, and final amputation type (above vs below knee). Primary endpoint was K-level (amputee functional classification) at last follow-up.

Results: 126 amputees (63 LEAP and 63 NOLEAP) were included. 71% were male and 49% were Hispanic with a mean state area deprivation index of 9/10. There were no differences in baseline demographics or co-morbidities. (Table) All patients had a K level >0 (ambulatory) prior to amputation and an average modified frailty index of 4. Mean follow up was 17 months. Compared to NOLEAP, LEAP patients were more likely to receive a prosthesis (86% vs 44%,p>0.001). LEAP patients were more likely to have K level>0 (60% vs 25%,P=0.003). On multivariable logistic regression, participation in LEAP increased the odds of K level>0 at follow-up by 5.8 fold (OR 5.8, 95% CI 2.5,13.6). Patients with a K level >0 had significantly higher survival at 4 years (93% vs 59%, p=0.001). In a Cox-proportional hazards model, adjusted for demographics, co-morbidities and amputation level, a K level of >0 at follow-up was associated with an 88% reduction in the risk of mortality compared to K level=0. (Figure)

Conclusions: LEAP leads to improved ambulation with a prosthesis in a socioeconomically disadvantaged and frail patient population. Patients with a K level>0 (ambulatory) have significantly improved mortality.

Table. Baseline Demographics and Perioperative Care

	LEAP (n=63)	Control (n=63)	P-value
Demographics/Co-morbidities			
Age	63 ± 12.5	61 ± 12.8	0.60
Male sex	46 (73%)	44 (70%)	0.69
Body Mass Index	27.1 ± 6.5	28.2 ± 7.2	0.38
Hispanic ethnicity	35 (56%)	27 (43%)	0.47
State Area Deprivation Index	9.3	9.7	0.27
Modified Frailty Index			
Pre-operative K Level			0.61
1	13 (21%)	17 (27%)	
2	17 (27%)	18 (26%)	
3	33 (52%)	28 (44%)	
Dialysis Dependent	15 (24%)	16 (25%)	0.83
Amputation Type			1.00
Below Knee	48 (76%)	48 (76%)	
Above Knee	15 (24%)	15 (24%)	
Subsequent Contralateral Major Amputation	7 (11%)	11 (17%)	0.30
Subsequent Contralateral CLTI	29 (46%)	32 (51%)	0.59
Perioperative Amputation Care			
Locoregional Nerve Block	47 (75%)	16 (25%)	<0.001
Perioperative Counseling	63 (100%)	9 (14%)	<0.001
Post-operative Gabapentin	50 (79%)	31 (50%)	<0.001
Phantom or Residual Limb Pain	3 (5%)	9 (21%)	0.02
Received Prosthesis	54 (86%)	28(44%)	<0.001
Primary Outcome			
K level >0	38 (60%)	16 (26%)	<0.001



Author Disclosures: L A O'Banion: Nothing to disclose, **C Aparicio:** Nothing to disclose, **C Borshan:** Nothing to disclose, **S Siada:** Nothing to disclose, **H Matheny:** Nothing to disclose, **K Woo:** Nothing to disclose

9. DIAGNOSTIC ACCURACY OF PEDAL ACCELERATION TIME FOR DETECTING PERIPHERAL ARTERIAL DISEASE

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Objectives: Pedal acceleration time (PAT) is a novel method of using diagnostic ultrasound to visualise the pedal arteries to identify stenoses or occlusions (6). The aim of this study was to determine the diagnostic test accuracy of PAT for identifying PAD in a population presenting for assessment of PAD.

Method: This was a prospective cross-sectional study to determine the diagnostic test accuracy of pedal acceleration time (PAT) to detect peripheral arterial disease (PAD). The study took place at four centres in the USA, Canada and Australia. Over 18 months, a convenience sample of participants with suspected PAD were recruited. ABI, TBI, and arterial duplex examination were performed by one vascular ultrasonographer. A different vascular ultrasonographer, blinded to the other testing performed the PAT.

Results: 227 limbs (n=186) were recruited, with a mean age of 71 (SD 10, range 43-93) with n=56 females (30%), n=80 participants had diabetes (43%) and n= 65 (35%) were currently or had a history of smoking. 110 limbs were classified as having PAD of any TASC grade (1-4) of any segment (aorto-iliac, femoral popliteal). Median toe pressures were 90 mmHg (SD 41, range 0-200), and median TBI was 0.65 (SD .21, 0.11-1.16). 56 participants (30%) reported symptoms of claudication. ROC analysis results were TP 0.76 (95%CI 0.69-0.84) and TBI 0.77 (95%CI 0.70-0.84) for identifying PAD. PAT ROC was: lateral plantar artery 0.77 (95%CI 0.70-0.85), medial plantar artery 0.75 (0.66-0.83), dorsal metatarsal artery 0.78 (95%CI0.70-0.86), arcuate artery 0.76 (95%CI 0.68-0.85) and deep plantar artery 0.77 (95%CI 0.69-0.85). Utilising the highest (worst) PAT for identifying PAD ROC was 0.82 (95%CI 0.77-0.88).

Conclusion: PAT has acceptable diagnostic test accuracy as an assessment tool to identify peripheral arterial disease in a mixed, community-based population. All five measures yielded similar accuracy to TP and TBI, however utilising the highest PAT value yielded the highest diagnostic test accuracy.

Author Disclosures: P Tehan: Nothing to disclose**, J Sommerset:** Nothing to disclose, **D Teso:** Nothing to disclose, **J Mills Sr:** Nothing to disclose, **M Sebastian:** Nothing to disclose**, A Kayssi:** Nothing to disclose, **S Leask:** Nothing to disclose, **R Rounsley:** Nothing to disclose

10. REVASCULARIZATION OFFERS NO LONG-TERM BENEFIT TO PATIENTS WITH INTERMITTENT CLAUDICATION: 5-YEAR RESULTS OF PATIENT-REPORTED OUTCOMES

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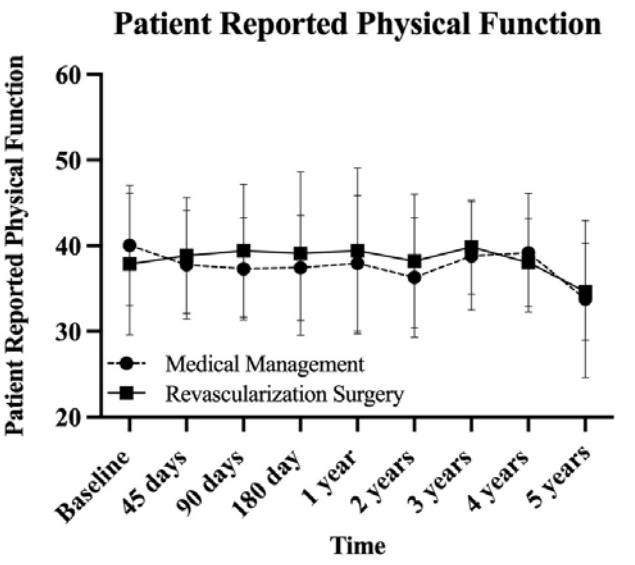
Objectives: SVS guidelines recommend revascularization for patients with intermittent claudication (IC) who will likely yield functional improvement. However, it is unclear if IC patients achieve a significant functional benefit from surgery compared to optimal medical management (OMM). This study was designed to compare surgical and OMM for IC on patient-reported physical function (PF-PRO) and satisfaction in activities (SA-PRO).

Methods: We identified all IC patients who presented for index evaluation in vascular clinic at an academic medical center 2016-2021. Patients were stratified based on whether they underwent open bypass or endovascular revascularization within 1-year versus OMM. We used logistic regression models to examine the impact of patient factors on treatment decision and mixed effects models to assess the effect of the treatment on PF- and SA-PROs and ankle brachial index (ABI) over time, controlling for provider practice patterns and clustering among repeated observations.

Results: 225 IC patients were identified, of which 85 (38%) underwent revascularization procedures (29% bypass, 71% peripheral vascular intervention) within 1-year. There were no differences in patient demographics or major comorbidities between groups. Patient factors associated with surgical management of IC included lower ABI, lower PF-PRO, and diabetes (all P<.05). Examining outcome trends, ABI improved significantly after revascularization (P<.001) but had no difference in groups over time. There were no differences in PF- or SA-PRO scores between treatment groups over 5-year follow-up (Figure A&B). However, both treatment groups demonstrated an improvement in SA-PRO over time (P=.017).

Conclusions: Long-term patient-reported outcomes associated with functional status are similar for IC patients irrespective of whether they were treated with revascularization or OMM. These findings highlight the benefit of conservative management for IC.

A



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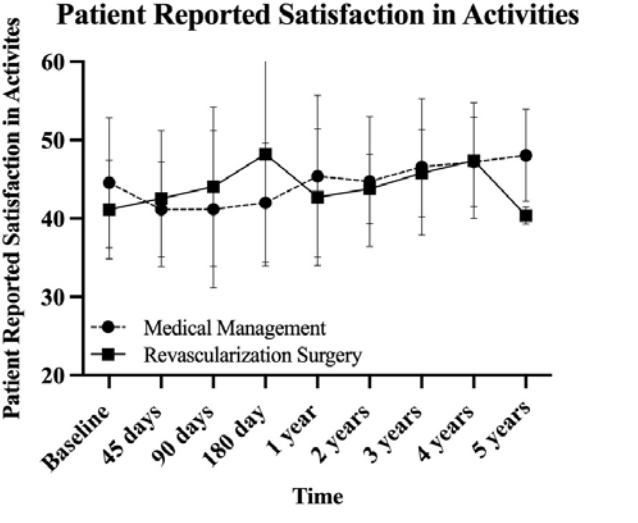

Author Disclosures: T A Holeman: Nothing to disclose**, C Chester:** Nothing to disclose**, J L Hales:** Nothing to disclose, **Y Zhang:** Nothing to disclose**, B S Brooke:** Nothing to disclose

11. PROPHYLACTIC CAVAL STENTING IN PATIENTS UNDERGOING RETROPERITONEAL LYMPH NYMPH NODE DISSECTION

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University of California, Davis

Objective: Hemorrhage during retroperitoneal lymph node dissection (RPLND) for post-chemotherapy germ cell tumor resection is a serious concern. This project aims to describe our experience with prophylactic aorto/caval stenting to reduce intra-operative hemorrhage in patients undergoing RPLND.

Methods: All men who underwent RPLND post-chemotherapy for germ cell tumors between January 2014 - April 2022 were identified. Demographic information, operative variables, and outcomes were compared to patients with standard RPLND without prophylactic stent placement.

Results: 39 patients underwent RPLND, and 15 had high-risk tumor anatomy defined as >50% encasement of the IVC, aorta, or iliac vessels. The average age was 37.13±10.5 years. Nine patients underwent angiography before RPLND. Of these 9, 1(11%) had no device placed due to IVC occlusion, 2 (22%) had endovascular coverage of the abdominal aorta, and 8 (88%) had endovascular coverage of the IVC and/or iliac veins.

The average operative time for the endovascular intervention was 95.4±30.3 minutes. The average operative time for oncologic resection was 300.8±71.8 for those with endovascular stents versus 417.2±211 minutes for those without (p=0.17). In patients with high-risk tumor anatomy, stented patients had lower mean EBL than non-stented patients (1072.2±737 vs. 2767±1483 ml, p=0.017). This finding did not translate to a significant difference in transfusion requirement after oncologic resection (55% vs. 83%, p=0.58). Of the eight patients who had undergone venous stenting, the average follow-up was 33.8±27 months. In that time, one patient (12.5%) had a stent-related complication that required lysis.

Conclusion: This series builds off prior literature from our institution and represents the largest case series of endovascular stenting to reduce hemorrhage during RPLND. Our experience suggests that prophylactic endovascular intervention in high-risk surgical candidates may reduce blood loss.

Author Disclosures: M Vuoncino: Nothing to disclose, **R Ricon:** Nothing to disclose, **K DiLosa:** Nothing to disclose, **M D Humphries:** Nothing to disclose

12. RELEVANCE OF BEST-CLI TRIAL RESULTS IN A TERTIARY CARE LIMB PRESERVATION PROGRAM

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University of California, San Francisco, CA

Objectives: Major adverse limb events (MALE) differed significantly by revascularization approach in the BEST-CLI trial. We examined the nature and timing of MALE in a real-world tertiary care practice setting.

Methods: This is a single-center retrospective study of patients who underwent technically successful infrainguinal revascularization for CLTI (2011-2021). MALE was major amputation (MA; transtibial or above) or major reintervention (MR; new/revised bypass, thrombectomy or thrombolysis).

Results: Among 473 subjects, mean age was 70 years and 34% were female. Characteristics included diabetes (68%), ESRD (16%), WIfI stage 4 (50%), GLASS stage 3 (63%) and high pedal artery calcium score (pMAC; 22%). Index revascularization was autogenous vein bypass (AVB; 143; 30%), non-autogenous bypass (NAB; 59; 13%) or endoluminal (ENDO; 267; 57%). Rates of MALE, MA and MR at 30 days were 9±1.4%, 5.8±1.1% and 3.3±0.9%; and at 1 year were 29±2.5%, 17±1.9% and 14±1.9%, respectively. Median time to first MALE was 120 days (IQR 27-414). In a Cox model inverse propensity-weighted for approach, MALE was independently associated with younger age, WIfI stage 4, high GLASS infrapopliteal grade, high pMAC, NAB and ENDO (Figures 1, 2). Indications for MR were symptomatic stenosis/occlusion (54%), clinical non-improvement (28%), asymptomatic graft stenosis (16%) and iatrogenic events (3%). Of those who experienced MALE, 36% underwent MR alone, 12% MR followed by MA, and 53% MA without prior MR. Index ENDO was associated with higher risk of MA without MR (p=0.01). Conversion to bypass occurred after 6% of ENDO cases; two-thirds involved distal bypass targets at the ankle or foot.

Conclusions: In this real-world cohort, disease complexity was significantly associated with MALE, and AVB independently provided the greatest durability. Compared to BEST-CLI randomized trial results, MALE after ENDO was more frequently MA rather than MR, with few conversions to bypass after index ENDO.

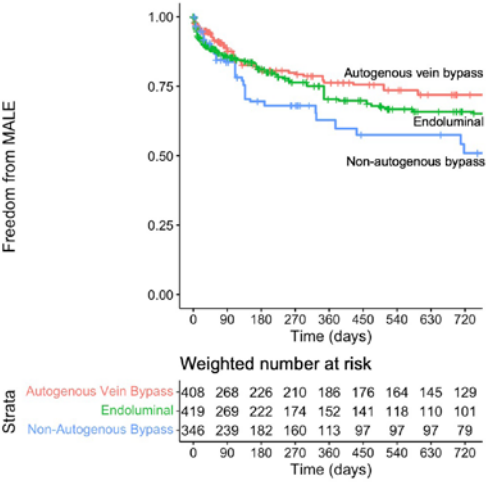

Figure 1. Weighted Kaplan-Meier curve for freedom from MALE stratified by index revascularization approach (p=0.03). Approach is inverse propensity weighted for associated factors: VQI 2-year mortality risk category; WIfI wound, ischemia, and foot infection grades; multilevel treatment at index revascularization; pMAC

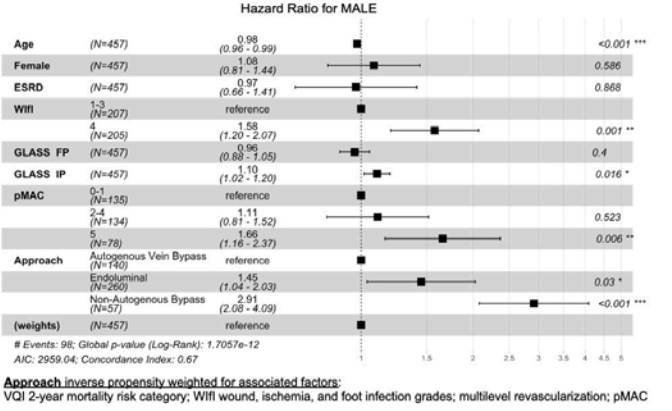

Figure 2. Inverse propensity-weighted Cox proportional hazards model for MALE, with revascularization approach weighted for associated factors as shown.

Author Disclosures: I H Liu: Nothing to disclose**, R El Khoury:** Nothing to disclose**, J S Hiramoto:** Nothing to disclose**, W J Gasper:** Nothing to disclose**, P A Schneider:** Nothing to disclose**, S M Vartanian:** Nothing to disclose**, M S Conte:** Nothing to disclose

13. TRENDS AND OUTCOMES OF SURGICAL RECONSTRUCTION OF THE INFERIOR VENA CAVA FOLLOWING ONCOLOGIC RESECTIONS

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Objective: Retroperitoneal tumors with inferior vena cava (IVC) involvement are difficult to resect and may require en-bloc removal to ensure negative margins. This may subsequently require surgical reconstruction via direct repair, patch angioplasty, or interposition grafting. The purpose of our study was to report our outcomes with IVC reconstruction and describe the associated patient characteristics.

Methods: We performed retrospective institutional review of all patients who underwent IVC reconstruction (January 2013 – January 2023) and describe demographic details, tumor characteristics, long-term patency and survival.

Results: 80 patients (mean age 59 ± 19.9 years) underwent IVC reconstruction (direct repair, 38.8%; patch angioplasty, 48.8%; interposition graft 12.5%). Demographics are shown in Table 1. Most common tumor types were renal cell carcinoma (56.3%), leiomyosarcoma (10%), liposarcoma (8.75%), and germ cell tumors (7.5%). Mean tumor size was 11.1 ± 7.5 cm. Most tumors were high grade (53.8%) followed by moderate grade (17.5%). Most common tumor location was the right kidney (52.5%) followed by retroperitoneum (27.5%) and left kidney (13.8%). Kaplan-Meier primary patency curve is shown (Figure 1). 30-day survival rate was 96.3% (95% Confidence Interval [CI] 92.2 – 100%), 1-year survival rate was 86.5% (95%CI 78.6 - 95.3%). 10 patients (12.5%) developed significant obstruction of the reconstruction, with 5 (50%) due to local recurrence and 4 (40%) within 30 days were attributed to technical issues.

Conclusions: Oncologic IVC reconstruction shows acceptable long-term survival and patency. The main causes for IVC thrombosis following reconstruction are local recurrence and technical failure, therefore attention must be given to confirm absence of stenosis or compression at the end of the repair, and a negative oncologic margin should be sought.

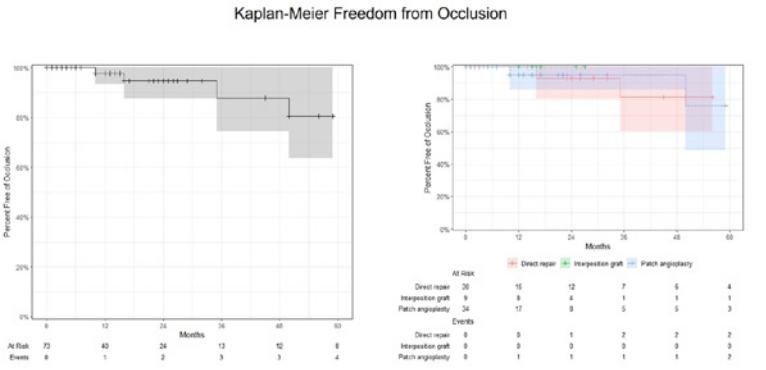

Table 1. Preoperative characteristics

	All N = 80	Patch angioplasty N = 39 (48.8%)	Direct Repair N = 31 (38.8%)	Interposition graft N = 10 (12.5%)
Age, years	59.0 ± 15.9	58 ± 16	61 ± 14	59 ± 16
Male	51 (63.8%)	26 (66.6%)	19 (61.3%)	6 (60%)
White	59 (73.8%)	29 (74.4%)	23 (74.2%)	7 (70%)
BMI	28.3 ± 6.5	27.5 ± 5.8	27.8 ± 5.4	32.6 ± 9.9
Prior DVT	11 (13.8%)	7 (17.9%)	2 (6.5%)	2 (20%)
Prior PE	11 (13.8%)	4 (10.3%)	4 (12.9%)	3 (30%)
Preoperative Aspirin	10 (12.5%)	1 (2.6%)	5 (16.1%)	4 (40%)
Preoperative Anticoagulant	28 (35%)	14 (35.9%)	11 (35.5%)	3 (30%)
Preoperative Chemotherapy	29 (36.3%)	14 (35.9%)	8 (25.8%)	7 (70%)
Preoperative Radiotherapy	2 (2.5%)	1 (2.6%)	1 (3.2%)	0
Preoperative IVC occlusion	23 (28.8%)	14 (35.9%)	7 (22.6%)	2 (20%)
Preoperative [Cr] (mg/dL)	1.14 ± 0.45	1.2 ± 0.47	1.12 ± 0.45	0.96 ± 0.23
Preoperative [Hb] (g/dL)	12. 43 ± 2.4	12.37 ± 2.05	12.3 ± 2.6	12.95 ± 2.73
ASA 1	2 (2.5%)	0 (0%)	2 (6.5%)	0
ASA 2	12 (15%)	5 (12.8%)	6 (19.4%)	1 (10%)
ASA 3	55 (68.8%)	27 (69.2%)	19 (61.3%)	9 (90%)
ASA 4	10 (12.5%)	7 (17.9%)	3 (9.7%)	0

ASA = American Society of Anesthesiologists classification; BMI = Body Mass Index; DVT = Deep Venous Thrombosis; IVC = Inferior Vena Cava; PE = Pulmonary Embolism; [Cr] = Serum Creatinine concentration; [Hb] = Serum Hemoglobin concentration.

Author Disclosures: P J Furtado Neves: Nothing to disclose, **A Simioni:** Nothing to disclose, **S P Kim:** Nothing to disclose, **R Shulick:** Nothing to disclose, **D L Jacobs:** Nothing to disclose, **A Gleisner:** Nothing to disclose, **M Del Chiaro:** Nothing to disclose, **C L Stewart:** Nothing to disclose, **M D McCarter:** Nothing to disclose, **E A Malgor:** Nothing to disclose, **R D Malgor:** Nothing to disclose

14. VEIN COMPLIANCE IS SUPERIOR TO VEIN DIAMETER FOR PREDICTING UNASSISTED AVF MATURATION

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Introduction: A mature AVF is the preferred vascular access due to its durability and lower risk of complications. Various factors have been implicated as predictors for maturation, including vein diameter >3mm and access type. Vein compliance, which refers to the ability of the vein to dilate in response to changes in blood flow and pressure, has been proposed as a potential predictor for maturation, however its role remains poorly studied.

Methods: A single institution retrospective study of AVFs performed under regional anesthesia. Vein compliance was defined as the absolute and relative difference in target vein diameter between the pre-op vein mapping ultrasound performed with tourniquet and a repeat ultrasound after a regional block.

Results: 46 patients were identified who underwent first time access surgery and also had compliance captured in a prospectively maintained database. The pre-op vein map target vein diameter (TVD) was 2.7 mm and the post block TVD was 3.4 mm. The unassisted maturation rate for the entire cohort was 76%. In patients with an absolute change of TVD of < 0.5 mm ($\Delta<0.5$), the unassisted maturation rate was 63% (12/19) even though 95% of the group had TVD >3mm. In those with $\Delta\geq0.5$ mm, the unassisted maturation rate was 85% (23/27), even though the preop vein map TVD was 2.3mm and 75% had a vein map TVD >3mm. For radiocephalic fistulas (n=26), the unassisted maturation rate was 75% for $\Delta<0.5$ vs 94% for $\Delta\geq0.5$, despite a preop vein map TVD >3mm in 92% vs 75%, respectively. The ROC area under the curve for unassisted maturation with $\Delta\geq0.5$ mm was 0.68, superior to TVD>3mm.

Conclusion: Quality in dialysis access surgery requires optimizing the unassisted maturation rate. A physiologic measure that accounts for the dynamic process of maturation may be more informative than anatomic measurements alone. We have shown here that vein compliance may be a better predictor than absolute vein diameter on standard vein mapping ultrasounds.

Author Disclosures: C Woodford: Nothing to disclose**, A Z Oskowitz:** Nothing to disclose**, R Shahverdyan:** Nothing to disclose**, S M Vartanian:** Nothing to disclose

15. CREATING AUTOGENOUS ACCESS IN CHILDREN AND ADOLESCENTS

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University of Oklahoma

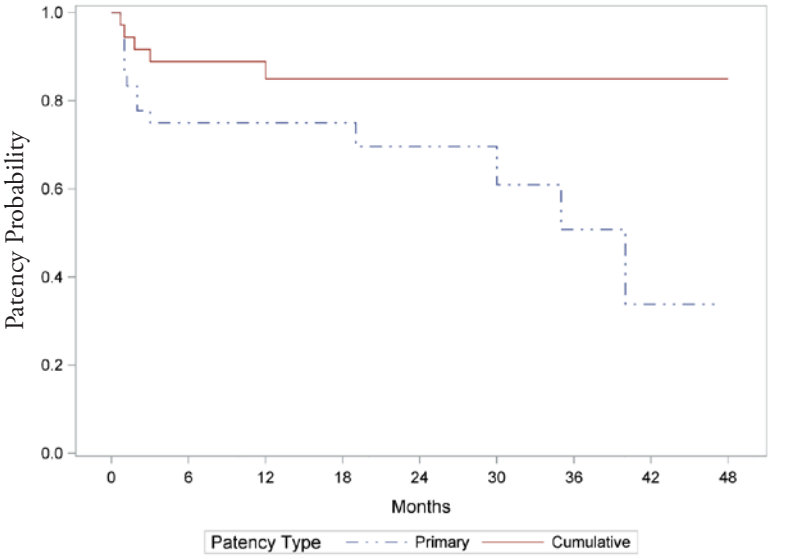
Objectives: Pediatric end stage renal disease (ESRD) is uncommon, comprising roughly 1.3% of patients requiring renal replacement therapy in the United States. Reports of pediatric-ESRD vascular access are limited. This study analyzes a 10-year experience creating arteriovenous fistulas (AVF) in children and adolescents.

Methods: We retrospectively reviewed data and outcomes for consecutive vascular access patients aged ≤19 years during a 10-year period. Each patient had preoperative vascular ultrasound mapping by the operating surgeon in addition to physical examination. A distal AVF at the wrist was the first access choice when feasible, and a proximal radial artery inflow AVF was the next option. Other procedures and techniques were included in the analysis. Primary and cumulative patency were calculated by Kaplan-Meier analysis.

Results: Thirty-seven AVFs were created in 35 patients. No grafts were used. Ages were 6-19 years (mean 15) and 20 were male. Cause of ESRD included glomerular disease (18) and obstruction or reflux (7), among others. Three had previous AVFs and four were obese. The proximal radial artery (PRA) supplied AVF inflow in 26 patients and the brachial artery in only five. Eleven individuals required a transposition. No patients developed hand ischemia although three later required a banding procedure for high flow. Eleven patients had successful transplants and a single patient died unrelated to the vascular access. Five AVFs failed. Of these, 2 had new successful AVFs created, 2 regained renal function, one was transplanted and one declined other procedures. Primary and cumulative patency rates were 75% and 85% at 12 months and 70% and 85% at 24 months, respectively (Figure 1). Median follow-up was 16 months.

Conclusions: Pediatric and adolescent autogenous vascular access was established in 35 patients. PRA inflow AVFs provided safe and functional access when a distal AVF was not feasible. Cumulative AVF patency was 85% at 36 months.

Figure1. Kaplan-Meier plot of primary and cumulative patency of arteriovenous fistula



Patency Type		Months								
		0	6	12	18	24	30	36	42	48
Primary	No. at risk	37	26	19	15	11	8	5	2	---
	Probability of patency	1	0.75	0.75	0.75	0.70	0.61	0.51	0.34	---
	Standard error	0	0.07	0.07	0.07	0.08	0.11	0.13	0.16	---
Cumulative	No. at risk	37	30	23	18	15	12	10	7	5
	Probability of patency	1.00	0.89	0.85	0.85	0.85	0.85	0.85	0.85	0.85
	Standard error	0.00	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06

Author Disclosures: L Phi: Nothing to disclose, **H Jayroe:** Nothing to disclose, **P Nelson:** Nothing to disclose, **K Kempe:** Nothing to disclose, **K Zamor:** Nothing to disclose, **P Iyer:** Nothing to disclose, **W Jennings:** Nothing to disclose

16. MULTI-CENTER EVALUATION OF CLOPIDOGREL RESISTANCE AND ITS ROLE IN PREDICTING STENT THROMBOSIS IN TRANSCAROTID ARTERY REVASCULARIZATION

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Objective: Clopidogrel resistance testing is not routine prior to Transcarotid Artery Revascularization (TCAR) and resistance rates are not well described in this setting, despite frequent use of periprocedural clopidogrel. We compared two resistance testing modalities to determine the relationship between resistance and stent outcomes.

Methods: Consecutive patients undergoing TCAR at two institutions were retrospectively identified. Clopidogrel-resistance testing results and outcomes were described.

Results: 142 patients underwent TCAR from 2018-2022. 119 (84%) were on dual antiplatelet therapy (DAPT) for at least 7 days prior to TCAR. Most (16/23, 70%) patients not on DAPT were on anticoagulation and most (13/23, 57%) received a loading dose of a second antiplatelet the day of surgery. 11 patients (7.8%) experienced stent thrombosis within 30 days. Patients not on DAPT for >7 days prior to surgery were more prone to stent thrombosis (31.6% vs 4.4%, p=.001).

Eighty (56%) patients underwent resistance testing – 25 with thromboelastogram with platelet mapping (TEG-PM), 50 with P2Y12 platelet reactivity assay, and 5 with both. 36 patients (45%) were resistant. In patients with both modalities agreement was poor (Cohen's Kappa -0.05) (Table 1).

Among patients with resistance, 6 (18.8%) had stent thrombosis. Comparatively, only 1 (2.4%) patient without resistance thrombosed (p=.039) (Table 2). P2Y12 assays correctly predicted resistance more accurately than TEG-PM (76% correct vs 43% correct, p=.025) and had 60% sensitivity and 74% specificity for stent thrombosis.

Conclusion: Our multi-institutional cohort confirms a high rate of Clopidogrel resistance in patients undergoing TCAR, with higher acute stent thrombosis rates in patients with resistance. P2Y12 assays more reliably predict resistance than TEG-PM. Patients undergoing TCAR should initiate DAPT at least 7 days prior to surgery and resistance testing should be routine to minimize risk of stent thrombosis.

Table 1: Comparison of platelet mapping methods				
	TEG Value (% ADP inhibition)	**P2Y12 Value (P2y12 reaction units)**	**Plavix Resistance Present?**	**Congruence in testing results?**
Patient 1	25.6	182	Yes	No
Patient 2	35.6	172	Yes	No
Patient 3	50.6	187	Yes	No
Patient 4	74.5	163	No	No
Patient 5	45.3	9	Yes	Yes
Adenosine diphosphate (ADP) inhibition □ 50% confers platelet resistance by thromboelastography (TEG). PRU > 194 confers platelet resistance by P2Y12 assay.				

Table 2: Description of testing among 11 patients with thrombosed stents				
	TEG Value (% ADP inhibition)	**P2Y12 Value (P2y12 reaction units)**	**Plavix Resistance Present?**	**Testing Result Correctly Predicts Thrombosis?**
Stent 1	N/A	N/A	N/A	N/A
Stent 2	N/A	N/A	N/A	N/A
Stent 3	-	213	Yes	Yes
Stent 4	-	253	Yes	Yes
Stent 5	-	413	Yes	Yes
Stent 6	22.4	-	Yes	Yes
Stent 7	74.5	163	No	No
Stent 8	45.3	9	Yes- TEG No- VerifyNow	Yes- TEG No- VerifyNow
Stent 9	N/A	N/A	N/A	N/A
Stent 10	N/A	N/A	N/A	N/A
Stent 11	18.5	-	Yes	Yes
Adenosine diphosphate (ADP) inhibition □ 50% confers platelet resistance by thromboelastography (TEG). PRU > 194 confers platelet resistance by P2Y12 assay.				

Author Disclosures: K DiLosa: Nothing to disclose**, R Wolinsky:** Nothing to disclose**, J Harding:** Nothing to disclose**, A Patibandla:** Nothing to disclose**, G Brittenham:** Nothing to disclose**, S Maximus:** Nothing to disclose**, S Siada:** Nothing to disclose, **M Kwong:** Nothing to disclose

17. OPTIMAL METHOD OF CAROTID REVASCULARIZATION IN PATIENTS WITH RECENT MYOCARDIAL INFARCTION

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Objectives: Recent myocardial infarction (MI) represents a challenge in patients requiring vascular procedures, and there currently is a lack of data on ideal revascularization methodology (carotid enterectomy (CEA), transfemoral carotid artery stenting (TFCAS), transcarotid artery revascularization (TCAR)) for these patients.

Methods: VQI (2016-2022) data was collected for patients in the US and Canada with recent MI (<6 mo.) undergoing CEA, TFCAS, or TCAR. In-hospital outcomes after TFCAS vs CEA and TCAR vs CEA were compared, and logistical regression models were used to remove confounders. Primary outcomes included in-hospital rates of stroke, death, and MI. Secondary outcomes included stroke/death, stroke/death/MI, post-operative hypertension and hypotension, and prolonged length of stay (>2 days).

Results: The final cohort included 1,217 (54.2%) CEA, 445 (19.8%) TFCAS, and 584 (26.0%) TCAR cases. Demographic analysis revealed increased CABG/PCI and anticoagulant use with CEA; higher likelihood of symptomatic status, CHF, COPD, CKD, and urgent operations with TFCAS; and higher protamine and P2Y12-I use with TCAR. With univariate analysis, CEA was associated with lower rates of ipsilateral stroke (P=0.079) and death (P=0.002) (Table I). After confounder adjustments, TFCAS was associated with increased risk of stroke/death (aOR= 2.69 [95% CI: 1.36-5.35] P=0.005) and stroke/death/MI (aOR=1.67, [95% CI: 1.07-2.60], P=0.025) compared to CEA while TCAR had similar outcomes to CEA. Compared to CEA, TFCAS and TCAR were associated with increased risk of post-operative hypotension; however, TCAR was associated with a decreased risk of post-operative hypertension (Table II).

Conclusion: While recent MI has been established as a high-risk criterion for CEA and an approved indication for TFCAS, this study showed that CEA is safer in this population with lower risk of stroke/death and stroke/death/MI compared to TFCAS. Further prospective studies are needed to confirm findings.

Table I: Postoperative outcomes of CEA, TFCAS, TCAR in patients with recent MI

In-hospital	Univariable			
	CEA	TFCAS	TCAR	
	N(%)	N(%)	N(%)	P-value
Stroke	27 (2.22)	15 (3.40)	19 (3.26)	0.277
Ipsilateral Stroke	19 (1.56)	14 (3.17)	16 (2.74)	0.079
Death	14 (1.15)	17 (3.82)	13 (2.23)	0.002
MI	28 (2.30)	8 (1.80)	8 (1.37)	0.398
Stroke/death	40 (3.29)	29 (6.56)	28 (4.79)	0.012
Stroke/death/MI	60 (4.93)	36 (8.14)	34 (5.82)	0.046
Post-op Hypertension	278 (22.84)	50 (11.26)	80 (13.72)	<0.001
Post-op Hypotension	187 (15.37)	112 (25.23)	149 (25.56)	<0.001
Prolonged length of stay	565 (46.43)	233 (52.36)	268 (45.89)	0.068

Table II: Postoperative outcomes of TFCAS vs CEA and TCAR vs CEA in patients with preoperative MI after adjusting for confounding factors (Reference = CEA)

In-hospital	Multivariable*			
	TFCAS vs CEA		TCAR vs CEA	
	OR (95% CI)	P-value	OR (95% CI)	P-value
Stroke	1.30 (0.69-2.47)	0.413	1.42 (0.77-2.62)	0.260
Ipsilateral Stroke	1.49 (0.69-3.23)	0.308	1.90 (0.87-4.11)	0.105
Death	2.42 (1.00-5.89)	0.051	2.21 (0.89-5.46)	0.086
MI	0.84 (0.37-1.88)	0.664	0.57 (0.24-1.34)	0.197
Stroke/death	2.69 (1.36-5.35)	0.005	1.45 (0.84-2.51)	0.185
Stroke/death/MI	1.67 (1.07-2.60)	0.025	1.10 (0.68-1.78)	0.701
Post-op Hypertension	0.66 (0.41-1.04)	0.073	0.55 (0.39-0.75)	<0.001
Post-op Hypotension	1.71 (1.24-2.36)	0.001	1.82 (1.37-2.41)	<0.001
Prolonged length of stay (>2 days)	1.12 (0.81-1.55)	0.481	0.96 (0.72-1.27)	0.761

***** Multivariate analysis adjusted for the following confounders: age, gender, race, ethnicity, obesity, symptomatic status, diabetes, hypertension, CHF, COPD, CKD, ASA class, prior occlusions, CABG/PCI, procedure urgency, smoking, and use of preoperative medications.

Author Disclosures: S Straus: Nothing to disclose, **M Moghaddam:** Nothing to disclose, **S Zarrintan:** Nothing to disclose, **D Willie-Permor:** Nothing to disclose, **M Malas:** Nothing to disclose

18. REPORT FROM A PHASE 2 PROSPECTIVE RANDOMIZED PLACEBO CONTROLLED TRIAL OF AUTOLOGOUS STEM CELLS TO TREAT PATIENTS WITH NO OPTION CRITICAL LIMB ISCHEMIA: THE ACP-CLI TRIAL

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Objective: We report the results from a Phase 2 clinical trial on autologous blood derived angiogenic cell precursors (ACP-01) to treat patients with no revascularization option critical limb ischemia (CLI).

Methods: A randomized, double-blind, placebo-controlled trial was undertaken to assess ACP-01 therapy in patients with no option CLI (ACP-CLI). Patients were randomized 2:1 to receive treatment with ACP-01 or placebo by direct injection into the gastrocnemius muscle and foot of the affected limb. The primary endpoints were time to major amputation or death. Secondary endpoints were change in pain levels and ulcer size. Patients were followed for 1 year.

Results: From 2015 to 2021, 67 patients with no option CLI were allocated to treatment (46/67) or placebo (21/67). There were no complications from treatment. Ulcers were present in 21/46 and 8/21 of treated and placebo patients. The mean ulcer sizes were 1.6 and 1.8 cm2, respectively. At 3 months follow-up, the mean ulcer area was 0.75 mm3 in the treatment group and 4.04 mm3 in the placebo group. Change in visual analogue pain scores between the two groups was similar. Major (all below knee) amputations occurred in 3/46 (6.5%) of the treated group and 2/21 (9.5%) of the placebo group (p=NS). After 1 year follow-up, death unrelated to treatment occurred in 6 patients, 5/46 (10.9%) of the treated group and 1/21 (4.8%) of the placebo group (p=NS). The mean time from administration of treatment or placebo to amputation or death was not different.

Conclusion: In this underpowered study of no option CLI patients. the application of ACP-01 was safe. Trends were seen in reductions in ulcer size and amputations but not pain scores or death. Given the safety of this treatment and reduction in ulcer size and major amputations in patients who received treatment, further properly powered studies are needed.

Author Disclosures: I Bhuiyan: Nothing to disclose**, S HJ Choi:** Nothing to disclose**, J Misskey:** Nothing to disclose**, I Sarel:** Hemostemix; CSO**, F Henderson:** University of Maryland School of Medicine, The Metropolitan Neurosurgery Group; Clinical Professor of Neurosurgery; Chief Medical Officer, Hemostemix; Co-author of proposed manuscript for Critical Limb - Stock interest in Hemostemix**, Y Wang:** Cytel; Statistician**, M Argent-Katwala:** Hemostemix; Clinical Trial Manager**, T Smeenk:** Nothing to disclose**, Y Hsiang:** The University of British Columbia; Member, Scientific Advisory Board

19. CONTRALATERAL CAROTID ARTERY SURVEILLANCE FOLLOWING CAROTID ENDARTERECTOMY: LONG-TERM RESULTS FROM A LARGE INTEGRATED REGIONAL HEALTH SYSTEM

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Objectives: Recent guidelines suggest that some patients may not require repeat surveillance imaging if the first postoperative scan after carotid endarterectomy (CEA) is normal. As such, there is some concern about possible disease progression of the contralateral side going undetected. In this retrospective cohort study, we examined the long-term outcomes of the contralateral carotid artery after CEA within an integrated regional healthcare system.

Methods: The artery of interest was the contralateral artery in patients that underwent CEA for severe (70-99%) carotid artery stenosis from 2008-2012 with follow-up through 2019. Patients with bilateral intervention, severe contralateral stenosis/occlusion, and those who died within 30 days postoperatively were excluded. Primary outcomes were disease progression to severe stenosis or occlusion, and ischemic stroke. A competing risks analysis was used to quantify freedom from the primary outcomes.

Results: There were 1,146 carotid arteries included in the study. Mean follow-up was 6.7 years. At time of first post-CEA scan, the rates of mild and moderate contralateral carotid artery stenosis were 76% (n=869) and 24% (n=277), respectively. 4% of patients with mild, and 19% with moderate stenosis progressed to severe. 37 (3%) patients had a stroke attributed to carotid disease; 73% (n=27) were mild and 27% (n=10) were moderate at study entry (Figure1). 37 (3%) patients underwent intervention; 14 (39%) patients had severe stenosis detected and 7 (19%) patients were symptomatic. The cumulative risk of severe stenosis or contralateral stroke at five years were 5% (95% CI 3.6-6.3%) and 2% (95% CI 1.2-2.9%), respectively.

Conclusions: The risk of severe contralateral carotid artery stenosis and stroke following CEA is low. These results suggest that releasing patients from carotid surveillance following one normal postoperative imaging study does not put the patient at high risk of having disease progression or related strokes.

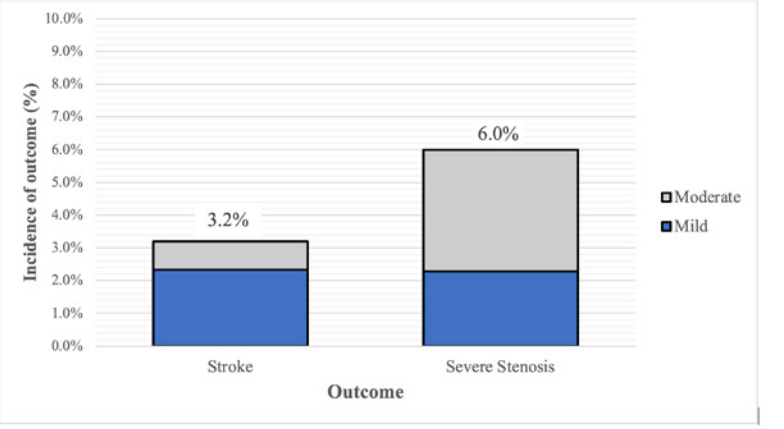

Figure 1. Incidence of primary outcomes affecting the contralateral carotid artery following CEA, shown by the degree of contralateral stenosis detected on first post-CEA scan.

Author Disclosures: C P Flanagan: Nothing to disclose, **L Tucker:** Nothing to disclose, **E M Lancaster:** Nothing to disclose, **K A Rothenberg:** Nothing to disclose, **A L Avins:** Nothing to disclose, **M Nguyen-Huynh:** Nothing to disclose, **R W Chang:** Nothing to disclose

20. IMPROVED COGNITION AND PRESERVED HIPPOCAMPAL FRACTIONAL ANISOTROPY IN SUBJECTS UNDERGOING CAROTID ENDARTERECTOMY

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Objectives: A growing body of data indicates that extracranial carotid artery disease (ECAD) can contribute to cognitive impairment. However, there have been mixed reports regarding the benefit of carotid endarterectomy (CEA) as it relates to preserving cognitive function. In this work, diffusion magnetic resonance imaging (dMRI) and neurocognitive testing are used to provide insight into structural and functional brain changes that occur in subjects with significant carotid artery stenosis, as well as changes that occur in response to CEA.

Methods: The study design was a prospective, non-randomized, controlled study that enrolled patients with asymptomatic carotid stenosis. Thirteen subjects had severe ECAD (>70% stenosis in at least one carotid artery) and were scheduled to undergo surgery. Thirteen had ECAD with <70% stenosis, therefore not requiring surgery. All subjects underwent neurocognitive testing using the Montreal Cognitive Assessment test (MoCA) and high angular resolution, multi-shell diffusion magnetic resonance imaging (dMRI) of the brain at baseline and at four-six months follow-up. Changes in MoCA scores as well as in Fractional Anisotropy (FA) along the hippocampus were compared at baseline and follow-up.

Results: At baseline, FA was significantly lower along the ipsilateral hippocampus in subjects with severe ECAD compared to subjects without severe ECAD. MoCA scores were lower in these individuals, but this did not reach statistical significance. At follow-up, MoCA scores increased significantly in subjects who underwent CEA and remained statistically equal in control subjects that did not have CEA. FA remained unchanged in the CEA group and decreased in the control group.

Conclusions: This study suggests that CEA improves cognition and preserves hippocampal white matter structure compared to control subjects not undergoing CEA.

Author Disclosures: A Bernstein: Nothing to disclose**, G Guzman:** Nothing to disclose**, J C Arias:** Nothing to disclose**, C Howell:** Nothing to disclose**, D Bruck:** Nothing to disclose**, S Berman:** Nothing to disclose**, L Leon:** Nothing to disclose**, J Pacanowski:** Nothing to disclose**, W Zhou:** Nothing to disclose**, K Goshima:** Nothing to disclose**, T Tan:** Nothing to disclose**, M Altbach:** Nothing to disclose**, T Trouard:** Nothing to disclose**, C Weinkauf:** Nothing to disclose

21. RIGHT ATRIAL INFLOW BALLOON OCCLUSION FOR ZONE ZERO THORACIC ENDOVASCULAR REPAIR: SAFETY, EFFICACY AND PREDICTORS OF RESPONSE

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Objectives: Right atrial inflow occlusion with an inferior vena cava (IVC) balloon offers an alternative to traditional rapid ventricular pacing for cardiac output control during deployment of thoracic endografts. Landing in zone 0 demands more precise and significant reductions of aortic impulse. We aim to evaluate the safety and efficacy of IVC balloon occlusion, and determine the predictors of the blood pressure response in patients who underwent branched aortic arch endovascular repair.

Methods: Consecutive patients who underwent endovascular repair of arch aneurysms using custom-made inner side branch aortic endografts landing in zone 0 were studied. IVC balloon occlusion was used routinely for blood pressure reduction with a systolic target of 70mmHg. The intraoperative arterial blood pressure response was matched to procedural fluoroscopy. Primary outcomes were the safety and efficacy of IVC balloon occlusion. Secondary outcomes include the predictors of the blood pressure response during induction, deployment and recovery phases of hypotension.

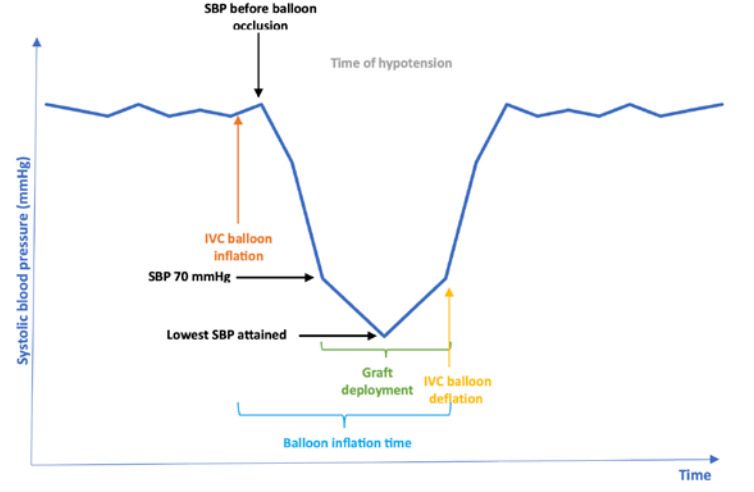
Results: A total of 23 patients were included(91.3% male, mean age 75.7). The mean duration of IVC balloon occlusion was 65 seconds(range 35-109s), Graft deployment took a mean time of 16.2seconds(range 5-30s). A systolic blood pressure (SBP) lower than 70mmHg could be achieved in 95.7% of patients within 60seconds(mean 55.4 mmHg). The mean recovery time was 33.1seconds(range 25-45s). No cardiac complications occurred and all endograft deployments were accurate. On risk factor analysis induction of hypotension was hastened by a lower mean intraoperative SBP($p=0.016$). The lowest SBP attained was related to lower SBP before balloon occlusion($p=0.003$). A shorter balloon occlusion time would lead to faster recovery of hypotension($p=0.021$).

Conclusion: IVC balloon occlusion is a simple and effective method for reduction of aortic impulse for zone 0 thoracic endovascular repair. A lower SBP leads to better response.

Table 1. Intraoperative blood pressure response with IVC balloon occlusion during Zone 0 TEVAR

	Mean	Range	SD
Balloon inflation time (seconds)	65.0	35-109	17.40
Graft deployment time (seconds)	16.2	5-30	8.42
Duration of hypotension (seconds)	98.1	65-154	20.85
SBP before balloon occlusion (mmHg)	97.5	70-128	15.50
Lowest SBP attained during balloon occlusion (mmHg)	55.4	20-60	12.12
Time to target SBP (seconds)	41.4	20-60	12.12
Time for recovery to baseline SBP (seconds)	33.1	25-45	5.83

Figure 1. Systolic blood pressure response upon IVC balloon occlusion and release.



Author Disclosures: G WY Lai: Nothing to disclose**, S WK Cheng:** Nothing to disclose

22. ANGIOTENSIN-CONVERTING ENZYME INHIBITORS AND ANGIOTENSIN RECEPTOR BLOCKERS ARE ASSOCIATED WITH IMPROVED AMPUTATION FREE SURVIVAL IN CHRONIC LIMB-THREATENING ISCHEMIA

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Background: In the Heart Outcomes Prevention Evaluation (HOPE) study, investigators found that ramipril was associated with improved survival as well as decreased MI and stroke rates in patients with peripheral arterial disease. Nonetheless, their effect on chronic limb-threatening ischemia (CLTI)-specific outcomes is unclear. We aim to assess the effect of ACEIs/ARBs on amputation-free survival in CLTI patients undergoing peripheral vascular intervention (PVI) in a Medicare-linked database.

Methods: Patients undergoing PVI in the VQI-VISION database were included. Primary outcome included amputation-free survival. Kaplan Meier survival and multivariable Cox regression analyses were used to assess one-year outcomes.

Results: A total of 34,284 patients were included, and 46.3% of whom were discharged on ACEIs/ARBs. Patients discharged on ACEIs/ARBs were more likely to be smokers, diabetics, and hypertensive. They were also more likely to present with rest pain. The overall survival for patients on ACEIs/ARBs vs those who are not was (79.1% vs 69.4%, P<0.001). Freedom from amputation was 87.8% for patients on ACEIs/ARBs vs 84.2% for those who were not (P<0.001). Amputation-free survival was 70.5% vs 59.5% for ACEIs/ARBs vs no ACEIs/ARBs (P<0.001). After adjusting for confounders, ACEIs/ARBs use was associated with lower one-year mortality (HR: 0.77, 95%CI (0.7-0.8), P<0.001)(Figure 1), major amputation (HR: 0.89, 95%CI (0.8-0.9), P<0.001), and amputation or death (HR: 0.79, 95%CI (0.76-0.8), P<0.001)(Figure 2). There was no difference between the two groups in the risk of target lesion revascularization (HR: 1.03, 95% CI (0.99-1.1), P=0.184).

Conclusions: ACEIs/ARBs were independently associated with lower amputation, improved survival, and amputation-free survival at one year in CLTI patients undergoing PVI. The fact that more than half the patients were not discharged on these medications presents an area for potential quality improvement.

Figure 1. Freedom from all-cause mortality

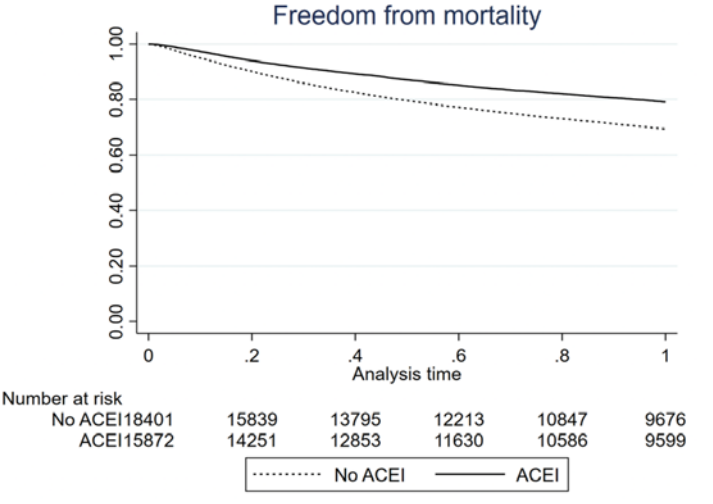
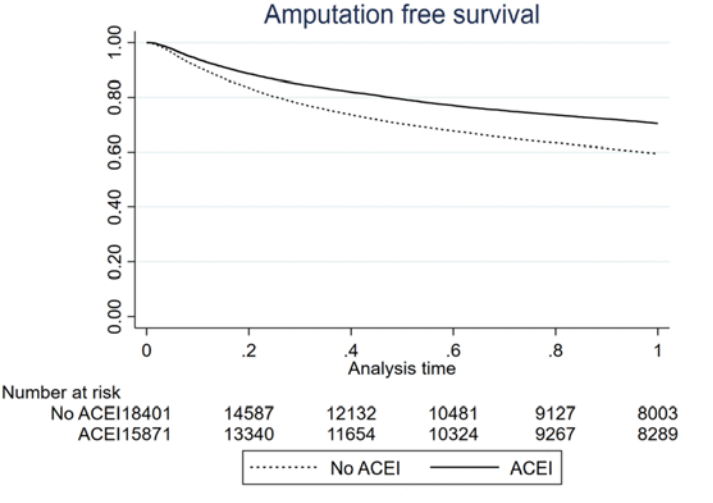


Figure 2. Amputation-free survival



Author Disclosures: N Elsayed: Nothing to disclose**, D Clouse:** Nothing to disclose**, R L Motaganahalli:** Nothing to disclose**, M Malas:** Nothing to disclose

23. IMPLEMENTATION OF PREOPERATIVE FRAILTY SCREENING AND OPTIMIZATION PATHWAY IN VASCULAR SURGERY CLINIC SETTING

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Objectives: Frailty is characterized by reduced physiologic reserve and vulnerability to adverse events in the presence of a stressor (e.g., surgery). We implemented preoperative frailty screening and optimization for vascular surgery patients and assessed its impact on postoperative outcomes.

Methods: As part of an ongoing quality improvement initiative, surgical frailty was assessed prospectively in all patients undergoing inpatient surgery using the Risk Analysis Index (RAI). Baseline data were collected from 5/22-7/22. Frail patients (RAI≥37) were referred to an anesthesia optimization clinic in the intervention phase (8/22-4/23). The primary outcomes were postoperative length of stay (LOS) and 30-day readmission, compared for frail vs non-frail and pre vs post-intervention using t-test and Fisher's exact test.

Results: A total of 174 patients were screened [mean age 72 years, 70% male, mean RAI 29.2]. Of those, 151 (86.8%) underwent surgery with 30 (19.9%) identified as frail. During the overall study period, frail patients had significantly longer LOS (median [IQR] 2.08 [1.05, 4.73] vs 1.24 [0.99, 2.07] days, P=.03) and higher 30-day readmission (27.6% vs 6.1%, P=.003) compared to non-frail patients (Table I). Pre-intervention, frail patients had significantly longer LOS compared to non-frail patients (4.73 vs 1.11 days, P=.01), with reduction post-intervention (1.98 vs 1.28, P=.32). A statistical difference was observed post-intervention in 30-day readmission (22.7% frail vs 4.3% non-frail, P=.01). Finally, comparing pre-post intervention groups, amongst frail patients there was a trend to reduced LOS (4.73 to 1.98 days) and 30-day readmission (42.9% vs 22.7%); however, these did not reach statistical significance.

Conclusions: Successful implementation of a preoperative frailty screening and optimization pathway for patients undergoing elective vascular surgery led to a trend of improvement in postoperative LOS and 30-day readmission for frail patients.

Table I. Postoperative hospital length of stay and 30-day readmission rate for the overall cohort, pre- vs post-intervention, and frail vs non-frail patients.

	Length of Stay (days)				30-Day Readmission			
	Overall study period N=149	Pre- intervention (5/22-7/22) N=28	Post- intervention (8/22-4/23) N=121	P-value **	Overall study period N=144	Pre- intervention (5/22-7/22) N=28	Post- intervention (8/22-4/23) N=116	P-value **
Overall cohort	1.35 [0.99, 2.23]	1.24 [0.99, 3.02]	1.52 [0.99, 2.14]	.89	15 (10.4%)	6 (21.4%)	9 (7.8%)	.08
Frail	N=29 2.08 [1.05, 4.73]	N=7 4.73 [1.85, 8.21]	N=22 1.98 [0.99, 2.82]	.10	N=29 8 (27.6%)	N=7 3 (42.9%)	N=22 5 (22.7%)	.36
Non-frail	N=120 1.24 [0.99, 2.07]	N=21 1.11 [0.99, 1.68]	N=99 1.28 [0.98, 2.10]	.32	N=115 7 (6.1%)	N=21 3 (14.3%)	N=94 4 (4.3%)	.11
P-value*	.03	.01	.32		.003	.14	.01	

Length of stay reported as median [IQR].
Readmission reported as number (%).
*P-values compare column values for frail vs non-frail patients.
**P-values compare row values for pre- vs post-intervention groups.

Author Disclosures: S S Dossabhoy: Nothing to disclose, **S R Manuel:** Nothing to disclose, **F Yawary:** Nothing to disclose, **T Lahiji-Neary:** Nothing to disclose, **N Cheng:** Nothing to disclose, **L Cianfichi:** Nothing to disclose, **A Bagdasarian:** Nothing to disclose, **E L George:** Nothing to disclose, **J G Marwell:** Nothing to disclose, **J T Lee:** Nothing to disclose, **C Schmiesing:** Nothing to disclose, **S Arya:** Nothing to disclose

24. SURVEILLANCE AND RISK FACTORS FOR EARLY RESTENOSIS FOLLOWING TRANSCAROTID ARTERY REVASCULARIZATION

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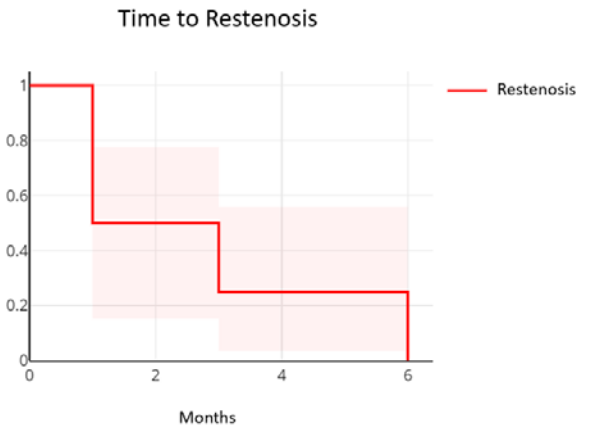
Objectives: Restenosis after TCAR is a known complication. When identified in the early postoperative period, it may be related to technique. We evaluated our TCAR experience to identify potentially modifiable factors impacting restenosis.

Methods: This is a single institution retrospective review of patients undergoing TCAR from 11/2017-7/2022. Restenosis was defined as >50% stenosis on duplex ultrasound (DUS) or computed tomographic angiography (CTA). Continuous variables were compared using Kruskal-Wallis test. Odds ratios were used to determine association.

Results: Of 61 patients, 11 (18%) developed restenosis within the median 12-month follow-up; 63% (7/11) had 50-69% stenosis, 18% (2/11) had 70-89% stenosis, and 18% (2/11) had >90% stenosis. Restenosis was diagnosed using DUS (5/11), CTA (2/11), or both CTA/DUS (4/11); in patients with both, 2/4 had no stenosis per DUS, and 1/4 had no stenosis per CTA. Both patients with >90% stenosis were symptomatic and underwent revascularization. Restenosis occurred within 1 month in 54% and 6 months in 72% of patients (Figure 1). In patients with/without restenosis, comorbidities, degree of preoperative stenosis, medical management, balloon size, stent size, lesion characteristics, and pre-dilatation angioplasty did not differ (Table 1). Patients with restenosis were younger [p=0.02], had prior ipsilateral endarterectomy [OR 6.5, p=0.02], and lower rate of post-dilatation angioplasty [OR 0.11, p=0.04] without increased risk of neurologic events.

Conclusion: Restenosis post-TCAR was associated with younger age and prior endarterectomy. While early restenosis may be mitigated by improved technique, the only technical factor associated with restenosis was less post-dilatation angioplasty. Balancing neurologic risk, may have increased application in appropriate patients. Diagnosing restenosis was also inconsistent between CTA and DUS; current surveillance paradigms may warrant reconsideration.



Preoperative Variable	Total (=61) n˚ (%) or Median (CI)	Patent (= 50) n˚ (%) or Median (CI)	Restenosis (= 11) n˚ (%) or Median (CI)	OR (CI)	P value
Age (median)	75 (67-79)	76 (71-80)	68 (61-71)	n/a	0.02
BMI (kg/m2)	20 (5-27)	27.5 (23-31)	25.1 (22.9-28)	n/a	0.32
Diabete	19 (31.1)	16	3	0.7 (0.1-3.4)	0.75
HTN	53 (86)	45	8	0.29 (0.05-1.4)	0.14
CAD	36 (59)	29	7	1.26 (0.32-4.8)	0.73
Renal Insufficiency (≥CKD2)	43 (70)	33	10	5.1 (0.60-43.60)	0.13
Active Smoker	10 (16.3)	7	3	2.3 (0.48-10.80)	0.29
Symptomatic Stenosis (Stroke, TIA < 6 mo)	36 (59)	30	6	0.80 (0.21-2.97)	0.73
Prior ipsilateral intervention					
None	53 (86.9)	46	7	0.15 (0.03-0.75)	0.02
Endarterectomy	8 (13.1)	4	4	6.5 (1.3-32.4)	0.02
Endovascular intervention	0 (0)	0	0	n/a	
Stenosis by NASCET Criteria					
≥ 70%	47 (77)	39	8	0.75 (017-3.32)	0.70
50-69%	12 (19.8)	9	3	1.7 (0.37-7.73)	0.48
≤50%	2 (3.2)	2	0	0.84 (0.03-18.7)	0.91
DAPT preop (≥ 5 days or more)	32 (52)	26	6	1.10 (0.29-4.1)	0.87
ASA preop	57(93)	47	10	0.63 (0.06-6.78)	0.70
Statin preop	51 (83)	43	8	0.43 (0.09-2.04)	0.29
Anticoagulation preop	19 (31)	16	3	0.79 (0.18-3.41)	75
Location of the stenosis based on US Velocities					
PSV Prox ICA	288 (223-352)	293.5 (234-369)	223 (121-330.5)	2.1	0.08
PSV Mid	106 (71-224)	99 (70-122)	182 (99-322.5)	3.2	0.07
PSV Distal ICA	77 (57-97)	75 (51-94)	96 (78-112.5)	3.63	0.05
Intraoperative Variables					
Pre-dilatation	56 (75)	46	10	0.8 (0.08-8.6)	0.90
Post-dilatation	24 (39.3)	23	1	0.11 (0.01-0.95)	0.04
Single stent deployed	57 (3)	48	9	0.18 (0.02-1.50)	11
Second stent deployed	3 (5)	2	1	2.4 (0.19-29.10)	0.49
Stent					
Enroute	52 (85)	44	8	0.36 (0.07-1.76)	0.20
Other	8 (13)	5	3	3.3 (0.67-17)	0.14
Operative time	111 (95-134)	111 (93-134)	119 (99-137)	n/a	0.56
Postoperative Variables					
Triple therapy (anticoagulation + DAPT)	18 (29.5)	15	3	0.87 (0.2-3.7)	0.85
Duration of DAPT					
No DAPT	7 (11.6)	5	2	2 (0.33-11.9)	0.44
1 month	2 (3.3)	2	0	1.02 (0.045-23.00)	0.98
1-6 months	41 (68.3)	36	5	0.35 (0.09-1.35)	0.12
6-12months	1 (1.6)	1	0	1.4 (0.05-36.7)	0.83
> 1 year	9 (15)	5	4	2.08 (1.10-23.9)	0.03
Post op statin	56 (91.8)	47	9	0.28 (0.04-1.97)	0.20
Postop Stoke	2 (3.3)	1	1	4.9 (0.28-85)	0.27
Postop TIA	6 (9.8)	5	1	0.9 (0.094-8.5)	0.92
Follow up (Median)	345 (103-623)	299 (102-614)	450 (299-749)	n/a	0.23

Author Disclosures: A Simioni: Nothing to disclose**, P Neves:** Nothing to disclose **M Kabeil:** Nothing to disclose**, D Jacobs:** Nothing to disclose**, J Yi:** Nothing to disclose

25. ANESTHETIC MODALITY DOES NOT IMPACT CEPHALIC BASIC ARTERIOVENOUS FISTULA FUNCTION AT 12 MONTHS

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Objectives: Some studies suggest that regional (RA) provides better short-term patency for arteriovenous fistula (AVF) for hemodialysis (HD) access as compared to Local (LA) and General Anesthesia (GA). This study evaluates the impact of anesthetic modality on long term fistula function at 12 months.

Methods: A retrospective review of patients undergoing cephalic vein-based HD access in consecutive cases between 2014 and 2019 was conducted from five safety net hospitals. The primary endpoint was functional patency at 12 months. Subset analysis individually evaluated cephalic based lower forearm and wrist versus upper arm AVFs. Bivariate and multivariate logistic regression models evaluated the relationship between anesthetic modality and fistula function at 12 months.

Results: 902 patients underwent cephalic based AVF creation during the study period and had documented follow up beyond 30 days. Functional patency rates at 12 months for all cephalic-based fistulas, forearm/wrist AVFs, and upper arm AVFs were 78.7%, 73.3%, and 81.3%, respectively. Multivariate regression revealed history of AVF or AVG (OR 0.242, 95% CI 0.085-0.620, p=0.008), Intraoperative systemic anticoagulation administration (OR 2.498, 95% CI 1.284-4.860, p=0.007), and vein diameter (OR 1.851, 95% CI 1.358-2.522, p<0.001) to be independently associated with functional AVFs at 12 months. GA (p=0.155), RA (p=0.955) and LA (p=0.441) were not statistically associated with functional patency at 12 months for all cephalic based fistulas and again when evaluating forearm or wrist versus upper arm AVFs.

Conclusion: There was no association between anesthetic modality and functional patency of cephalic based-AVF at 12 months. These findings support shared decision making between patient, surgeon and anesthesiologist when selecting an anesthetic modality.

Univariate Analysis			
Variables	Patent at 12 months	Not patent at 12 months	p value
Latino	516 (80.4%)	126 (19.6%)	0.028
Diabetes	446 (81.2%)	103 (18.8%)	0.012
Home Anticoagulation	18 (58.1%)	13 (41.9%)	0.004
Diuretic	311 (81.6%)	70 (18.4%)	0.059
History of AVF/AVG	35 (64.8%)	19 (35.2%)	0.01
Intraoperative Systemic Anticoagulation	445 (80.9%)	105 (19.1%)	0.029
Intraoperative Antibiotics	534 (77.6%)	154 (22.4%)	0.074
Intraoperative Protamine	107 (86.3%)	17 (13.7%)	0.025
Intraoperative Anti-Hypertensive	99 (84.6%)	18 (15.4%)	0.093
Artery Size (median, mm)	3.5	3	0.008
Vein Size (median, mm)	3.5	3	<0.001

Multivariate Analysis of 12-month Functional Patency		
Variables in the Equation	Odds Ratio (95% CI)	p-value
History of AVF/AVG	0.242 (0.085 0.689)	0.007
Intraoperative systemic anticoagulation	2.498 (1.284-4.86)	<0.001
Vein Size	1.851 (1.358-2.522)	0.039

Author Disclosures: R Ugarte: Nothing to disclose, **M Valadez:** Nothing to disclose, **C Ugarte:** Nothing to disclose, **C de Virgilio:** Nothing to disclose, **A Moazzez:** Nothing to disclose, **M Archie:** Nothing to disclose

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6. REVISIONS TO PROMOTE MATURATION AND SHORT TERM DEATH AFTER ARTERIOVENOUS FISTULA CREATION

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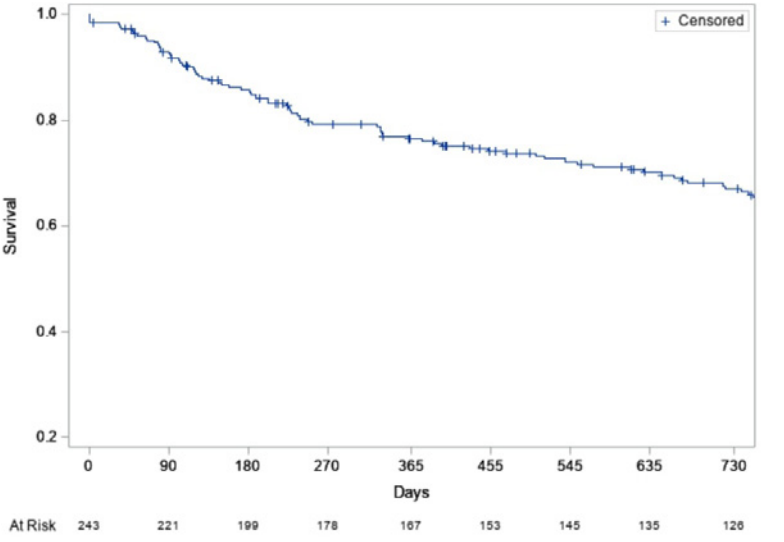
Objectives: Arteriovenous fistula (AVF) for hemodialysis access is traditionally considered superior to grafts due to infection resistance and purported improved patency. However, challenges to AVF maturation and limited patient survival may reduce AVF benefit. The objective of this study is to identify factors associated with risk of AVF requiring revision before maturation and/or death within 2 years of creation.

Methods: We performed a retrospective review of 243 AVF created between June 2017 - Nov 2020 at a single institution. Maturation was defined as the date the surgeon deemed the AVF ready or the patient successfully used the AVF for dialysis. The modified Risk Analysis Index was used to calculate frailty. The primary outcome was a composite of endovascular/surgical revision to promote maturation and/or death within 2 years of AVF creation (REVDEAD2).

Results: Survival at 2 years post-AVF was 67% (Fig) and 54 (22%) underwent AVF revision with 31 (58%) of those who went on to mature their AVF. Eight patients underwent AVF revision and died within 2 years. Of the 243 AVF, 89 (36%) met the primary outcome of REVDEAD2 vs 154 (63%) who did not. There was no difference between the groups in age, sex, race, Hispanic ethnicity, obesity, CAD, CHF, DM, dialysis status, HTN, PAD or dysrhythmia. There was no difference between the groups in forearm vs upper arm AVF or vein diameter. More patients in REVDEAD2 were frail or very frail (43% vs 30%). Of the AVF that matured, maturation required longer time in REVDEAD2 (111 vs 79 days, P=0.003). Adjusted for vein diameter and forearm vs upper arm, frailty increased the odds of REVDEAD2 by 2.0 (95% CI 1.2, 3.6).

Conclusion: Frail patients who underwent AVF were significantly more likely to need revision procedures to promote AVF maturation and/or die within 2 years of AVF creation. Patients who are frail may not receive all the benefits of fistula over graft and may be appropriate candidates for preferentially creating AV grafts.



Author Disclosures: K M Wang: Nothing to disclose**, H Gelabert:** Nothing to disclose**, J C Jimenez:** Nothing to disclose**, D Rigberg:** Nothing to disclose**, K Woo:** Nothing to disclose

27. SLOWED ABDOMINAL AORTIC ANEURYSM GROWTH IN PATIENTS WITH CONCURRENT MALIGNANCY

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Objectives: Limited evidence suggests an association between malignancy and slowed abdominal aortic aneurysm (AAA) growth, however little is understood about the underlying mechanisms. We aim to describe the relationship between malignancy type, treatment, and AAA growth rates.

Methods: All patients without prior aortic repair who were followed in a prospective aneurysm surveillance registry in a large integrated health system from 2007-2020 were identified. Natural language processing was used to determine maximum abdominal aortic diameter from all relevant imaging reports. A time-varying multivariable (MV) model was developed to evaluate associations between disease/treatment characteristics and AAA growth.

Results: There were 12,456 patients with 70,790 imaging studies. Patients were 19% female, 80% white, with a mean age of 73 years (SD 9). 3,743 (30%) patients had a diagnosis of cancer; most commonly genitourinary, thoracic, and lower gastrointestinal (GI) (Table 1). Of patients with cancer, 31% underwent chemotherapy, 15% hormone therapy, 4% immunotherapy, and 16% radiation therapy (RT) (Table 2). On initial analysis, any cancer diagnosis was associated with a decreased AAA growth rate by 0.5% per 10 years (95% CI -0.9, -0.2), despite equal contribution of observation time and similar size distributions of patients with/without cancer. A cancer-specific MV model showed RT was associated with a decrease in AAA growth rate by 1.5% per 10 years (95% CI -2.4, -0.6); there was no significant association with other medical therapy. Patients with thoracic and upper GI cancer had an increase in AAA growth rate by 1.2% (95% CI 0.01, 2.4) and 2.1% (95% CI 0.6, 3.5) per 10 years, respectively.

Conclusion: Previously described reduction in AAA growth rates appears to be driven by radiation therapy, rather than malignancy itself. This provides important insight into the mechanism of growth and future areas of investigation for novel AAA prevention/treatment strategies.

Table 1: Distribution of Cancer Type and Association with Aneurysm Growth Rates

	No. of Patients[a] (%)	Growth Estimate[b] (95% CI)
Head/Neck	225 (6.0%)	1.4% (-0.6, 3.4)
Melanoma	196 (5.2%)	-1.1% (-3.1, 0.8)
Thoracic	628 (16.8%)	1.2% (0.01, 2.4)
Genitourinary	1,617 (43.2%)	0.3% (-0.9, 1.5)
Gynecologic	73 (2.0%)	2.4% (-0.9, 5.7)
Upper Gastrointestinal	267 (7.1%)	2.1% (0.6, 3.5)
Lower Gastrointestinal	470 (12.6%)	-0.04% (-1.5, 1.4)
Breast	197 (5.3%)	1.8% (-0.6, 4.1)
Leukemia/Lymphoma	357 (9.5%)	1.4% (-0.3, 3.0)
Other	288 (7.7%)	1.3% (-0.4, 3.0)

[a] Total N=3,743 patients, some patients with more than one type of cancer

[b] Per cent change in growth rate per 10 years

Table 2: Distribution of Cancer Treatment/Stage and Association with Aneurysm Growth Rates

	No. of Patients[a] (%)	Growth Estimate[b] (95% CI)
Cancer Treatment		
Chemotherapy	1,144 (30.6%)	0.3% (-0.5, 1.2)
Hormone Treatments	541 (14.5%)	-0.7% (-1.9, 0.6)
Immunotherapies (BRM)	130 (3.5%)	0.8% (-0.8, 2.5)
Radiation	588 (15.7%)	-1.5% (-2.4, -0.6)
Cancer Stage		
Not applicable/Not staged	324 (8.7%)	-0.1% (-2.2, 2.0)
Localized	3,055 (81.6%)	-1.0% (-2.1, 0.01)
Regional	997 (26.6%)	-1.5% (-2.9, -0.2)
Distant	1,145 (30.6%)	-1.1% (-2.5, 0.3)

[a] Total N=3,743 patients, some patients with more than one type of treatment/stage

[b] Per cent change in growth rate per 10 years

Author Disclosures: E M Lancaster: Nothing to disclose**, M M Hull:** Nothing to disclose**, C Flanagan:** Nothing to disclose**, S Okuhn:** Softek Illuminate Inc; Clinical Board Advisor - stockholder**, A L Avins:** Nothing to disclose**, J L Adams PhD:** Nothing to disclose**, R Liu:** Nothing to disclose**, R W Chang:** Nothing to disclose

28. ASSESSMENT OF ULTRASOUND CRITERIA FOR HIGH-GRADE RENAL ARTERY STENOSIS IN TRANSPLANT KIDNEYS

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Objective: Renal arterial duplex ultrasound is commonly utilized to identify renal artery stenosis (RAS). In kidney transplantation, the renal artery is frequently implanted onto the external iliac artery for inflow. Despite increasing demand for kidney transplantation, there is currently no widely-accepted duplex criteria for transplant RAS. The aim of this study is to establish a duplex criteria for significant stenosis in transplanted renal arteries.

Methods: A retrospective review was performed on kidney transplant patients evaluated for RAS between January 2019 and March 2023. Patients who met the traditional duplex criteria for RAS underwent renal artery angiogram (RAA), and those with >70% angiographic stenosis received adjunctive intervention. Ultrasound findings of peak systolic velocity (PSV) of the renal artery and PSV ratio between renal-to-iliac arteries (RIR) were correlated with angiogram through descriptive analysis as well as sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) calculations.

Results: Twenty-one transplant patients met the traditional criteria for RAS and underwent RAA during the period of review. Among them, 14 had angiographic confirmation of >70% stenosis requiring adjunctive therapy while the remaining 7 were diagnostic-only. Mean PSV and RIR for interventional RAAs were 404.1 cm/s and 3.2, respectively, as compared to diagnostic-only RAAs with mean PSV of 267.4 cm/s ($p<0.012$) and RIR of 1.5 ($p<0.016$). For angiographic RAS >70%, PSV >321 (Figure 1) correlated to 78.6% sensitivity, 100% specificity, 100% PPV, and 70% NPV ($p<0.001$); RIR >1.6 (Figure 2) correlated to 85.7% sensitivity, 85.7% specificity, 92.3% PPV, and 75% NPV ($p<0.001$).

Conclusions: e present a new duplex criteria of PSV >321 cm/s or RIR >1.6 for significant RAS in transplanted kidneys with iliac inflow. The study highlights an opportunity for a larger, multicenter analysis to define RAS stenosis in kidney transplant.

Figure 1: PSV ROC Curve

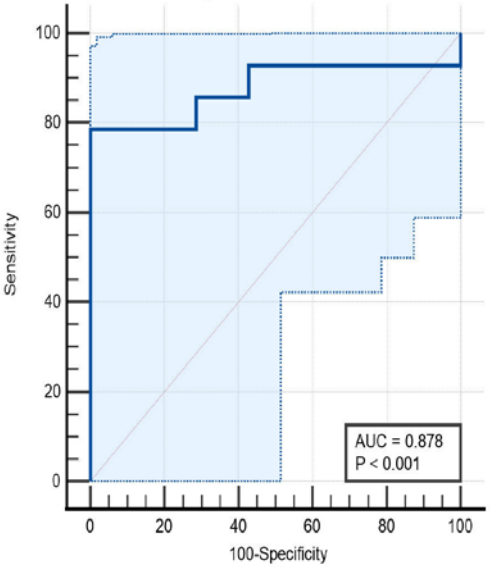
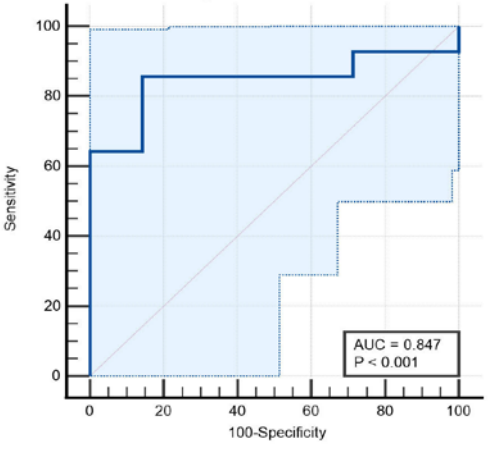


Figure 2: RIR ROC Curve



Author Disclosures: M D'Andrea: Nothing to disclose, **D Nguyen:** Nothing to disclose, **R D Contreras:** Nothing to disclose, **M Francis:** Nothing to disclose, **D Joule:** Nothing to disclose, **J Kulwin:** Nothing to disclose, **K Goshima:** Nothing to disclose, **W Zhou:** Nothing to disclose

29. CONTEMPORARY OUTCOMES OF THORACIC ENDOVASCULAR AORTIC REPAIR IN PATIENTS WITH SYNDROMIC GENETIC AORTOPATHY: A MULTI-CENTRE NATIONAL STUDY

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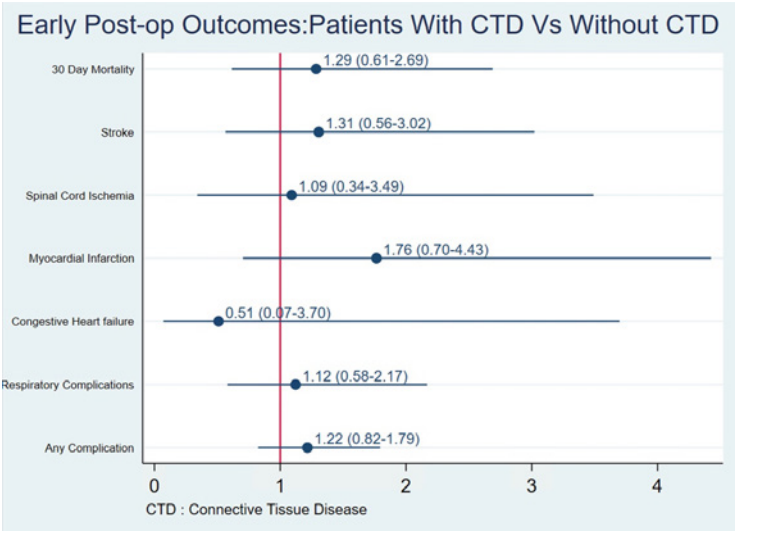
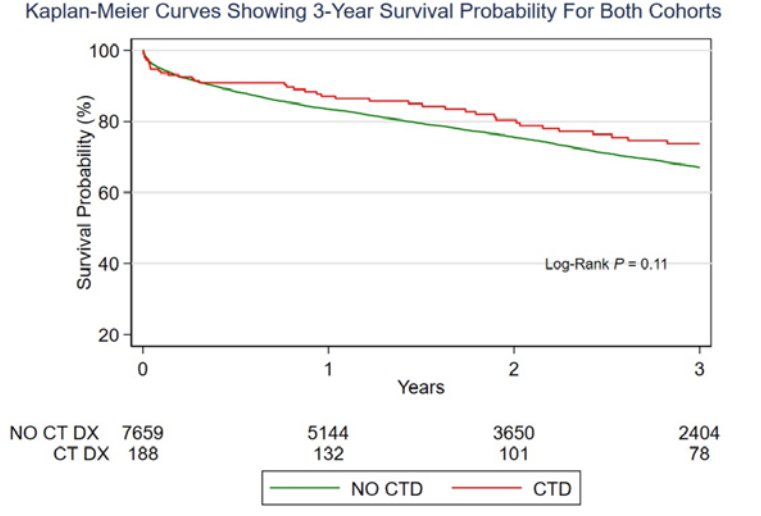
Introduction: TEVAR has become the standard treatment for thoracic aortic aneurysms and dissection. Patients with Ehlers-Danlos type IV and Marfan syndrome presenting with thoracic aortic aneurysms (TAA) and dissection are significantly challenging for the treating surgeons due to the complexity of their underlying pathology.

Methods: We queried the VQI-Medicare linked data, stratifying patients undergoing TEVAR by history of CTD. Multivariable logistic regression was used to determine post-op outcomes. Kaplan-Meier curves were plotted to analyze long-term survival trends, with the log-rank test used to compare outcomes between groups within the specified time periods. Cox proportional models were used to determine adjusted long-term outcomes.

Results: Patients with CTD(N=188), compared to those without(N=7,688), were younger (70.7±10.9 vs 74.2±10.9 years, p<0.01), but had similar distributions across all other characteristics and comorbidities, such as sex (male 56.9% vs 61.3%, p=0.22), and hypertension (91.4% vs 90%, p=0.65). After adjusting for potential confounders, patients with CTD compared with those without had similar odds of 30-day mortality, stroke, spinal cord ischemia, MI, heart failure and respiratory complications. There were no differences in mortality and re-intervention within the first year between both groups. Three year survival was not significantly different between both groups (73.7% vs 63.1%, log-rank=0.11).In the adjusted cox model, no differences in 3-year outcomes were found: mortality (aHR 0.76, 95% CI 0.51-1.12, p=0.16); 3-year re-intervention (aHR 1.09, 95% CI 0.78-1.53, p=0.61) and 3-year rupture (aHR 1.09, 0.45-2.65, p=0.85).

Conclusion: Despite their complex anatomical challenges, patients with connective tissue disease undergoing TEVAR have similar postoperative and long-term outcomes compared to patients without. Further studies are needed to confirm our findings to support the use of TEVAR in patients with CTD.





Author Disclosures: D Willie-Permor: Nothing to disclose**, S Straus:** Nothing to disclose**, S Rahgozar:** Nothing to disclose**, H Wellington:** Nothing to disclose**, S Shalhub:** Nothing to disclose**, M Malas:** Nothing to disclose

30. FACTORS ASSOCIATED WITH ABLATION RELATED THROMBUS EXTENSION (ARTE) FOLLOWING GSV CLOSURE WITH ENDOVENOUS MICROFOAM ABLATION (MFA)

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Objectives: Endovenous microfoam is FDA approved for saphenous vein ablation, yet there is little published data on the risk of ARTE in routine and high-risk patients. Recent SVS/AVF/AVLS guidelines recommend against routine post-procedure duplex ultrasound (DU) following thermal ablation of the GSV, but there are no guidelines for MFA because ARTE has not been adequately characterized. Our aim is to identify predictive factors and outcomes associated with ARTE following MFA.

Methods: A retrospective review of a prospectively maintained database was conducted of patients who underwent MFA treatment of incompetent proximal GSV's. Demographic data, CEAP class, venous clinical severity score (VCSS), operative details, post-procedure (2-4 days), DU findings and adverse events were recorded. Multivariate and logistic regression analysis were used to examine risk factors for ARTE.

Results: Between June 2018 and February 2023, 287 above knee GSV's were treated with either MFA (n=127) or RFA (n=150). Demographics of both groups were statistically similar. Ten patients (3.5%) demonstrated ARTE on routine postoperative duplex at 48-72 hours (MFA: n=8 (6.3%), RFA: n=2 (1.3%); p=0.045). A GSV diameter larger than 10.2 mm was particularly associated with ARTE (p=0.007). All patients who developed ARTE were treated with oral anticoagulation until resolution at a mean of 28.7 days. Body mass index, VCSS, microfoam volume, operative time, and prior DVT were not predictive of ARTE.

Conclusions: ARTE following GSV closure occurred more frequently following MFA than RFA and particularly in veins greater than 10.2 mm. Until larger studies with all high-risk subgroups have been studied following MFA, DU should be performed routinely post-procedure and ARTE patients anticoagulated until the thrombus resolves. Current SVS guidelines for DU post-thermal ablation should not be applied to patients undergoing saphenous MFA ablation.

Author Disclosures: A L Chin: Nothing to disclose, **S D Talutis:** Nothing to disclose, **P F Lawrence:** Nothing to disclose, **K Woo:** Nothing to disclose, **J Rollo:** Nothing to disclose, **J C Jimenez:** Boston Scientific - Speaker and Consultant - Honoraria

31. TRAUMATIC AORTIC DISRUPTION INDEX (TADI) PREDICTS MORTALITY AND URGENCY OF STENT GRAFTING IN BLUNT THORACIC AORTIC PSEUDOANEURYSMS

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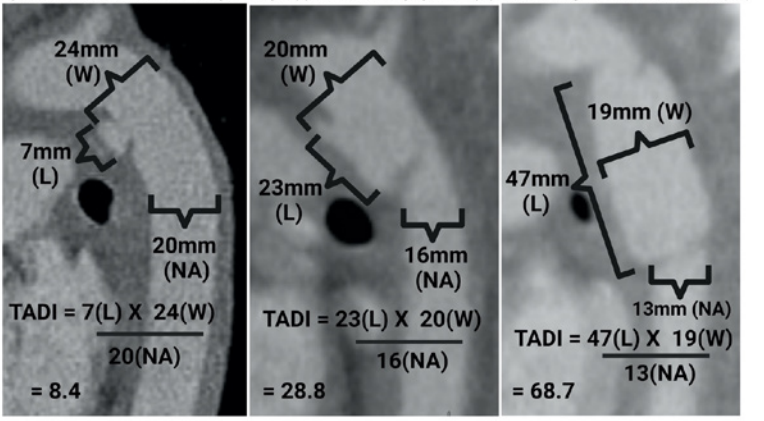
Objectives: Delayed stent grafting of blunt thoracic aortic (grade 3) pseudoaneurysms (BTAP) is a standard practice, allowing focus on more acute life-threatening injuries. Which severe BTAP require urgent intervention is currently unclear. We hypothesize that a Traumatic Aortic Disruption Index (TADI) based on sagittal CT-imaging would predict urgency of stent grafting in polytrauma patients.

Methods: All BTAP at a level-1 trauma center over 12-years were identified. TADI score was calculated utilizing pseudoaneurysm length(L), maximum injury width(W), and normal adjacent aortic diameter(NA) on a CT-image (Figure1). Patient presentation, timing of stent grafting, and outcomes were then evaluated.

Results: Forty-two patients were diagnosed with BTAP. Mean age was 37.6 years, with median ISS of 29. Overall mortality was 11.9% (aorta-related n=3, 60%; traumatic brain injury(TBI) n=2,40%). TADI scores ranged from 3.6 to 158.6. Compared to patients with TADI<28(n=21), patients with TADI>28(n=21) had similar median ISS scores (34 vs 29,p=0.16) and rates of both TBI (33.3% vs 42.0%,p=0.53) and non-TEVAR hemorrhage control procedures (44.4% vs 33.3%,p=0.3). However, TADI>28 patients had lower presentation mean systolic blood pressure (98.5mmHg vs 121.9mmHg,p=.003) and higher overall mortality (23.8% vs 0%,p=.048). TADI>28 patients received stent grafting at significantly shorter time intervals (median 4hrs vs 14hrs,p=.001). In subgroup analysis of TBI patients(n=16), overall median time from injury to stent grafting was 5 hours. TADI>28 TBI patients received stent grafting at significantly shorter time intervals than TADI<28 TBI patients (median 3hrs vs 10hrs,p=.026).

Conclusions: This simple-to-calculate score predicted mortality and urgency of stent grafting in polytrauma patients with similar ISS and rates of traumatic brain injury. TADI should be validated in a larger prospective study as an injury prioritization tool in trauma patients with BTAPs.

Figure 1: TADI Score: Pseudoaneurysm length (L) X Maximum Injury Width (W) / Normal Adjacent Aortic Diameter (NA)



Author Disclosures: S Guliani: Nothing to disclose**, E Simmons:** Nothing to disclose**, B Maqbool:** Nothing to disclose**, R Miskimins:** Nothing to disclose**, J Marek:** Nothing to disclose**, R Clark:** Nothing to disclose**, M Rana:** Nothing to disclose

32. GENDER DIFFERENCES IN AUTONOMY AND PERFORMANCE ASSESSMENTS IN A NATIONAL COHORT OF VASCULAR SURGERY TRAINEES

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Objectives: Gender disparities in surgical training and assessment are described in the general surgery literature. Assessment disparities have not been explored in vascular surgery. We sought to investigate gender disparities in operative assessment in a national cohort of vascular surgery integrated residents (VIR) and fellows (VSF).

Methods: Operative performance and autonomy ratings from the Society for Improving Medical Professional Learning (SIMPL) application database were collected for all vascular surgery participating institutions from 2018-23. Logistic generalized linear mixed models were conducted to examine the association of faculty and trainee gender on faculty and self-assessment of autonomy and performance. Data was adjusted for post-graduate year and case complexity, and participant, programmatic, and procedural effects were explored.

Results: 106 trainees (n=64 VIR, n=42 VSF; 61.3% men) and 99 faculty (73.7% men) from 17 institutions (n=12 VIR/13 VSF programs) contributed 5,037 total assessments (45.2% faculty, 54.8% trainee) across 237 unique procedures. Faculty and trainee gender were not associated with faculty ratings of performance (β=0.08,P=0.14 faculty;β=-0.51,P=1.32 trainee) or autonomy(β=-0.08,P=0.19 faculty;β=-0.21,P=0.69 trainee) of trainees. All trainees self-assessed at lower performance and autonomy ratings as compared to faculty assessments. However, women trainees rated themselves significantly lower than men for both autonomy (β=0.46,P<0.001,Fig 1) and performance(β=0.78,P<0.001,Fig 2).

Conclusions: Although gender was not associated with differences in faculty assessment of performance or autonomy amongst vascular surgery trainees, women trainees perceive themselves as performing with lower competency and less autonomy than their male colleagues. Exploration of gender-biases and targeted interventions to align trainee self-perception and actual operative performance and autonomy may be warranted to optimize surgical skill acquisition.

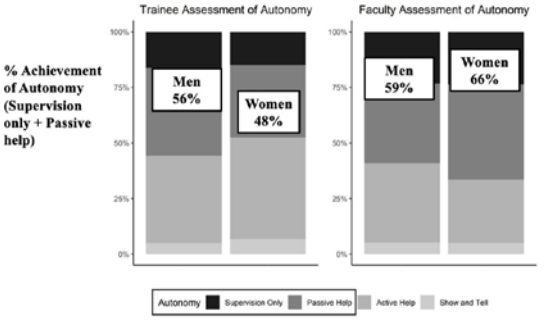

Figure 1. Trainee assessment of autonomy by trainee gender (left) and faculty assessment of autonomy by trainee gender (right)

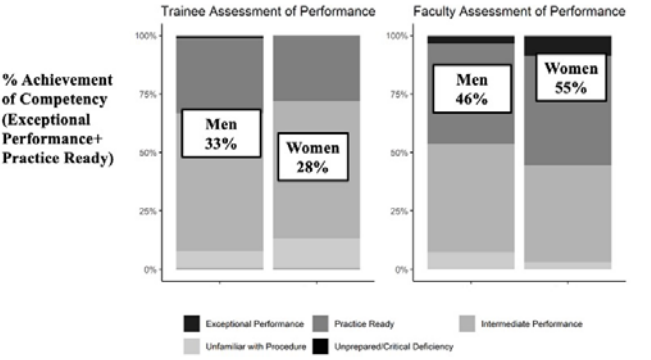

Figure 2. Trainee assessment of performance by trainee gender (left) and faculty assessment of performance by trainee gender (right)

Author Disclosures: M L Weaver: W. L Gore and Associates – Education Consultant – Consultation Fee, **M L Cox:** Nothing to disclose, **T M Carter:** Nothing to disclose, **G K Steinl:** Nothing to disclose, **C E Johnson:** Nothing to disclose, **J A Cardella:** Nothing to disclose, **B K Smith:** Nothing to disclose

33. LIPOPHILIC STATINS: A NOVEL RISK FACTOR FOR PARAPLEGIA AFTER BRANCHED ENDOVASCULAR AORTIC ANEURYSM REPAIR

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Objectives: Spinal cord ischemia (SCI) is a feared complication after branched endovascular repair (BEVAR) to treat thoracoabdominal (TAAA) and paravisceral aortic aneurysms (PVAA). Statins have both neuroprotective and neurodegenerative effects on brain function and cognition, which appear to depend on lipophilicity. Lipophilic statins readily cross the blood-brain barrier and may influence the severity of cognitive dysfunction; however the effect on spinal cord function is unknown. We investigated the association between lipophilic statins and SCI after BEVAR.

Methods: From 2012-2022, 101 patients underwent elective BEVAR for TAAA and PVAA under a standard spinal cord protection protocol. Data on demographics, procedural details, and outcomes were collected prospectively. Simvastatin, lovastatin, and atorvastatin were classified as lipophilic while pravastatin and rosuvastatin were considered hydrophilic. The primary clinical endpoint was postoperative lower extremity weakness (LEW).

Results: The mean age was 73 years, and 76% were male, with hypertension (97%), hyperlipidemia (81%), diabetes (18%) and smoking history (79%) (Table I). 68% were taking a lipophilic statin, 11% hydrophilic, and 21% no statin. Permanent LEW (p-LEW) occurred in 9 (8.9%) patients; all (100%) were taking a lipophilic statin preoperatively compared to 65% without p-LEW (p=0.05). There were no significant differences in demographic characteristics, aneurysm extent, or procedural details between those with and without p-LEW (Table I). Temporary (t-LEW) occurred in 12 (12%) patients and was not associated with lipophilic statin use or any other analyzed characteristics (Table II).

Conclusions: Lipophilic statins are significantly associated with p-LEW but not t-LEW after BEVAR for TAAA and PVAA. Further studies are necessary to understand the mechanism of action of statins on SCI, but these findings suggest a potential modifiable risk factor for reducing risk of p-LEW.

	Total Cohort (n=101)	Univariate Correlations with p-LEW After BEVAR		
		p-LEW (n=9; 8.9%)	No p-LEW (n=92; 91%)	p-value
Age (years)	72.9 ± 8.3	72.4 ± 7.5	72.9 ± 8.4	0.86
Male	77 (76%)	9 (100%)	68 (74%)	0.11
Hyperlipidemia	82 (81%)	9 (100%)	73 (79%)	0.20
Diabetes mellitus	18 (18%)	2 (22%)	16 (17%)	0.66
Lipophilic Statin (vs. hydrophilic or no statin)	69 (68%)	9 (100%)	60 (65%)	**0.**05
Aneurysm Extent Type 4/PVAA vs. other	52 (51%)	4 (44%)	48 (52%)	0.74
Fluoroscopy Time (minutes)	118 ± 42	148 ± 54	115 ± 40	0.06
Contrast Volume (mL)	119 ± 49	116 ± 41	120 ± 50	0.96

	Total Cohort (n=92)	Univariate Correlations with t-LEW After b-EVAR		
		t-LEW (n=12; 12%)	No LEW (n=80; 88%)	p-value
Age (years)	72.9 ± 8.4	77.3 ± 6.5	72.3 ± 8.5	**0.**02
Male	68 (74%)	9 (75%)	59 (74%)	1
Hyperlipidemia	82 (81%)	10 (83%)	63 (79%)	1
Diabetes mellitus	16 (17%)	3 (25%)	13 (16%)	0.43
Lipophilic Statin (vs. hydrophilic or no statin)	60 (65%)	8 (67%)	52 (65%)	1
Aneurysm Extent Type 4/PVAA vs. other	52 (51%)	4 (33%)	44 (55%)	0.22
Fluoroscopy Time (minutes)	115 ± 40	128 ± 39	113 ± 40	0.19
Contrast Volume (mL)	120 ± 50	139 ± 49	117 ± 50	**0.**11

Author Disclosures: I H Liu: Nothing to disclose, **E Lancaster:** Nothing to disclose, **L M Reilly:** Nothing to disclose, **W J Gasper:** Nothing to disclose, **J S Hiramoto:** Nothing to disclose

34. LEFT VERTEBRAL ARTERY REVASCULARIZATION IN DISTAL AORTIC ARCH SURGERY: COMPARATIVE STUDY OF PATIENTS WITH AND WITHOUT ABERRANT LEFT VERTEBRAL ANATOMY

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Objective: The aim of this study was to compare the outcomes of direct vertebral artery revascularization with indirect subclavian artery revascularization for treating aortic arch pathology, and to identify predictors of mortality.

Methods: A retrospective cohort study was conducted at a single tertiary hospital, including patients who underwent vertebral artery revascularization between 2005-2022. The outcomes of interest were a composite outcome (death, stroke, nerve injury, thrombosis) and mortality. Univariate logistic regression models were fitted to quantify differences between direct and indirect revascularization cohorts. Cox-regression was used to identify mortality predictors.

Results: Out of 143 patients who underwent vertebral artery revascularization, 21 (14.7%) underwent direct vertebral revascularization. The median length of stay was 10 days (IQR, 6-20 days), and demographics were similar between cohorts. The incidence of composite outcome, bypass thrombosis and hoarseness were significantly higher in the direct group (42.9% vs. 18.0%, p=0.019; 33.3% vs. 0.8%, p<0.0001; 57.1% vs. 18.0%, p<0.001, respectively). The direct group was ~3x more likely to experience the composite outcome (odds ratio [OR], 3.41; 95% CI,1.28,9.08); similarly, this group was ~6x more likely to have hoarseness (OR, 5.88; 95% CI, 2.21, 15.62). There was no significant difference in mortality rates at 30 days, 1-, 3-, 5- and 10-years of follow-up. Age, length of hospital stay and congestive heart failure were identified as predictors of higher mortality. After adjusting for these covariates, the group was not an independent predictor of mortality.

Conclusions : Direct revascularization was associated with higher rates of bypass thrombosis, composite outcome and hoarseness. Patients with aberrant aortic arch anatomy are at higher risks of these complications. However, mortality rates were not significantly different between the groups after adjusting for other factors.

Table 1: Cohort (direct versus indirect vertebral artery revascularization) differences for all outcomes
[1]All testing based on Fisher's exact test unless otherwise noted; [2]Chi-square test

Outcome	Direct n (%)	Indirect n (%)	p-value[1]
Composite (Death, Stroke, Nerve injury, thrombosis)	9 (42.9)	22 (18.0)	0.019
Bypass thrombosis	7 (33.3)	1 (0.8)	<0.0001
Mortality	6 (28.6)	48 (39.3)	0.48
Posterior Circulation Stroke	1 (4.8)	6 (4.9)	0.99
Stroke (any)	2 (9.5)	12 (9.8)	0.99
Hoarseness	12 (57.1)	22 (18.0)	<0.001[2]
Phrenic nerve injury	0	3 (2.5)	0.99
Dysphagia	4 (19.1)	11 (9.1)	0.24
Anterior circulation stroke	1 (4.8)	9 (7.4)	0.99
Paraplegia	1 (4.8)	0	0.15
Paraparesis	1 (4.8)	5 (4.1)	0.99
Readmission	1 (4.8)	17 (13.9)	0.47
Reoperation	4 (19.1)	25 (20.5)	0.99

Table 2: Unadjusted and adjusted hazard ratios (HR) and 95% confidence intervals (95% Cis) of patients' characteristics for all cause mortality assessed for all patients

Characteristic	Unadjusted HR (95%CI)	p-value	Adjusted HR (95% CI)	p-value
Procedure: Direct vs Indirect	0.76 (0.32, 1.77)	0.52	0.58 (0.24, 1.41)	0.23
Age (years)	1.06 (1.03, 1.08)	<0.0001	1.06 (1.03, 1.09)	<0.0001
Length of hospital stay (days)	1.01 (1.01, 1.02)	0.0003	1.02 (1.01, 1.02)	<0.0001
Congestive heart failure (yes vs no)	3.30 (1.48, 7.35)	0.0035	3.60 (1.55, 8.35)	0.0028
Dysphagia (yes vs no)	2.21 (1.07, 4.56)	0.031	-	-

Author Disclosures: E Shergill: Nothing to disclose**, F R Udwadia:** Nothing to disclose**, M Grubisic:** Nothing to disclose**, K Salata:** Nothing to disclose**, J Misskey:** Nothing to disclose**, J Faulds:** Nothing to disclose

35. LOW THROMBUS BURDEN IS ASSOCIATED WITH AN INCREASED RATE OF ENDOLEAK FOLLOWING REPAIR OF JUXTARENAL ANEURYSM USING PHYSICIAN MODIFIED ENDOGRAFTS

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Objective: High aortic thrombus burden is associated with adverse outcomes following endovascular repair of aortic aneurysm. However, its effect on outcomes following physician modified endograft (PMEG) is unknown. This study aims to assess the impact of thrombus burden on outcomes following PMEG.

Methods: Patients who underwent PMEG from 2009-2021 in a single IDE were included. Thrombus burden was measured on pre-operative CT scan from the lowest renal artery to the aortic bifurcation using TeraRecon. Morphology was documented by presence of finger-like projections and volumetric burden was stratified as high or low. Univariate and multivariable analysis evaluated the impact on perioperative and long-term outcomes.

Results: Thrombus burden and morphology was assessed in 144 patients. 45% of patients were classified as high thrombus burden, 22% had finger-like projections. Patients with high thrombus burden were younger (p<0.01), had a higher BMI (P=0.05), comorbidities including carotid disease (15% vs 5.1%, p=0.04), COPD (42% vs 21%, p=0.01), PVD (18% vs 6.4%, p=0.02), TIA (12% vs 2.6%, p=0.02), and were more likely on ß-blockers (62% vs 35%, p<.01) and less likely to be anticoagulated (7.8% vs 24%, p=.01) (Table 1). There were no differences in anatomic or operative characteristics. Perioperative outcomes, long term sac behavior, reintervention, and survival were similar between groups. Endoleak was higher in those with low thrombus burden (60% vs 37%, p<0.01), driven primarily by type II endoleak (57% vs 31%, p<0.01) (Table 2). This persisted on multivariate analysis for all endoleak (OR, 2.6 [1.1-6.1]) and type II endoleak (OR, 2.6 [1.0-6.0]).

Conclusion: While thrombus burden is not associated with adverse perioperative events, low thrombus burden is associated with an increased rate of endoleak; however, this has not resulted in increased reintervention or sac growth. Thus, thrombus burden should not deter treatment for patients requiring PMEG.

Table 1: Perioperative outcomes in patients by thrombus burden and by finger-like projections on morphologic assessment

	Thrombus Burden			Fingerlike Projections		
	High (n=64)	Low (n=78)		Yes (n=21)	No (n=86)	
Outcomes	*N (%)*	*N (%)*	*P-Value*	*N (%)*	*N %*	*P-Value*
Death in <30 days	3 (4.7%)	3 (3.8%)	0.80	2 (9.5%)	2 (2.3%)	0.12
Stroke	0 (0.0%)	2 (2.6%)	0.20	0 (0.0%)	1 (1.2%)	0.62
Renal Failure	3 (4.7%)	3 (3.8%)	0.80	1 (4.8%)	3 (3.5%)	0.78
Respiratory Failure	5 (7.8%)	2 (2.6%)	0.20	0 (0.0%)	3 (3.5%)	0.39
Spinal Cord Injury	0 (0.0%)	2 (2.6%)	0.20	1 (4.8%)	1 (1.2%)	0.28
Bowel Ischemia	1 (1.6%)	1 (1.3%)	0.89	1 (4.8%)	1 (1.2%)	0.28
EBL >1000mL	1 (1.6%)	1 (1.3%)	0.89	1 (4.8%)	0 (0.0%)	0.04
ICU readmission	4 (6.3%)	1 (1.3%)	0.11	0 (0.0%)	4 (4.6%)	0.31
MI	3 (4.7%)	4 (5.1%)	0.90	1 (4.8%)	3 (3.5%)	0.78

Note section: Fingerlike projections noted on qualitative thrombus analysis. EBL = estimated blood loss; ICU = intensive care unit; MI = myocardial infarction

Table 2: Endoleaks by thrombus burden and by finger-like projections on morphologic assessment

	Thrombus Burden			Fingerlike Projections		
	High (n=64)	Low (n=78)		Yes (n=21)	No (n=86)	
Endoleak	*N (%)*	*N (%)*	*P-Value*	*N (%)*	*N (%)*	*P-Value*
Any Endoleak	24 (37%)	47 (60%)	<0.01	8 (38%)	47 (55%)	0.48
Type 1a	0 (0.0%)	6 (7.7%)	0.03	1 (4.8%)	3 (3.5%)	0.74
Type 1b	2 (3.1%)	4 (5.1%)	0.59	0 (0.0%)	3 (3.5%)	0.40
Type 2	20 (31%)	45 (57%)	<0.01	7 (33%)	41 (47%)	0.32
Type 3	6 (9.4%)	17 (21%)	0.06	2 (9.5%)	15 (17.4%)	0.43

Author Disclosures: C Nelson: Nothing to disclose, **G Anderson:** Nothing to disclose, **A Pujari:** Nothing to disclose, **K Dansey:** Nothing to disclose, **B Starnes**: Terumo – Consultant - Honorarium, **S Zettervall**: Gore & Associates – Consultant - Honorarium

36. ENDOVASCULAR THERAPY VERSUS BYPASS FOR CHRONIC LIMB-THREATENING ISCHEMIA IN THE REAL-WORLD PRACTICE: PROPENSITY-SCORE MATCHED ANALYSES OF A MEDICARE-LINKED DATABASE

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Objectives: The recent BEST CLI study showed bypass with a single segment great saphenous vein (GSV) is superior to endovascular therapy (ET) in patients with chronic limb threatening ischemia (CLTI). However, the superiority of alternative conduits such as bypass with a prosthetic graft (BWPG) vs. ET was not established. We aimed to perform the same comparisons in the real-world practice using VQI database.

Methods: We queried the VQI-Medicare-linked database for patients with CLTI who underwent first-time lower extremity revascularization (2003-2019). We performed two one-to-one propensity score matchings (PSM): ET vs. bypass with GSV (BWGSV) and ET vs. BWPG. PSMs were conducted based on 27 variables. Primary outcome was amputation-free survival (AFS). Secondary outcomes were limb salvage (LS), overall survival (OS), and freedom from reintervention (FFR).

Results: Three cohorts were queried: BWGSV (N=6,098, 15.2%), BWPG (N=3,487, 8.7%), and ET (N=30,534, 76.1%). PSM produced two sets of well-matched cohorts: 4,916 pairs of ET vs. BWGSV and 3,183 pairs of ET vs. BWPG. In the matched cohorts of ET vs. BWGSV, ET was associated with greater hazards of major amputation (MA) or death up to 4-years (HR=1.35, 95%CI:1.27-1.44). In the matched cohorts of ET vs. BWPG, ET was associated with greater hazards of MA/death up to 2-years (HR=1.10; 95%CI:1.00-1.20) and a significant increase in the risk of reintervention up to 4-years (HR=1.41; 95%CI:1.28-1.60) (Tab 1 & Fig 1).

Conclusions: In this real-world multi-institutional Medicare-linked PSM analysis, we found that BWGSV is superior to ET in terms of AFS, OS, LS and FFR up to 4-years. Moreover, BWPG was superior to ET in terms of AFS and LS up to 2-years and FFR up to 4-years. Our study confirms the superiority of BWGSV to ET as in BEST CLI trial. Moreover, this study adds superiority of BWPG to ET at 2-years, likely because of the larger sized cohort.

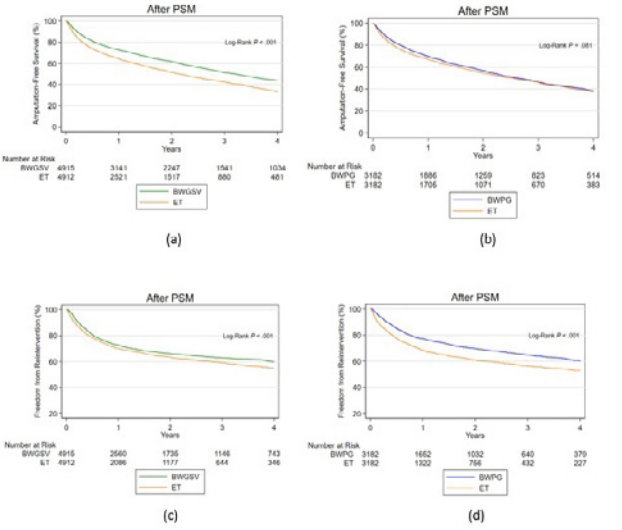

Figure 1: Kaplan-Meier estimates for amputation-free survival and freedom from reintervention in ET vs. BWGSV and ET vs. BWPG cohorts after PSM (*BWGSV*, bypass with great saphenous vein; *BWPG*, bypass with prosthetic graft; *ET*, endovascular therapy; *PSM*, propensity-scored matching)

Outcome in matched cohorts		Two-years		Four-years	
HR (95% CI)		P-value	HR (95% CI)	P-value	
ET vs. BWGSV*	Major amputation or death	1.39 (1.30-1.49)	<.001	1.35 (1.27-1.44)	<.001
	Major amputation	1.37 (1.23-1.52)	<.001	1.34 (1.21-1.49)	<.001
	All-cause mortality	1.44 (1.32-1.56)	<.001	1.38 (1.28-1.49)	<.001
	Reintervention	1.13 (1.03-1.25)	0.012	1.16 (1.06-1.27)	0.002
ET vs. BWPG*	Major amputation or death	1.10 (1.00-1.20)	0.039	1.06 (0.98-1.15)	0.117
	Major amputation	1.18 (1.02-1.35)	0.022	1.13 (0.98-1.29)	0.083
	All-cause mortality	1.09 (0.99-1.21)	0.075	1.06 (0.98-1.15)	0.166
	Reintervention	1.45 (1.31-1.61)	<.001	1.41 (1.28-1.60)	<.001

Table 1: Propensity score matched cohorts of endovascular therapy vs. bypass (Reference=Bypass).

BWGSV, bypass with great saphenous vein; *BWPG*, bypass with prosthetic graft; *CI*, confidence interval; *ET*, endovascular therapy; *HR*, hazard ratio
*Matching was based on demographics, smoking status, comorbidities (obesity, HTN, DM, CAD, CHF, COPD, and CKD), prior procedures, medications, indication of revascularization (rest pain vs. tissue loss), urgency of bypass, and level of revascularization (supra-geniculate vs. infra-geniculate).

Author Disclosures: S Zarrintan: Nothing to disclose**, E G Ross:** Nothing to disclose**, A Farber:** Sanifit, LeMaitre, BiogenCell, DilaysisX; Consultant**, M T Menard:** Janssen, Inc; Advisory Board**, M S Conte:** Abbott Vascular (DSMB), Medistim (Consultant), and BioGenCell (Consultant)**, M B Malas:** Nothing to disclose

37. CONTEMPORANEOUS OUTCOMES OF THE OFF-THE-SHELF GORE THORACOABDOMINAL MULTIBRANCH ENDOPROSTHESIS AND CUSTOM PHYSICIAN-MODIFIED FENESTRATED BRANCHED ENDOGRAFTS FOR COMPLEX ABDOMINAL AND THORACOABDOMINAL AORTIC ANEURYSMS

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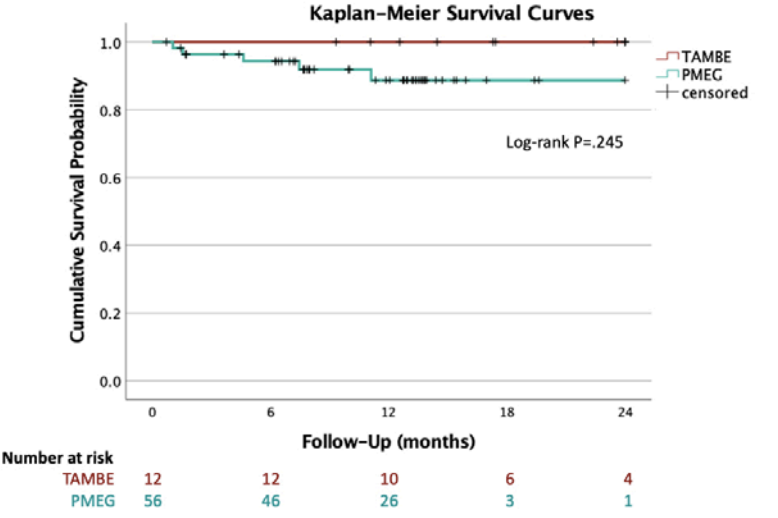
Objectives: Fenestrated-branched endovascular aortic repair (FB-EVAR) has shown favorable outcomes for complex aneurysms and thoracoabdominal aortic aneurysms (TAAA). Physician-modified endografting (PMEG) and the Gore Thoracoabdominal Multibranch Endoprosthesis (TAMBE) provide custom and off-the-shelf devices for FB-EVAR. This study compares the outcomes of TAMBE and PMEG at a single institution.

Methods: A retrospective review of patients who underwent TAMBE as part of the multicenter pivotal trial or PMEG as part of a prospective physician sponsored investigational device exemption at a single institution between 2020-2022 was completed. Patient demographics, operative metrics, and outcomes were compared.

Results: 68 patients were included, with 12 in the TAMBE group and 56 in the PMEG group. PMEG patients had a higher rate of coronary artery disease, smokers, and prior endovascular aneurysm repair. More than half had TAAA in both groups (58% vs 52%). TAMBE had a higher rate of upper extremity access (100% vs 62%, P=.013) and longer mean procedure time (247 vs 189 minutes, P <.001). Other intraoperative metrics were similar between groups. There was no 30-day mortality in either group. No major adverse events occurred with TAMBE while PMEG cases had 2% respiratory failure, 2% required dialysis, and 4% experienced spinal cord ischemia. Endoleaks occurred in 50% of TAMBE and 34% of PMEG cases, with type II endoleak accounting for the majority (100% vs 77%, P=.335). At the median follow-up of 20 and 11 months, target vessel instability was seen in 8% vs 4% of target vessels (P=.334) and reintervention was required in 33% and 23% (P=.477) of TAMBE and PMEG patients, respectively. All-cause mortality was 0% vs 9% (log-rank P=.245).

Conclusions: At experienced centers, FB-EVAR can be completed with PMEG or TAMBE with excellent perioperative and midterm outcomes. Type II endoleak occurs at a high rate and reinterventions remain common with both techniques.



Author Disclosures: A D DiBartolomeo: Nothing to disclose, **M Manesh:** Nothing to disclose, **A J Pyun:** Nothing to disclose, **G A Magee**: W. L. Gore & Associates, Silk Road – Consultant – Consultancy Fee, **J Hong:** Nothing to disclose, **J K Paige:** Nothing to disclose, **F A Weaver:** Nothing to disclose, **S M Han**: W. L. Gore & Associates, Cook Medical, Terumo, Vestek - Consultant, Scientific Advisory Board - Honoraria

NOTES

CONSTITUTION & BYLAWS

CONSTITUTION & BYLAWS

ARTICLE I – NAME
The name of this corporation is the Western Vascular Society (hereinafter the "Society").

ARTICLE II – PURPOSE
The Purpose of the Society shall be: (1) to promote study and discussion of the art and science of vascular and endovascular surgery; (2) to promote the pooling of the experience and knowledge of the membership; (3) to identify and promote diversity, equity and inclusion in vascular and endovascular surgery; (4) to encourage and promote dissemination of knowledge concerning the field of vascular and endovascular surgery to trainees (medical students, residents, and fellows); (5) to hold annual meetings of the membership; (6) to and engage in any and all lawful activities that may be incidental or related to the foregoing and to have and exercise all powers and authority now or hereafter conferred upon not-for-profit corporations under the laws of the State of California.

Notwithstanding the foregoing, (1) no part of the Corporation's net earnings or assets shall inure to the benefit of any member, director, officer, or other person, except that the Corporation shall be authorized and empowered to pay reasonable compensation for services rendered and to make other payments and distributions in furtherance of the purposes set forth above, and (b) the Corporation shall not carry on any activity not permitted to be carried on by an organization exempt from federal income tax under section 501 (c) (6) of the Internal Revenue Code of 1954, as amended (the "Code") or the corresponding provision of any further United States revenue statute.

WVS Advocacy Statement: *The Western Vascular Society strives toward diversity among its membership and to foster perspectives to model a positive impact on each other, our communities, and our vascular world. The WVS respects and encourages inquiry and supports ongoing dialog among our leadership, members and associates, while acknowledging and embracing our unique differences."*

ARTICLE III – MEMBERSHIP

1. Members shall be drawn from the Western states, provinces, and the Pacific Rim. This will be defined as follows: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Utah, Washington, Wyoming, Alberta, British Columbia, and the Pacific Rim.
   Exception to this rule is in the case of any active-duty military personnel who are welcome to membership regardless of their geographic location.

   There shall be six types of members: Active, Senior, Honorary, Associate, Candidate and Adjunct.

2. **Active Members.** Active membership of this Society shall be limited to surgeons who practice primarily vascular surgery, who are in good moral and ethical standing in their community as judged by members of the Society. Candidates for membership shall be certified by the Vascular Surgery Board of the American Board of Surgery or the Royal Canadian College of Surgeons Certificate of Special Competence in Vascular Surgery. In exceptional cases, the Membership Committee may elect to accept equivalent periods of training for formal certification. Active members shall be bound to meeting attendance rules and required to pay annual dues. Active members may hold office, have voting privileges, can serve on committees, can sponsor new member applications, as well as submit and sponsor papers for presentation at the annual meeting.
   a. Prospective active members should have completed a minimum of one (1) year of practice in the geographic confines of the Society after vascular surgery training before applying for membership.
   b. The prospective active member should meet one or more of the following three (3) criteria to be considered for active membership:

      Excellence in Clinical Care – this can be reflected by letters from colleagues and collaborators, regional reputation, years in practice, peer-recognition awards (Chief of Staff, senior surgeon in group, HMO recognition award), service on peer-review organizations, case lists and outcomes, community involvement or participation in clinical trials.

Contributions to Vascular Science – this can be reflected by peer-review publications, non-profit or federal grant support, invited lectures, professorships, faculty appointments, invited publications, participation in clinical trials, device development, active participation in local/regional vascular societies participation in Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) data collection, or serving on hospital committees.

Contributions to Vascular Education – this can be reflected by teaching responsibilities at a vascular or general surgery training program, hospital grand rounds, seminars, proctorship of new vascular procedures or other lectureships.

3. **Senior Members.** Senior members shall consist of active members who have reached the age of sixty-five (65) or who for reasons of health or other just cause, the Council recommends for classification in this category. Senior members shall also be bound to meeting attendance rules and working senior members shall continue to pay annual dues until such time as they have notified the Secretary-Treasurer that they have left active practice and retired. Retired senior members shall not be bound by the requirements for attendance at meetings. Senior members may hold office, have voting privileges, can serve on committees, can sponsor new member applications as well as submit and sponsor papers for presentation at the annual meeting.

4. **Honorary Members**. Honorary membership may be conferred by the Executive Council upon individuals who have distinguished themselves by outstanding achievement in the field of vascular science. Honorary members shall not be bound by the requirements for attendance at meetings. They shall have no voting privileges, cannot serve on committees, nor shall they be required to pay dues. Honorary members may not hold office or serve on committees.

5. **Associate Members**. Associate members of the Society shall consist of those individuals who were previously active members but have moved out of the geographic limits of the Society. Associate members shall not be bound by the requirements for payment of dues and for attendance at meetings. They shall have no voting privileges, nor shall they be

required to pay dues. Associate members may not hold office or serve on committees.

6. **Candidate Members.** Candidate membership may be conferred upon vascular surgery residents and fellows in accredited vascular surgery training programs in the Western Vascular Society region and vascular surgery physicians graduated from accredited vascular surgery programs who do not meet qualifications for active membership. Candidate members may present papers at the annual meeting if sponsored by an active member. Candidate members shall not be bound by the requirements for payment of dues and attendance at meetings. Candidate members may not hold office but may serve on committees. Candidate members who move out of the region of the Society shall cease to be candidate members. Candidate members shall have a maximum term of three consecutive years following completion of training.

7. **Adjunct Members**. Adjunct membership will be granted to those individuals including allied health professionals, who are not vascular surgeons but have made and continue to make meaningful contributions to the science and clinical practice in the field of vascular disease. This category may include non-M.D.s who are working in the field of research. It will also include physicians who actively practice and publish in the field of non-surgical treatment of vascular diseases. Adjunct members shall not be able to hold office, not have voting privileges, not participate on committees, and not be required to pay annual dues.

ARTICLE IV – SELECTION OF MEMBERS

Qualification for membership in the Society will be judged primarily upon evidence of a prospective member's scholarly contributions to the vascular surgery literature.

1. **Active Members**:

The process of election of active members of the Society shall be as follows:

a. Applications for membership shall be available only by request of a member and shall be provided by the Secretary-Treasurer

and available on the Society website.

b. Application including the curriculum vitae of the candidate, two (2) endorsers and a sponsor shall be in the hands of the Secretary-Treasurer at least three (3) months before the executive session at which it is desired that the candidate be considered for election. Applicants must be supported by letters from the sponsor and each endorser.
c. The Secretary shall send to the Chairperson of the Membership Committee these applications with all pertinent data, including supporting letters, at least two (2) months before the annual meeting. The Membership Committee shall review the professional qualifications of the candidates. An additional letter shall be forwarded to the Secretary from the candidate's sponsor for each year that the application remains active.
d. The list of candidates with the data concerning them shall be circulated by the Secretary to all active and senior members of the Society at least one (1) month before the annual meeting.
e. The Chairperson of the Membership Committee shall meet with the Council for the purpose of presenting the recommendations of the Membership Committee.
f. The names of the candidates recommended by the Council for election shall be submitted by the Secretary to the membership in their annual report at the executive session of the Society.
g. Election to the membership shall be by secret ballot, by a three-fourths affirmative vote of the membership present and voting at the annual executive session.
h. A candidate who fails election at one meeting may be presented to the membership at the next two (2) annual meetings of the Society. If they fail election a third time, their name shall be dropped from the list of applications for membership. Such candidate's application may be resubmitted after an interval of two (2) years.

2. **Honorary members**:
   a. Any active or senior member may nominate an individual for honorary membership. The name and brief description of the accomplishments of the nominee must be submitted to the Secretary-Treasurer at least six (6) months prior to the

annual meeting for circulation to an Honorary Membership Committee, which consists of the three (3) past presidents on the Council.

b. The Honorary Membership Committee shall make its recommendations to the Council.
c. Following its deliberation, the Council may recommend that the candidate's name be submitted by the Secretary-Treasurer to the membership in their annual report presented at the executive session of the Society.
d. Election to membership shall be by secret ballot, by a three-fourths affirmative vote of the membership present and voting at the annual Executive Session.

3. **Associate members**:
   a. Any active member in good standing, who leaves the geographic area of the Western Vascular Society, may request transfer in status to associate membership. If a member fails to request such a transfer the member will automatically be dropped from the membership roster.

4. **Candidate members**:
   a. Application forms for candidate membership shall be available to vascular surgery program directors and shall be provided by the Secretary-Treasurer and available on the society website. Completed application forms signed by the proposed Candidate and the proposed Candidate's Program Director shall be delivered to the Secretary-Treasurer. Completed applications shall be reviewed by the Membership Committee, which has the right to accept or reject any application for inclusion in the Society. Once approved by the membership committee and the Executive Council, applicants may be members of the Candidate Group so that they may be invited to the annual meeting. A member of the Candidate Group achieving certification of Vascular Surgery will be asked to become an active member once application criteria are met.

5. **Adjunct members**:
   a. The process of election shall be the same as for active members.

ARTICLE V – BOARD OF DIRECTORS ("COUNCIL")

1. The Board of Directors of the Society shall be called the Council.
2. The Council shall be composed of the President, the President-Elect, the Secretary-Treasurer, the Recorder, and the three (3) most recent available past presidents.
3. The Council shall be the governing body of the Society and shall have full power to manage and act on all affairs of the society except as follows:
    a. It may not without the approval of the Society membership at an annual executive session alter the initiation fees or annual dues, or levy any assessments against the membership, except that it may, in individual cases, waive annual dues or assessments.
    b. It may not amend the Articles of Incorporation or Bylaws.
    c. It may neither elect new members nor alter the status of existing members, other than to apply the provisions of Article XI.
4. The President of the Society shall serve as Chairman of the Council and the Secretary-Treasurer of the Society as its Secretary.
5. Meetings of the Council shall be held at the call of the President of the Society, and each member of the Council must be notified electronically or in writing of the time and place of each such meeting.
6. The annual meeting of the Council shall precede the Executive Session of the Society membership.
7. A majority of the voting members of the Council shall constitute a quorum for the transaction of business. Voting can take place electronically via email or poll.
8. The act of a majority of the members of the Council present at a duly called meeting at which a quorum is present shall be the act of the Council, unless the act of a greater number of required by applicable statute, the Articles of Incorporation, or these Bylaws.
9. Any action which is required by law or the Articles of Incorporation or these Bylaws to be taken at a meeting of the Council, or any other action which may be taken at a meeting of the Council, may be taken without a meeting if a consent in writing, setting forth the action taken, shall be signed by all the members of the Council entitled to vote with respect to the subject matter thereof.

Any consent signed by all the members of the Council shall have the same force and effect as a unanimous vote of a duly called and constituted meeting of the Council.

ARTICLE VI – OFFICERS

1. The Officers of the Society shall be a President, a President-Elect, a Secretary-Treasurer, and a Recorder, all to be elected as provided in these Bylaws. Said officers shall serve ex-officio as voting members of the Council.
2. All Officers of the Society shall be elected for terms of one (1) year each. Secretary-Treasurer and Recorder both serve three (3) year terms. The President may not serve more than one (1) term.
3. Officers of the Society shall be nominated by the Nominating Committee that shall present the slate to the membership at the Executive Session of the annual meeting. Additional nominations may be made from the floor of the Executive Session each year. The election shall take place at the Executive Session and election shall be by a majority of the votes cast.
4. The President shall preside at meetings of the Society and the Council, preserve order, regulate debates, announce results of elections, appoint committees not otherwise provided for, sign Certificates of Membership, and perform the duties of the President's office.
5. The President-Elect, in the absence or incapacity of the President, shall perform the duties of the President's office.
6. In the absence of both the President and the President-Elect, the Chairperson shall be taken by a Chairperson Pro Tem, elected by such members of the Council as are present.
7. The Secretary-Treasurer shall ensure proper archiving of the minutes of the meetings of the Society and Council, attest all official acts requiring certification; notify officers and members of their election; conduct correspondence; take charge of all papers not otherwise provided for. At least thirty (30) days but not more than forty (40) days prior to each annual or special meeting they shall distribute all members of the Society a program of the forthcoming meeting. They shall compile a written report to be read at the annual Executive Session of the Society, to include a list of candidates proposed for membership, as approved by Council. They shall ensure receipt of

all moneys and funds belonging to the Society; ensure payment of all bills; ensure rendering of bills for dues and assessments as soon as possible after the annual meeting; and report to the Council at each annual meeting the names of all members in arrears as to dues. They shall prepare a written report of the finances of the Society to be presented at the Council Meeting and at the Executive Meeting.

8. The Historian shall serve a five-year term and will be appointed by the President. It shall be the duty of the Historian to assemble and preserve the Archives of the Society for storage and reference. The archives shall consist of the roster of the members of the society since its inception and photographs as are available. It shall be their duty to secure and file a photograph of each new member. At the request of the President, the Historian may be asked to provide an appropriate historical comment at either the executive session or the regular meeting. The records of the Western Vascular Society are preserved at the society headquarters and at the UCLA Medical Center by the archivist of the Louise Darling Library.
9. The Recorder shall ensure receipt of all papers and reports of discussions on papers presented before the Society. The Recorder, together with the Program Committee, shall ensure submission of manuscripts to the Journal of Vascular Surgery for publication.

ARTICLE VII – COMMITTEES

1. Standing committees of the Society shall consist of a
   Membership Committee
   Nominating Committee
   Diversity, Equity, and Inclusion Committee
   Vascular Surgery Interest Group Committee
   Program Committee
   Local Arrangements Committee for the annual meeting.

   a) **Membership Committee**. The Membership Committee shall consist of three (3) members who shall be appointed by the President to serve overlapping terms of three (3) years each. The Secretary-Treasurer shall be an ex officio member of the membership committee. The senior member in service on this Committee shall be the Chairperson. Nominations to the Membership Committee

shall be made by the Nominating Committee which shall present the slate to the membership at its annual business meeting. Election shall be by a majority of votes cast at the Executive Session. The functions of the Committee shall be to pass upon the professional and ethical qualifications of the applicants and to advise the membership of these recommendations. One (1) Candidate Member-at-Large shall be appointed by the President to serve for one (1) year.

b) **Nominating Committee.** The Nominating Committee shall consist of the three (3) most recent available past Presidents. The Committee shall be appointed by the President one (1) month before the annual meeting. Its function shall be to make up a slate of officers to be presented at the annual business meeting to the membership.

c) **Diversity, Equity, and Inclusion Committee**. The Diversity, Equity and Inclusion Committee shall consist of three (3) members who shall be appointed by the President to serve overlapping terms of one (1) year each. The senior member in service on this Committee shall be the Chairperson. One (1) Candidate Member-at-Large shall be appointed by the President to serve for one (1) year.

d) **Vascular Surgery Interest Group Committee.** The Vascular Surgery Interest Group Committee shall consist of three (3) members who shall be appointed by the President to serve overlapping terms of one (1) year each. The senior member in service on this Committee shall be the Chairperson. One (1) Candidate Member-at-Large shall be appointed by the President to serve for one (1) year.

e) **Program Committee.** The Program Committee shall consist of four (4) members who shall be appointed by the President to serve overlapping terms of four (4)

years each. The senior member in term of service on this Committee shall be the Chair. The President, Secretary-Treasurer and Recorder shall be ex officio members of the Program Committee. The function of the Program Committee shall be to solicit presentations from members and other individuals and to make up the program for the annual meeting. The appointed members of the Program Committee shall serve as an advisory committee to act, with the Recorder, to ensure editorial review of the submitted manuscripts.

f) **Local Arrangements Committee.** The Chair of the Local Arrangements Committee for the annual meeting shall be appointed by the President and the members of the Committee shall be appointed by the Chair. These individuals will consist of members resident in the general locality in which the annual meeting is to be held, together with the President, the Secretary-Treasurer, acting ex officio. The function of this Committee shall be the making of the general arrangements for the annual meeting.

2. The Council may from time to time establish such other Committees as it deems advisable. Each such Committee shall consist of such persons and shall have such duties and the Council upon establishment of the Committee from time to time may designate powers as thereafter. Unless otherwise provided by the Council, the President shall appoint the members of each such Committee.
3. Any vacancy occurring among the members of any elected Committee of the Society shall be filled by appointment by the President. The Appointee will serve until the next annual meeting of the Society membership.

ARTICLE VIII – MEETINGS

1. The annual meeting of the Society shall be held at a time and place to be determined by the Council at least one year in advance.
2. The Council shall meet on the day prior to the annual meeting, at a time and place designated by the President. The Chair of the Membership Committee, the Nominating Committee and the Local Arrangements Committee shall meet with the Council in an advisory capacity.
3. Twenty (20) voting members present in person shall constitute a quorum at a meeting of the membership.
4. The vote of a majority of the votes entitled to be cast by the members present at a duly called meeting at which a quorum is present shall be necessary for the adoption of any matter voted upon by the members, unless a greater proportion is required by the applicable statute, the Articles of Incorporation, or the Bylaws.
5. Members may not cast their votes by proxy. Voting can be done via electronic means.
6. The Executive Session of the Society, attendance at which shall be limited to active, senior, and honorary members, shall be held at a time and place to be set by the President. The business of the Society shall be conducted at that time.
7. The scientific session of the annual meeting shall consist of original presentations of papers and the discussion of these papers. An active or senior member must be a participant, co-author or sponsor of each presentation selected.
8. Special meetings of the Society may be called at any time by the President. The President must call a special meeting whenever it is requested to do so in writing by ten (10) members of the Society in good standing.
9. Notice of any Executive Session of any annual or special meeting of the Society shall be given to each member of the Society not less than thirty (30) nor more than forty (40) days prior to the Executive Session by written or printed notice delivered personally or by mail, by or at the direction of the Council, the President or the Secretary -Treasurer. Such notice shall state the place, day, and hour of the Executive Session and in the case of a special meeting shall also state the purpose or purposes for which the Executive Session is called.

10. The Council may, by majority vote, revoke the membership of any active member who shall have been absent from three (3) consecutive meetings of the Society without providing the Secretary-Treasurer with an acceptable written explanation of such absence. An active member shall receive a warning letter from the Secretary-Treasurer following two (2) consecutive unexcused absences from the annual meetings, and the Secretary-Treasurer shall, within thirty (30) days after revocation of any active membership pursuant to this section, send written notice of such action to the individual whose active membership has been so revoked. In addition, to emphasize the importance of scholarly participation, it shall be the requirement for each member to be a named author of at least one abstract during a four-year term or to be a named discussant of a paper selected for presentation. An active member shall receive a warning letter from the Secretary-Treasurer following three (3) consecutive years in which the member has failed to participate as described above. The Secretary-Treasurer shall, within thirty-(30) days after revocation of active membership pursuant to this section, send written notice of such action to the individual whose active membership has been so revoked. Any person whose active membership has been revoked by the Council pursuant to this section may, within six (6) months after such revocation, send to the Secretary-Treasurer a written request that the Council at its next meeting reconsider its decision. Such a request must be accompanied by a written statement for the reasons for the consistent absence or lack of participation from annual meetings of the Society. If the Council, upon reconsideration, determines by a majority vote that reinstatement is appropriate, the individual shall be reinstated as an active member upon payment in full of any outstanding dues or other financial obligations to the Society, including any such obligations which may have arisen during the period in which the revocation was in effect.
11. The societies current President and Recorder will moderate the first Scientific Session of the Annual Meeting. The incoming President-Elect and current Recorder will moderate the final Scientific Session of the Annual Meeting. All other moderators for all other sessions will consist of and be chosen by the Program Committee.

ARTICLE IX – INVITED GUESTS

1. A member of the Society may invite one or more guest(s) to attend the Annual Meeting of the Society. Should a member wish to tender an invitation, formal request must be made to the Secretary-Treasurer to send a written invitation to the individual identified by the member. No guest will be admitted to the scientific sessions and/or social events without a formal or email invitation and active registration for the annual meeting.
2. The names of all guests attending the Annual Meeting shall be entered under a separate heading in the attendance list.
3. All invited guests shall be given the privilege of the floor by the President but shall not be present at the Executive Session.

ARTICLE X – FEES AND DUES

1. Initiation fees, dues and assessments shall be levied by the Council and approved by the membership at the annual Executive Session.
2. Any member of the Society in arrears as to dues for one (1) year shall be notified of that fact by the Secretary- Treasurer, by email and registered letter, which shall contain a copy of this Section 2. If the dues are not paid before the next annual Council meeting, or some reasonable explanation of the delinquency is not forthcoming, the name of the delinquent member shall be presented at the Council meeting and on a majority vote of the Council the name may be stricken from the membership list. The Council may reinstate the delinquent member upon payment of the dues in arrears.

ARTICLE XI – RESIGNATIONS AND DISCIPLINE

1. Resignation of members not in arrears as to dues may be accepted at any annual meeting of the Society by a majority vote of the members present.
2. Charges of unprofessional or unethical conduct may be brought against any member of the Society by a written complaint signed by three (3) members of the Society and delivered to the Secretary-Treasurer. The Council shall establish the rules governing disciplinary proceedings based upon such charges from time to time.

ARTICLE XII – PAPERS AND REPORTS

1. All papers and reports read before the Society shall be submitted to the Journal of Vascular Surgery (JVS) prior to the time of their presentation at the Annual Meeting. The Recorder shall be responsible for ensuring the submission of these manuscripts.
2. No paper shall be submitted for publication as having been read before the Society, unless it has been read before the Society.
3. Final submission of a manuscript to the JVS must be done within 2 months of the presentation at the annual meeting. The exception would be if the revisions suggested at the meeting required more time, in which case the request can be made for an extension. The penalty for no or late submission is ineligible abstract submission to the WVS for 1 year.

ARTICLE XIII – PROCEDURE

The proceedings of the Society shall be conducted under Roberts Rules of Order Newly Revised.

ARTICLE XIV – CERTIFICATE OF MEMBERSHIP

Every elected member of the Society shall be entitled to a Certificate of Membership signed by the President and the Secretary-Treasurer and bearing the seal of the Society.

ARTICLE XV – SEAL

This Society shall make, have, and use a seal bearing the name of the Society, the words "Corporate Seal, California," and such other device and description, as the Society shall deem proper.

ARTICLE XVI – NOTICE AND WAIVER OF NOTICE

1. Whenever, under applicable law, these Bylaws, or resolution of the Council, notice is required to be given to any member, Council member or Officer, such notice may be given in writing, by e-mail or standard mail, addressed to such member, Council member or Officer, at their address/electronic address as it appears on the records of the Society. Such mailed notice shall be deemed to be

given when deposited in the United States Mail in a sealed envelope so addressed, with postage therein prepaid.

2. Whenever, under applicable law, these Bylaws, or resolution of the Council, any notice is required to be given, a waiver thereof in writing, signed by the person or persons entitled to such notice. Whether before or after the time stated therein, shall be deemed equivalent to the giving of such notice. In addition, the attendance of a member or Council member at any meeting shall constitute a waiver of notice of such meeting, except where an individual attend the meeting for the express purpose of objecting to the transaction of any business because the meeting is not lawfully called or convened.

ARTICLE XVII – INDEMNIFICATION

1. To the full extent in accordance with the procedure prescribed by the General Not-For-Profit Corporation Act, the Society shall indemnify any and all members of the Council (which members shall hereinafter in this Article be referred to as "Directors") and any and all officers, employees, agents and representatives of the Society for certain expenses and other amounts paid in connection with legal proceedings in which any such person become involved by reason of their serving in any such capacity for the Society.
2. Upon specific authorization by the Council, the Society may purchase and maintain insurance on behalf of any or all Directors, Officers, employees, agents or representatives of the Society against any liability asserted against any such person and incurred in any such capacity, or arising out of the status of serving in any such capacity, whether or not the Society would have the power to indemnify them against such liability under the provisions of Section 1 of this Article.

ARTICLE XVIII – AMENDMENT

These Bylaws may be amended by a three-fourths vote of the members present and voting at a properly called and convened Executive Session at an Annual or Special Meeting of the Society, provided that the proposed Amendment has been submitted to

the Secretary-Treasurer by at least three (3) voting members of the Society at least three (3) months prior to the Executive Session of the Society. The Secretary-Treasurer shall mail the proposed Amendment at least thirty (30) days prior to the Executive Session, accompanied by notice that such Amendment will be acted upon that Executive Session.

ARTICLE XIX – RULES AND REGULATIONS

The Society may enact from time-to-time rules and regulations that will govern the actions of the Society. Such Rules and Regulations shall be enacted, amended, or deleted by a majority (>50%) vote of those attending the annual business meeting. Proposed rules and regulations require notification of the membership no less than 30 days prior to the annual meeting. Amendments to a proposed Rule and Regulation made at the time of the business meeting may be voted upon at the same business meeting and do not require an additional 30-day notification of members. All Rules and Regulations must be in conformity with the bylaws of the Society.

Amended January 2017
Amended May 9, 2019
Amended September 29, 2022
Amended April 4, 2023

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