

VASCULAR CONNECTIONS

The Official Newspaper of the Vascular Annual Meeting



SATURDAY EDITION

SOCIETY FOR VASCULAR SURGERY • VASCULAR AND ENDOVASCULAR SURGERY SOCIETY • JUNE 12-15, 2019 • GAYLORD NATIONAL RESORT & CONVENTION CENTER

PRESIDENTIAL ADDRESS

Change Doesn't Come Easy! But Is Needed

In selecting the subject of his presidential address, SVS President Michel Makaroun, MD, decided to focus on the inadequacy of vascular manpower to meet the demands and needs of the public.

In introducing the subject, he quoted a favorite saying from Mark Twain that gave him the topic of his address, "I am in favor of progress; it's change I don't like." He then

towns completely lack any access to vascular surgical care, even in states with seemingly adequate numbers.

The shortage problem in vascular surgery will get worse before it gets better, he added, saying "Our pipeline is simply not large enough to overcome an older retiring generation of vascular surgeons, with nearly half retiring before 65."

"Change does not come easy!" Dr. Makaroun warned.

"We cannot ignore in the discussion of workforce issues, the major shifts, change and uncertainty we are experiencing in health care delivery, education and the generational change of our newest members," he said.

More than 10% of vascular surgeons now practice primarily if not exclusively in ambulatory facilities. This direction is gathering steam and reduces the pool of vascular surgeons available to accept hospital practices and cover emergencies, particularly in underserved communities.

Despite this movement, nearly two-thirds of SVS members are currently employed by hospital systems that are getting larger and larger, making it essential to navigate an ever more complex decision-making process in employment, compensation and spectrum of activities. Practice environments are becoming more corporate and bureaucratic.

Dr. Makaroun pointed out that the current landscape of our manpower has a clear two tiers divided by hospital size and location. "The most pressing concern is the inability of our specialty to provide vascular surgery services to the multitude of hospitals located in smaller communities.

"The SVS established a task force to study our manpower issues last

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Dr. Michel Makaroun

proceeded to outline why changes are necessary and what the Society for Vascular Surgery is doing to help implement them.

"You are all familiar with the highlights of the problem: It is in our numbers! A problem with multiple facets, including unfilled jobs, increasing demand, maldistribution and a demographic cliff of our membership," Dr. Makaroun said.

The manifestations of this shortage are multiple. The number of advertised jobs far exceeds the number of graduates. There is also a significant maldistribution of the workforce. "We are concentrated in the northeast, and many populous states including Texas, Florida and California are well below average," he said.

Additionally, many community hospitals, in both suburban areas or small



PHOTO COURTESY GAYLORD NATIONAL RESORT & CONVENTION CENTER

The colorful Capital Wheel is a highly visible landmark of National Harbor. Riders soar 180 feet above the Potomac River waterfront, seeing such sights as the National Cathedral, Washington Monument, Masonic Temple and the City of Alexandria. The Ferris Wheel was inspired by the Roue de Paris.

SATURDAY Spotlight

It's VAM's final day, but there's still plenty going on. See if you can fit in these sessions before heading for home. (Tickets, where required, are available via online registration and at the registration counter.)

6:30 to 8 a.m. Get in some early-morning learning at one of the three final breakfast sessions of 2019, covering complex hemodialysis, vascular surgeon wellness, and complications in office-based vascular procedures.

8 to 9:30 a.m. How can vascular surgeons help patients modify risk factors? Attend C5: Vascular Risk Factor Modification, presented in collaboration with the Society for Vascular Medicine, in Maryland A.

9:30 to 10:45 a.m. Enjoy a popular trio of events: the John Homans Lecture, the Roy Greenberg Distinguished Lecture and, in between, the presentation of the SVS Lifetime Achievement and the Medal for Innovation awards, all in Potomac A/B.

10:30 a.m. to 12 p.m. What lies ahead for vascular surgeons? Consider some options at C7: Alternative



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Career Paths for the Vascular Surgeon, Maryland A.

12 to 1:30 p.m. There's important business for SVS voting members at the Annual Business Luncheon. Active and Senior members will elect a vice president (a candidate put forth by the Nominating Committee) and a secretary (from among three named candidates). The agenda also includes updates and award presentations, Potomac C, 1-3. A ticket is required.

2 to 4:30 p.m. Learn how vascular and cardiothoracic surgeons address situations they have in common and

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Address

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fall. The taskforce was divided into three workgroups to focus on different areas of the problem.

The first workgroup, under the leadership of Malachi Sheehan III, MD, and Jeffrey Jim, MD, focused on the obvious solution: a campaign to increase training programs and available positions. Unfortunately, this is only aspirational, since reality fails the SVS in this effort. The pool

of general surgery graduates is finite, with competition from several specialties that are more analogous to modern general surgery than vascular surgery.

Increasing the number of integrated programs is less efficient because of a 5- to 6-year lag between initiation of a new program and graduation, but it can tap into an almost unlimited pool of applicants from medical school, and more recently some very qualified international medical graduates. This makes it potentially a far more effective solution for the long term, Dr. Makaroun said.

The workgroup attempted to contact all hospitals with a general surgery program and no associated vascular fellowship. Help in navigating the process of securing financing and applying for a new program was offered. A session was conducted at VAM for interested potential sites to start discussing the process, and representatives from 27 hospitals were there expressing interest.

The second workgroup, under the leadership of Rick Powell, MD, and Andy Schanzer, MD, was tasked with analyzing and understanding the entire spectrum of surgeons' clinical activities and producing a valuation study that illustrates the economic and vital impact of vascular surgery for hospitals and patients. "The work of this group is essential to promote a healthier relationship between our specialty and our institutions, making vascular surgery more attractive for future recruits," according to Dr. Makaroun.

The third workgroup under the leadership of Will Jordan, MD, and Tim Sarac, MD, had the toughest job, said Dr. Makaroun. It was tasked with thinking outside the box and suggesting methods to address the most glaring need: the community hospitals, where most of the advertised jobs are, jobs that are being shunned by graduates of current training programs.

Dr. Makaroun cited the difficulties of recruitment of vascular surgeons to community hospital systems in small towns and rural areas, and he reminded people that recent general surgery graduates continue to offer vascular surgery services in such communities. Unfortunately, this is without any additional vascular training and most hospitals grant privileges without a VSB certificate when the need is demonstrated. "You all appreciate that recent graduates of general surgery programs do not have the breadth or depth of exposure to modern vascular surgery that an older generation did," he added.

The workgroup explored many options to provide relief to community hospitals. But probably the most efficient, according to Dr. Makaroun, is to consider strategies that tap into new constituencies. One consideration to be explored is to offer a 3-year vascular surgery training opportunity to the dozens of qualified candidates in preliminary surgical

surgery training to general surgery graduates already committed to a community practice, many of whom are already planning to offer vascular services anyway. The program will individualize training but focus only on low-complexity procedures, both open and endovascular, and more importantly the clinical situations that dictate referral, said Dr. Makaroun.

To maintain quality, the program will mandate the availability of mentorship, support and real-time advice after completion of the program, through a regional "sponsoring vascular surgery service." This service will also be responsible for retrospective peer review and root cause analysis of complications. In addition, the association with a sponsoring institution will facilitate and increase referrals of appropriate patients to higher level of care at a vascular surgery center.

"The suggested program graduates will not be board-certified and will be performing mostly general surgery and low-complexity vascular cases part-time in smaller communities. They will also require supervision by the board-certified graduates of the current training pathways, working in a regional vascular center, typically in a larger urban center. Instead of competing they will actually complement our current trainees and provide an extension of their reach." Dr. Makaroun stated.

"We must find a way to fill the vacuum now before the reality on the ground permanently excludes our specialty from this primary level of vascular care," Dr. Makaroun said. "It is time for another bold step to preserve the legacy of our specialty in meeting the needs of our patients and the public.

"Progress is made through change even if we don't like it!" Dr. Makaroun concluded. **VC**

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explore innovative devices during the Aortic Summit. This is presented in collaboration with The Society of Thoracic Surgeons, National Harbor 2. Tickets and registration fee are required.

3:30 to 4:30 p.m. Help determine the winner at the Championship Round of the poster competition. Audience members will vote on the top three of the 10 finalists from Friday afternoon's competition, Maryland A, 1-3. **VC**



'We must find a way to fill the vacuum now before the reality on the ground permanently excludes our specialty from this primary level of vascular care.'

positions unable to locate a categorical spot to finish their training. This process will lead to VSB certification, but will take some time to establish through the ACGME structure.

The workgroup developed an outline of a proposal for a community vascular surgery training program, as a first step. It has been sketched and will be part of the task force report submitted for review by the Executive Board of the Society.

The goals of the new pathway would be to improve local vascular care in underserved communities, while increasing the referral of appropriate cases to vascular centers. It would provide stress relief to isolated vascular surgeons, and where none exist, plant the seeds of a better work environment for vascular surgery graduates to reconsider this currently undesirable career choice.

The program is designed to offer an additional year of vascular

Please Note our New Address



The artwork makes it clear that this IS the Society for Vascular Surgery's new office. It's nearly twice the size of the Chicago office, with plenty of meeting spaces and room for collaboration and growth. The new address is 9400 W. Higgins Road, Suite 315, Rosemont, Ill., 60018, close to O'Hare International Airport.

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*01/19 Finance report. Data on file at Abbott.

Important Safety Information page 4.

INDICATIONS: The Perclose ProGlide™ SMC System is indicated for the percutaneous delivery of suture for closing the common femoral artery and vein access site of patients who have undergone diagnostic or interventional catheterization procedures.

The Perclose ProGlide™ SMC System is used without or, if required, with adjunctive manual compression. For access sites in the common femoral artery using 5F to 21F sheaths. For access sites in the common femoral vein using 5F to 24F sheaths.

For arterial and venous sheath sizes greater than 8F, at least two devices and the pre-close technique are required.

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Cardiothoracic & Vascular Surgeons Providing Alternative Perspectives at Aortic Summit

Cardiothoracic and vascular surgeons will – together – head for the top during the Aortic Summit, from 2 to 4:30 p.m. Saturday.

The event is presented in collaboration with the Society of Thoracic Surgeons. A similar summit at the 2017 VAM attracted hundreds of surgeons.

Several topics important to both groups of surgeons will be examined from both the cardiothoracic and vascular perspectives, said Ali Azizzadeh, MD, co-moderator with Keith Allen, MD, a member of both SVS and the STS. The session is recommended by the Society for Vascular Nursing.

“We do look at issues in different ways,” said Dr. Azizzadeh said of vascular and cardiothoracic surgeons. “We all have different tools and skill sets. That’s why it’s good to look at an issue from both perspectives and also look at the devices that apply to the other’s field.”

Speakers will cover the latest indications for procedures in patients with aortic dissection, which will segue into discussion of access complications and other issues that can occur with devices. Topics also will include alternative and newer methods of access.

Speakers and attendees also will discuss the newest technology currently in trials, recently approved, or in investigation, worldwide, he said.

The two groups will collaborate, for what Dr. Azizzadeh believes is the first time, on pulmo-

nary embolism. “This is a hot area for innovation,” he said. “There are lots of new techniques and procedures to address currently unmet

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needs. Medical centers around the country are assembling multidisciplinary teams, referred to as Pulmonary Embolism Response Team or PERT – to be able to take care of these sick patients. It’s a trend for the future.”

Tickets are required and are available at the registration counter. An additional fee applies: \$75 for SVS Candidate members-in-training, nonmember medical students and vascular and general surgery residents, and allied health professionals; \$100 for SVS Candidate members; \$150 for SVS members and \$200 for nonmember physicians.

Topics and speakers include:

- Optimal Management of Uncomplicated Acute Type B Aortic Dissection, Faisal Bakaeen, MD.
- Optimal Management of Chronic Type B Aortic Dissection, Adam Beck, MD.
- Alternate Non-Femoral Vascular Access for Large Endovascular Devices, Keith Allen, MD.
- Managing Vascular Access Complications, Ross Milner, MD.
- Innovative Devices: Cardiothoracic, by Grayson Wheatly III, MD.
- Innovative Devices: Vascular, by Ali Azizzadeh, MD.
- Pulmonary Embolism Teams: Cardiothoracic perspective, by Lishan Aklog, MD.
- Pulmonary Embolism Teams: Vascular perspective, by Naveed Saqib, MD.

A discussion period will follow each set of presentations.

“It’s going to be a great session to review the latest topics that apply to both cardiothoracic and vascular surgery,” said Dr. Azizzadeh. **VC**

Saturday, June 15

2-4:30 p.m.

Gaylord National, National Harbor 2
Aortic Summit

IMPORTANT SAFETY INFORMATION

R Perclose ProGlide™
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INDICATIONS

The Perclose ProGlide™ SMC System is indicated for the percutaneous delivery of suture for closing the common femoral artery and vein access site of patients who have undergone diagnostic or interventional catheterization procedures.

The Perclose ProGlide™ SMC System is used without or, if required, with adjunctive manual compression. For access sites in the common femoral artery using 5F to 21F sheaths. For access sites in the common femoral vein using 5F to 24F sheaths.

For arterial and venous sheath sizes greater than 8F, at least two devices and the pre-close technique are required.

CAUTION

Federal law restricts this device to sale by or on the order of a physician (or allied healthcare professionals, authorized by, or under the direction of, such physicians) who is trained in diagnostic and / or interventional catheterization procedures and who has been trained by an authorized representative of Abbott Vascular.

Prior to use, the operator must review the Instructions for Use and be familiar with the deployment techniques associated with the use of this device.

During closure of access sites using a procedural sheath greater than 8F it is recommended that a vascular surgeon or a surgeon with vascular training be available in case surgical conversion to control bleeding and to close the vessel is needed.

CONTRAINDICATIONS

There are no known contraindications to the use of this device. Attention is drawn to the WARNINGS and PRECAUTIONS sections.

WARNINGS

Do not use the Perclose ProGlide™ SMC device or accessories if the packaging or sterile barrier has been previously opened or damaged or if the components appear to be damaged or defective.

DO NOT RESTERILIZE OR REUSE.

The Perclose ProGlide™ SMC device and accessories are intended for single use only.

Do not use the Perclose ProGlide™ SMC System if the sterile field has been broken where bacterial contamination of the sheath or surrounding tissues may have occurred, since such a broken sterile field may result in infection.

Do not use the Perclose ProGlide™ SMC System if the puncture site is located above the most inferior border of the inferior epigastric artery (IEA) and / or above the inguinal ligament based upon bony landmarks, since such a puncture site may

result in a retroperitoneal hematoma. Perform a femoral angiogram to verify the location of the puncture site. NOTE: This may require both a Right Anterior Oblique (RAO) and Left Anterior Oblique (LAO) angiogram to adequately visualize where the sheath enters the femoral artery or vein.

Do not use the Perclose ProGlide™ SMC System if the puncture is through the posterior wall or if there are multiple punctures, since such punctures may result in a hematoma or retroperitoneal bleed.

Do not use the Perclose ProGlide™ SMC System if the puncture site is located in the superficial femoral artery or the profunda femoris artery, or the bifurcation of these vessels, since such puncture sites may result in a pseudoaneurysm, intimal dissection, or an acute vessel closure (thrombosis of small artery lumen). Perform a femoral angiogram to verify the location of the puncture site. NOTE: This may require both a Right Anterior Oblique (RAO) and Left Anterior Oblique (LAO) angiogram to adequately visualize where the sheath enters the femoral artery or vein.

PRECAUTIONS

1. Prior to use, inspect the Perclose ProGlide™ SMC System to ensure that the sterile packaging has not been damaged during shipment. Examine all components prior to use to verify proper function. Exercise care during device handling to reduce the possibility of accidental device breakage.

2. As with all catheter-based procedures, infection is a possibility. Observe sterile technique at all times when using the Perclose ProGlide™ SMC System. Employ appropriate groin management, as per hospital protocol, post procedure and post hospital discharge to prevent infection.

3. Use a single wall puncture technique. Do not puncture the posterior wall of the vessel.

4. Do not deploy the Perclose ProGlide™ SMC device at an angle greater than 45 degrees, as this may cause a cuff miss.

5. There are no reaccess restrictions if previous access site repairs were achieved with Abbott Vascular SMC devices.

6. If significant blood flow is present around the Perclose ProGlide™ SMC device, do not deploy needles. Remove the Perclose ProGlide™ SMC device over a 0.038" (0.97mm) (or smaller) guidewire and insert an appropriately sized introducer sheath.

7. When pushing the plunger assembly to advance the needles, stabilize the device to ensure the device does not twist or move forward during deployment. Twisting the device could lead to needle deflection resulting in a cuff miss. Do not use excessive force or repeatedly push the plunger assembly. Excessive force on the plunger during deployment could potentially cause breakage of the device, which may necessitate intervention and / or surgical removal of the device and vessel repair.

8. Do not apply excessive force to the lever when returning the foot to its original

position (marked #4) down to the body of the device. Do not attempt to remove the device without closing the lever. Excessive force on the lever of the device or attempting to remove the device without closing the lever could cause breakage of the device and / or lead to vessel trauma, which may necessitate intervention and / or surgical removal of the device and vessel repair.

9. Do not advance or withdraw the Perclose ProGlide™ SMC device against resistance until the cause of that resistance has been determined (see Section 11.3 Single SMC DEVICE PLACEMENT section). Excessive force used to advance or torque the Perclose ProGlide™ SMC device should be avoided, as this may lead to significant vessel damage and / or breakage of the device, which may necessitate intervention and / or surgical removal of the device and vessel repair.

10. If excessive resistance in advancing the Perclose ProGlide™ SMC device is encountered, withdraw the device over a 0.038" (0.97 mm) (or smaller) guidewire and reinsert the introducer sheath or use manual compression.

11. Remove the Perclose ProGlide™ sheath before tightening the suture. Failure to remove the sheath prior to tightening the suture may result in detachment of the tip of the sheath.

12. In using this or any other suture material, care should be taken to avoid damage from handling. Avoid crushing damage due to application of surgical instruments such as clamps, forceps or needle holders.

13. During closure of access sites using a 5 – 8F procedural sheath, use manual compression in the event that bleeding from the femoral access site persists after the use of the Perclose ProGlide™ SMC device.

14. During closure of access sites using a procedural sheath > 8F, in the event that bleeding from the femoral access site persists after the use of the Perclose ProGlide™ SMC devices, the physician should assess the situation. Based on the physician assessment of the amount of bleeding use manual compression, compression assisted devices and / or a surgical repair to obtain hemostasis.

15. During closure of access sites using a procedural sheath > 8F, in those cases where the implanting physician is not a vascular surgeon, it is recommended that a vascular surgeon or a surgeon with vascular training be available during the procedure to perform any necessary surgical intervention.

POTENTIAL ADVERSE EVENTS

Potential adverse events associated with use of suture mediated closure devices may include, but are not limited to, the following:

- Allergic reaction or hypersensitivity to device components
- Anemia
- Arterial stenosis / occlusion
- Arteriovenous fistula
- Bleeding / hemorrhage
- Bruising / hematoma
- Death
- Deep vein thrombosis
- Device entrapment
- Device failure / malfunction / misplacement
- Diminished pulses distal to closure site
- Embolism
- Hypotension / hypertension
- Infection / sepsis
- Inflammation
- Intimal tear / dissection
- Ischemia distal to closure site
- Nerve injury
- Numbness
- Pain
- Perforation
- Pseudoaneurysm
- Pulmonary embolism
- Retroperitoneal hematoma / bleeding
- Thrombus formation
- Vascular injury
- Vasoconstriction / vasospasm
- Vasovagal episode
- Wound dehiscence

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Annual Business Meeting, for Members Only

Electing Secretary, Welcoming President, Presenting Awards

The SVS Annual Business Meeting serves a vital, mandated function, with members conducting important Society business.

This year, not only will President Michel S. Makaroun, MD, hand his gavel over to President-Elect Kim Hodgson, MD, members also will elect a new secretary from among three candidates and will affirm the Nominating Committee's selection of the candidate for vice president.

The meeting is from 12 to 1:30 p.m. Saturday, in Potomac C. Members also will receive updates from officers and select committees and recognize outstanding achievements and awards from the Journal of Vascular Surgery, SVS Foundation, and SVS.

Only Active and Senior members may vote, which will be accomplished with Audience Response System devices. Staff will be on hand to double-check membership status for those unsure of their voting status.

The following people will receive awards during the luncheon:

SVS Presidential Citation Award: Marie Rossi, RN, BS, for her leadership of the Society for Vascular Nursing and tireless work in achieving a close relationship between the SVN and

the SVS; Benjamin Pearce, MD, and Tej Singh, MD, for their dedication to improve and upgrade SVS patient education materials; Sean P. Roddy, MD and Matthew Sideman, MD, for their tireless work in advocating for and protecting the interests of our specialty; Michael S. Conte, MD, John White, MD, and Joe L. Mills, MD, for their dedicated effort to complete the Global Vascular Guidelines Project; and Dawn M. Coleman, MD, and Malachi G. Sheahan III, MD, for their dedication to improving the well-being of our members and all vascular surgeons.

SVS Awards

Women's Leadership Training Grants: Rachel Danczyk, MD, Lori Pounds, MD, and Jessica Simons, MD.

SVS Vascular Surgery Trainee Advocacy Travel Scholarship: Ian Schlieder, MD.

SVS Foundation Awards

SVS Foundation and American College of Surgeons Mentored Clinical Scientist Research Career Development Award (K08): Jean Marie Ruddy, MD.

SVS Foundation and ACS Mentored Patient-Oriented Research Career Development Award (K23): Misty D. Humphries, MD.



DR. MAKAROUN

Bridge Grant: Wei Zhou, MD.

E.J. Wylie Traveling Fellowship: Douglas W. Jones, MD.

Clinical Research Seed Grant: Sikandar Khan, MD, Shirling Tsai, MD; and Efthymios Avgerinos, MD (winner of the Clinical Research Seed Grant Challenge on Wednesday).

Resident Research Award: Frank Davis, MD.

Research Career Development Travel Award: Young Erben, MD, and Claire Griffin, MD.

Vascular Cures/SVS Foundation Wylie Scholar Award: Andrea Obi, MD.

Community Awareness and Prevention Project Practice Grant: Soma Brahmanandam MD, Leigh Ann O'Banion, MD, and Uwe Fisher, PhD.



DR. HODGSON

of Medicine; Erin Driscoll, Lerner Research Institute, Cleveland Clinic; Arash Fereydooni*, Yale School of Medicine; Ryan Foley, University of Nebraska Medical Center; Brandon Glousman*, George Washington University; Linh Ngo Khanh, Northwestern University Feinberg School of Medicine; Jason Park, Boston Medical Center; Muzammil Hussain Syed*, St. Michael's Hospital; Gregory Tsougranis*, White River Junction Veterans Administration Medical Center; and Lena Vodovotz, University of Pittsburgh. **vc**

*Awarded a SVS General Surgery Resident/Medical Student VAM Travel Scholarship

Examining Mortality After Lower Extremity Amputation in the Modern Era

Although medical and surgical advances have improved limb-salvage outcomes, resulting in a decline in amputation rates over the past two decades, there is limited contemporary data describing the expected long-term mortality after major lower extremity amputation.

Karina Newhall, MD, of Dartmouth Hitchcock Medical Center, Lebanon, N.H., and her colleagues performed a study to better understand mortality after major lower extremity amputation and its association with limb-salvage procedures.

In Saturday's Scientific Session 8, Dr. Newhall will present their results assessing patients who underwent major lower extremity amputation (below knee or above knee) between 2012 and 2018 within the Vascular Quality Initiative. They excluded repeat or second amputation procedures, restricting the analysis to patients who underwent their first major amputation.

The primary exposure of interest was preoperative limb-salvage attempts with the primary outcome being mortality, which was determined using Kaplan-Meier survival estimation.

They also examined the crude and adjusted hazard ratio of mortality for preamputation arterial

interventions using Cox-proportional regression, adjusting for patient and procedure-based characteristics known to impact overall mortality. Dr. Newhall and her colleagues assessed more than

'Mortality after major lower extremity amputation has improved from historical series, with over 50% survival at 5 years for even above knee amputees.'

8,000 patients who underwent their first below knee or above amputation.

The average follow-up was 1.43 years and the Kaplan-Meier estimated survival for all major amputees was around 63% at five years. They found that survival was significantly lower for above knee amputation than below knee amputation.

There was a modest trend toward lower mortality for patients who underwent ipsilateral arterial intervention prior to major lower extremity amputation, according to Dr. Newhall and her colleagues.

The data showed that, when analyzed by the

type of intervention, previous ipsilateral bypass offered a slight survival advantage compared to percutaneous intervention.

However, in the course of the analysis, Dr. Newhall and her colleagues also noticed that slightly more than 1/3 of the patients had no follow up beyond their length of stay.

Excluding patients with missing Social Security numbers, they noted similar overall survival curve for below and above knee amputation, with no change in regression estimates.

"Mortality after major lower extremity amputation has improved from historical series, with over 50% survival at 5 years for even above knee amputees," said Dr. Newhall.

"Gains in medical management of underlying disease process benefit patients even after end-stage events, such as amputation," Dr. Newhall concluded. **vc**

Saturday, June 15

8-9:30 a.m.

Gaylord National, Potomac A/B

S8: Scientific Session 8: RS21

Lifetime Achievement, Innovation Award On Tap

Three of the Vascular Annual Meeting's signature events – celebrations along with distinguished lectures – occur on Saturday, VAM's closing day. All conveniently occur in the morning, shortly before the start of the SVS Annual Business Meeting and luncheon and take place in Potomac A/B.

The John Homans Lecture, 9:30 to 10 a.m.: Jack Cronenwett, MD, Dartmouth-Hitchcock Medical Center, Lebanon, N.H., will present the lecture, "Why Should I Join the Vascular Quality Initiative?" Dr. Cronenwett spearheaded a regional quality outcomes registry, the eventual model for VQI. He later helped launch the SVS-Patient Safety Organization, which operates VQI and served as medical director until 2016. Dr. Cronenwett will discuss the VQI's benefits for vascular practitioners and examine the VQI's research and quality improvement opportunities.

The Roy Greenberg Distinguished Lecture, 10:15 to 10:45 a.m.: Michael Dake, MD, professor at Stanford (Calif.) University, will present "The Vision Beyond the Vision: Same as it Ever Was, but Different." Dr. Dake is an internationally



recognized pioneer of image-guided therapies whose contributions have changed the treatment of both common and complex vascular disease issues. His groundbreaking research with CT angiography, endovascular stents and stent-grafts has forever altered the interventional landscape and his publications have dramatically influenced

several fields, including vascular imaging.

Awards Ceremony, 10 to 10:15 a.m.: Who will win two of the SVS's top honors? Attendees will find out at the Awards Ceremony, during which the Lifetime Achievement Award AND the Medal for Innovation in Vascular Surgery will be presented.

The Lifetime Achievement Award recognizes an individual's outstanding and sustained contributions to the profession and SVS, and his or her exemplary professional practice and leadership. The 2018 recipient was Gregorio Sicard, MD.

The Medal for Innovation is not an annual award; it recognizes individual whose contributions have had a transforming impact on the practice or science of vascular surgery. Past recipients include Juan Parodi, MD (2006); Timothy Chuter, MD (2008); Thomas Fogarty, MD (2010); Roy Greenberg, MD (2012); and, most recently, Edward Diethrich, MD (2013).

The identities of these two recipients are a closely guarded secret until the presentation. Be part of the unveiling and celebration. **VC**

Rib Resection for TOS Showed Good Long-term Results

In Saturday's Scientific Session 8, Anahita Dua, MD, will present the results of a survey analysis that she and her colleagues performed to examine long-term, objective functional outcomes of patients with thoracic outlet syndrome (TOS) who underwent rib resection.



DR. DUA

reached via telephone for long-term follow-up. A total of 188 surgeries were performed in these 170 patients. The mean follow-up time for the cohort was 5.3 years. The mean age of the patients was 29.9 years and the majority (65%) were women. Overall,

167 (88.9%) of patients returned to baseline activity postoperatively.

"This is one of the longest follow-ups reported of any TOS series in the literature; our results confirm that the majority of patients have both an objectively measured benefit and subjectively reported return to baseline functional activity over a period of as long as 18 years after rib resection. This research serves to inform surgeons about patient perceptions and outcomes long term after rib resection, and can be cited to educate patients about the impact of a rib resection procedure," Dr. Dua concluded. **VC**

Dr. Dua, of Stanford (Calif.) University and her colleagues examined clinical records for patients who underwent rib resection for TOS at a single institution. They then contacted patients via telephone and used the Disability of the Arm, Shoulder, and Hand (QuickDASH) questionnaire in order to assess long-term functional outcome.

"Although short-term outcomes in patients with all forms of thoracic outlet syndrome have been widely reported in the literature and have established that rib resection can be beneficial, we sought to determine long term, objective functional outcomes in patients with TOS who underwent rib resection," said Dr. Dua.

They found that, during 2000-2018, 261 patients underwent rib resection surgery, of whom, 170 (65.1%) were

Benefits of Compliance with SVS Clinical Practice Guidelines for AAA

The Society for Vascular Surgery (SVS) Clinical Practice Guidelines for Abdominal Aortic Aneurysms was published in 2018 with the goal of improving clinical outcomes and reducing practice variation in the treatment of AAA.

Jens Eldrup-Jorgensen, MD, of the Maine Medical Center, Portland, and his colleagues conducted a study using data from the Vascular Quality Initiative (VQI) to determine compliance and its impact on outcomes with specific recommendations in the AAA guidelines.

In Saturday's Scientific Session 8, Dr. Eldrup-Jorgensen will discuss the 111 recommendations that were analyzed to select those captured by VQI data in order to measure compliance and association with outcomes. The study cohort included elective and emergent open surgical AAA and endovascular (EVAR) repairs enrolled in VQI since 2003. Outcomes included respiratory complications and in-hospital and one-year mortality.

A total of 15 of the 111 (13.5%) guideline recommendations met VQI data definitions. Dr. Eldrup-Jorgensen and his colleagues found that compliance with certain recommendations were directly associated with improved outcomes: the administration of antibiotics within 30 minutes of repair; and the use of autotransfusion during open

AAA repair. However, poorer outcomes were associated with a diameter threshold for repair of 55 mm in men and 50 mm in women.

On univariate analysis of EVAR (37,547 patients) and open AAA (9,060 patients), those who received preoperative antibiotics had significantly lower rates of respiratory complications, as well as significantly lower in-hospital mortality. The use of preoperative antibiotics also significantly improved one-year mortality.

In addition, their study showed that autotransfusion during open AAA was associated with both significantly lower in-hospital and 1-year mortality, compared with when it was not used.

The study showed that VQI can determine and confirm the impact of compliance with recommendations regarding therapeutic processes in the SVS AAA guidelines. However, it is less valuable in assessing recommendations regarding indications for repair. Further coordination between VQI and the SVS guidelines is recommended, according to Dr. Eldrup-Jorgensen. **VC**

Saturday, June 15

8-9:30 a.m.

Gaylord National, Potomac A/B
S8: Scientific Session 8: SS27

Saturday, June 15

8-9:30 a.m.

Gaylord National, Potomac A/B
S8: Scientific Session 8: SS28

AVF Maturation Can Be Successful Using Smaller Veins

In Saturday's Scientific Session 8, Yana Etkin, MD, will present a study that she and her colleagues performed to examine the maturation rates of arteriovenous fistulas utilizing small veins in the era of endovascular interventions.

Traditional practice suggests the exclusion of veins smaller than 3 mm in diameter for arteriovenous fistula (AVF) creation, because of their low rate of maturation. Dr. Etkin and her colleagues performed their study to show that with balloon-assisted maturation (BAM), undersized veins can be used to create functional AVFs.



DR. ETKIN

Their retrospective study reviewed all patients who underwent AVF creation between 2014 and 2018 at a tertiary medical center. Patients without preoperative vein mapping, those who failed to follow up, and patients not on dialysis were excluded, resulting in 598 patients available for dialysis.

Dr. Etkin, of Northwell Health, New Hyde Park, N.Y., and her colleagues defined a mature fistula

as one that was successfully cannulated for dialysis.

The patient cohort was divided into a small vein group (SVG, those less than 2.5 mm) and a large vein group (LVG, those greater than or equal to 2.5 mm) based on measurements of preoperative vein size.

The study cohort comprised nearly 62% men, with an average age of 62.8 years, and an average preoperative vein size of 2.9 mm. Although both groups had a similar demographic distribution, the 216 SVG patients had an average significantly smaller preoperative vein size of 1.9 mm, compared to the 380 patients in the LVG whose average vein size was 3.5 mm.

There were significantly more radiocephalic AVFs created in SVG (77.8% vs. 48.7%). The overall rate of maturation was 83.1%; of which 44.2% of AVFs matured primarily and the rest required interventions.

Among all the patients, 91.0% required only one or two balloon-assisted maturations to achieve success. The SVG achieved a maturation rate of 75.9% as compared to 87.1% in the LVG, a significant difference.

A significantly higher number of patients in the SVG required balloon-assisted maturation as compared to the LVG, (67.7% vs. 49.9%). However, there was no difference in the average number of BAMs required for individual fistula maturation between the groups (1.5 for SVG vs.

1.4 for LVG), according to Dr. Etkin.

Multiple logistic regression analysis showed that vein size greater than or equal to 2.5 mm (odds ratio, 2.11) and male sex (OR, 2.30) were significant independent predictors for higher maturation

Small veins can be used for AVF creation with excellent maturation results, which can greatly increase the creation of autogenous dialysis access.

rate. However, age and type of fistula created were not associated with maturation.

"Small veins can be used for AVF creation with excellent maturation results utilizing BAM interventions. This practice can greatly increase the creation of autogenous dialysis access and potentially reduce complications related with prosthetic dialysis access," Dr. Etkin concluded. **VC**

Saturday, June 15

8-9:30 a.m.

Gaylord National, Potomac A/B

S8: Scientific Session 8: SS27

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1. Palat, BM, Fundamentals of Industrial Ergonomics, Chapter 7: 177. Prospect Heights, Illinois: Waveland Press, Inc., 1992.

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Heard in the Hallway at VAM 2019

What are you looking forward to at the meeting?



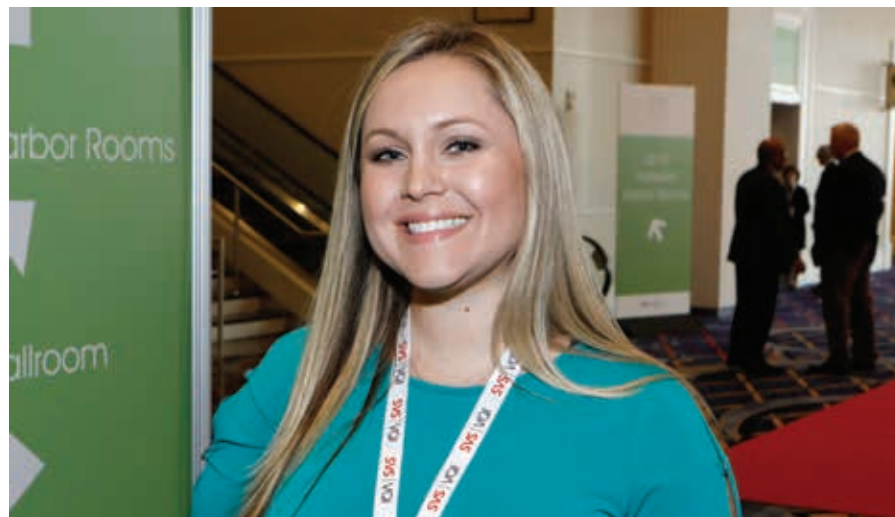
Jill Sommerset, vascular technologist, attending her first VAM – I’m presenting a poster, “Pedal Acceleration Time (PAT): A Novel Predictor of Limb Salvage.” Historically, we’ve stopped imaging at the ankle and used other testing to get a sense of the blood supply to the foot. We’re using ultrasound to image the pedal arch; we think this technique will help patients with CLTI.



Matthew Corriere, MD – The Clinical Research Seed Grant Challenge. I’m looking forward to handing out money to support innovative research done by vascular surgeon-scientists. (Efthymios Avgerinos, MD, won the \$10,000 SVS Foundation grant for his research project, “The Value of Screening for High on Treatment Platelet Reactivity in Patients undergoing Lower Extremity Arterial Endovascular Interventions.”)



K. Benjamin Lee, MD – I’m really excited to hear about the new research going on, especially BEST-CLI (Best Endovascular vs. Best Surgical Therapy in Patients with Critical Limb Ischemia). Everyone’s waiting for that. I’m going to be applying for fellowships in the fall, so I’m also looking forward to the Residency Fair to look at programs and meet program directors.



Roxanne Phillips, nurse practitioner, attending her first Society for Vascular Nursing conference – I’m presenting a poster on a quality-improvement program on statins for PAD patients that utilizes IT records. If a patient is not on a statin, his or her record is flagged. We saw a statistically significant improvement, so it’s promising. (Note: Her entry was the winner in the poster contest.)



Scalpels and clamps — integral tools in the operating room — attract a crowd of surgeons in the Exhibit Hall Thursday.



Catherine Go, MD, takes advantage of the free headshots available both Thursday and Friday at the SVS Booth in the Exhibit Hall.

Optimally Identifying PAD

Although asymptomatic peripheral artery disease (PAD) has been identified as a risk factor for cardiovascular morbidity, stroke, and daily life disability, identification of these patients allows for early medical optimization and the possibility of reducing the risk of atherosclerotic progression, according to Mark Conant, MD, of the University of South Florida, Tampa.

Dr. Conant and his colleagues sought to determine if underscreening existed in their hospital system. They used the current SVS, American Heart Association/American College of Cardiology (AHA) and American Diabetes Association (ADA) guidelines to identify at-risk patients.

The researchers used a database comprising all data directly rendered from a university hospital system's electronic medical record. Multiple search queries were performed using CPT and ICD-10 codes corresponding to "at-risk" conditions for screening asymptomatic PAD as identified from the guidelines.

More than 1 million patients were present in the university health system; and nearly ½ million were aged 50 years and older.

Of the patients over age 50, 16% were identified as smokers and 15% were identified as having diabetes. In this population, 86% of smokers and 85% of patients with diabetes had not been screened for PAD.

There were 205,698 patients aged 70 years and older and 91% of these had not been screened for PAD. A significant proportion of patients within a university hospital system who met criteria for PAD screening by SVS, AHA/ACC, and ADA guidelines had not been screened.

These findings may provide an opportunity for improvement in this system to better provide risk stratification, preventive care, and management of PAD by establishing a formal screening process based on a guideline-driven algorithm, according to Dr. Conant and his colleagues. **vc**

Saturday, June 15

8:00-9:30 a.m.

Gaylord National, Potomac A/B

S8: Scientific Session 8: RS22

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Study: Exercise Therapy Can Damage Muscles in Some Claudicated Patients

Supervised exercise treadmill training (SETm) is currently a First-Line treatment for patients with peripheral arterial disease (PAD). However, there is a concern that vigorous treadmill training may produce damage in ischemic leg muscles, according to Shuai Li, MD, a postdoctoral researcher in the group of Drs. Pipinos and Casale at the University of Nebraska Medical Center, Omaha.

Dr. Li will discuss their study that assessed 42 claudicating patients who received 6 months of standard SETm therapy as it is prescribed in the guidelines of the American Heart Association and American College of Cardiology. Ankle-brachial index (ABI), six-minute walking distance (SMWD), claudication onset time (COT), peak walking time (PWT), and results from the Walking Impairment Questionnaire (WIQ) were all recorded. In addition, calf muscle biopsies were collected at the beginning and end of SETm.

Dr. Li and his colleagues determined myofiber shape (aspect ratio), size (cross-sectional area; X-Area and its standard deviation) and OxD (4-hydroxy-2-nonenal adducts) by quantitative

fluorescence microscopy. Tissue fibrosis (collagen abundance) was quantified as gsu (gray scale units) with Masson Trichrome staining.

Overall, SETm significantly improved COT and PWT, but not ABI or SMWD. However, the myofiber aspect ratio increased significantly after SETm, reflecting deviation from regular polygonal to irregular shapes. In addition, calf muscle fibrosis significantly increased post-SETm. Mean myofiber X-Area did not change. However, the standard deviation of X-Area (a measure of myofiber damage) increased significantly.

A microscopic review of calf muscles before and after SETm therapy identified a subgroup (Group 1) of 40% of claudicating PAD patients whose myofibers appeared normal

prior to SETm but progressed to moderate-to-severe pathology. The myofibers of a second subgroup (Group 2) of 60% of patients appeared to have no obvious changes both before and after therapy.

After SETm therapy, calf muscle in Group 1 had significantly decreased myofiber X-Area, increased myofiber aspect ratio and muscle fibrosis and,

in the lower 25th percentile of myofiber X-Area, significantly increased OxD. Patients in Group 1 did not improve in WIQ scores, whereas Group 2 patients had significantly improved WIQ scores for pain and speed of daily walking. Group 1 patients exhibited a trend toward reduced SMWD after SETm, in contrast to Group 2 patients who exhibited no trend for SMWD.

“Our study documents pathological changes in calf muscle of 40% of claudicating PAD patients who completed 6 months of SETm training, even though these patients had significantly improved COT and PWT. This subgroup of PAD patients with SETm associated calf muscle damage experienced no improvement in quality of life. This suggests a need to modify the current prescription of standard SETm therapy for PAD patients. The benefits and risks of exercise treadmill training for PAD patients merit further research so that a clinician’s ability to tailor the therapy for different patients can be optimized,” Dr. Li concluded. **VC**



DR. LI

Saturday, June 15

1:30-2:30 p.m.

Gaylord National, Potomac 4-6

S10: Scientific Session 10/Late-Breaking: LB4

Comparing Survival Between Elective Endo, Open AAA Repair

In Saturday’s Late-Breaking session, former SVS President, Julie Freischlag, MD, of Wake Forest Baptist Health, Winston-Salem, N.C., will present a study comparing perioperative and midterm mortality between elective endovascular repair and traditional open repair of abdominal aortic aneurysms (AAA).

Dr. Freischlag and her colleagues assessed 881 patients with asymptomatic AAA, who were eligible for both procedures, underwent repair and were followed for up to 14 years.

They found that, for the primary outcome of all-cause mortality, 302 deaths (68.0%) occurred in the endovascular repair group versus 306 (70.0%) in the open-repair group (hazard ratio, 0.96). Even though survival appeared to be better in the endovascular repair group in the first 4 years, the trend then favored the open-repair group in years 4-8.

After 8 years, the trend again favored

the endovascular repair group. However, none of these period trends were significant. Twelve (2.7%) aneurysm-related deaths occurred in the endovascular repair group (compared with 16 (3.7%) in the open-repair group, most in the perioperative period.

Seven aneurysm ruptures were noted in the endovascular repair (1.6%) group, compared with one rupture of a thoracic aneurysm in the open-repair group (0.2%). Deaths from chronic obstructive lung disease were slightly more than 50% more common in the open-repair group and a difference between

groups was noted in secondary therapeutic procedures.

The study did not confirm the worse late performance of endovascular repair reported in two recent European trials, according to Dr. Freischlag. **VC**



DR. FREISCHLAG

Saturday, June 15

1:30-2:30 p.m.

Gaylord National, Potomac 4-6

S10: Scientific Session 10/Late-Breaking: LB1

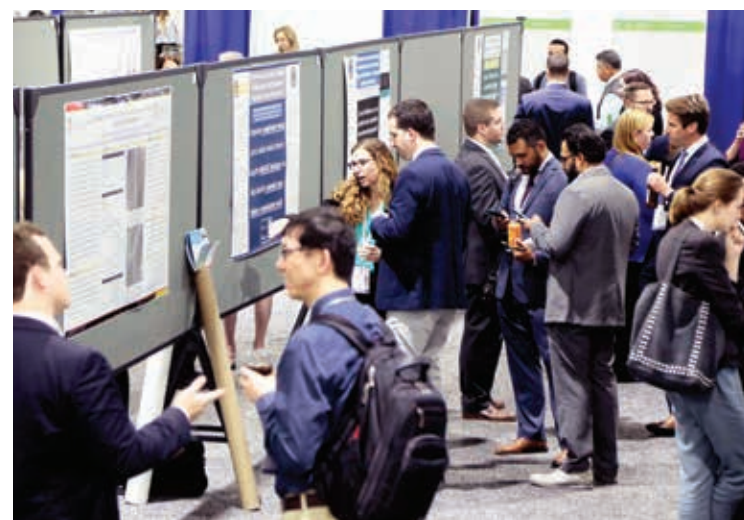
Audience Selects Poster Winners

The audience helps choose the cream of the poster crop in Saturday’s Championship Round of the Poster Competition.

The rapid-paced session, with three minutes of presentation and two minutes of discussion — is from 3:30 to 4:30 p.m. Saturday in Maryland A. New SVS President Kim Hodgson, MD, and President-elect Ronald Dalman, MD, will lead questions and discussions following presentations by the 10 finalists. The 10 ascended to the championship round after Friday’s presentation of approximately 120 posters.

Venita Chandra, MD, will moderate the session.

During Saturday’s runoff, audience members will use Audience Response System devices to score each presentation. **VC**



Attendees enjoy the Interactive Poster Session Thursday evening.

Early Outcomes Presented From ROADSTER 2

Vikram S. Kashyap, MD, of the University Hospitals Cleveland Medical Center, will present results from ROADSTER 2, a prospective, multicenter, postapproval registry for patients undergoing transcatheter carotid artery revascularization (TCAR). This technique involves carotid artery stenting with cerebral protection via reversal of carotid arterial flow. The aim of the study was to evaluate the real-world safety and efficacy of TCAR.

Dr. Kashyap and his colleagues enrolled 623 patients who were

considered at high risk for complications from carotid endarterectomy (CEA) and who had symptomatic stenosis equal to or greater than 50% or asymptomatic stenosis equal to or greater than 80%. The primary endpoint was procedural success, which encompassed technical success plus the absence of stroke, myocardial infarction, or death within the 30-day postoperative period. Secondary

endpoints were acute device success (delivery of device, establishment of flow reversal, and retrieval), technical

success (acute device success plus introduction of interventional tools), stroke, death, and the composite of stroke, death, or myocardial infarction (S/D/MI), according to Dr. Kashyap.

A total of 599 of the patients completed 30-day follow-up. The cohort included 67.0% men, 42% older than 75 years, and 26.8% with symptoms. Overall, 68.2% of the patients had anatomic-related high-risk factors, 56.5% had physiologic high-risk factors, and 24.7% had both. The majority (81.2%) of the operators in this study were new to TCAR and did not participate in the ROADSTER 1 trial.

The early postoperative outcomes included five patients (0.8%) suffering a stroke, one patient (0.2%) dying

from a ruptured AAA two weeks post-procedure, and six (1.0%) having an MI. The composite stroke/death/MI rate was 1.9%.

"TCAR results in excellent early outcomes with a combined stroke/death rate of 1.0%. Broader, longer-term, comparative studies are needed in this area. But if these results can be confirmed, I believe TCAR may become a favorable alternative to transfemoral carotid artery stenting, and even rival carotid endarterectomy," Dr. Kashyap concluded. **VC**

Saturday, June 15

1:30-2:30 p.m.

Gaylord National, Potomac 4-6

S10: Session 10/Late-Breaking: LB2

RPVI Review Course Is Saturday

Preparing to take the Registered Physician Vascular Interpretation exam? Then register for the "Ultrasound Physics and Vascular Test Interpretation – RPVI examination review" from 1:30 to 5 p.m. Saturday in National Harbor 10/11.

A separate registration fee and ticket are required.

Cost is \$75 for SVS Candidate members-in-training (all categories), nonmember medical students, vascular and general surgery residents, and allied health professionals; \$100 for SVS Candidate members; \$150 for SVS members; and \$200 for nonmember physicians.

Topics include ultrasound physics, basic ul-

trasound interpretation, cerebrovascular and abdominal topics, peripheral duplex, peripheral physiologic, deep venous, venous insufficient and laboratory testing and operations.

Michael Go, MD, and Ankur Shukla, MD, are the moderators. **VC**

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Is Surveillance Futile for Small AAAs in the Very Elderly?

To determine the necessity of permanent monitoring of small aortic aneurysms in the elderly,

Mark Rockley, MD, of the Ottawa Hospital and his colleagues investigated the yield of ultrasound surveillance for small abdominal aortic aneurysms (AAAs) in octogenarians, as compared with a younger population.

Their goal was to detect the frequency of AAA growth reaching the threshold size for

repair. Secondary objectives included analysis of the incidence of AAA repair, and the cost-effectiveness of surveillance.

In Saturday's Scientific Session 8, Dr. Rockley will report on their retrospective cohort study performed on all patients undergoing AAA surveillance in Ottawa during 2007-2017. The patients were split into two groups by enrollment age (those younger and

those equal to or older than 80 years of age) with cross-over to prevent lead-time bias, and stratification by enrollment AAA size.

The two cohorts were cross-referenced with the Ottawa Surgical Database, leveraging the common health region to assure complete data capture, according to Dr. Rockley.

The threshold size for repair was sex specific (women at 5.0cm, men at 5.5 cm) and the factors influencing

AAA growth rate were assessed using multiple linear regression. Analyses with Cox proportional hazards and multiple regression models adjusted for sex and enrollment aneurysm size, and cost-effectiveness were analyzed by referencing Ontario billing codes.

The researchers found that 1,231 patients underwent serial ultrasound surveillance, of which 460 (37.4%) were octogenarians at the time of en-

rollment. Multiple linear regression demonstrated that old age, male sex, and smaller enrollment aneurysm

Octogenarians are half as likely as their younger counterparts to experience aortic growth reaching the repair threshold size.

size were significantly protective against AAA growth.

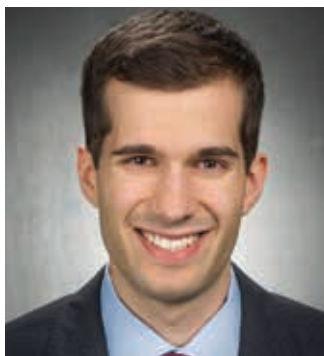
Overall, 355 (28.8%) subjects reached the AAA size threshold for repair, and 313 (25.4%) underwent AAA repair. Octogenarians were half as likely to reach the AAA threshold size for repair when compared with their younger counterparts, and of the 355 subjects whose AAA reached the threshold size for repair, octogenarians were half as likely to undergo elective AAA repair).

Repair of ruptured AAA was rare (0.94%) and age differences were insignificant. The cost of ultrasound surveil-

lance alone to identify one patient who ultimately received elective AAA repair was more than four times more expensive for octogenarians with 3.0-3.9-cm enrollment aneurysms, when compared with the rest of the study sample (\$12,080 vs. \$2,915, in Canadian dollars, respectively), said Dr. Rockley.

"Our study showed that octogenarians are half as likely as their younger counterparts to experience aortic growth reaching the repair threshold size. Furthermore, in the event of reaching the size threshold, octogenarians are half as likely to undergo repair, without a significantly increased risk of requiring repair for AAA rupture. In the context of patient-specific factors and wishes, surveillance of AAA less than 4cm in octogenarians is costly and unlikely to be beneficial."

Dr. Rockley concluded. **VC**



DR. ROCKLEY

Saturday, June 15

8-9:30 a.m.

Gaylord National, Potomac A/B
S8: Scientific Session 8: SS29

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Open vs. Endo Treatment of Venous Anastomotic Lesions in Hemodialysis

Arteriovenous graft (AVG) failures are typically associated with venous anastomotic stenosis, and most studies comparing outcomes of open vs. endovascular thrombectomy treatment have shown equipoise. However, the inherent bias of these studies has been the fact that the venous anastomosis was managed with endovascular means even in the open surgical thrombectomy groups, according to Catherine Go, MD, of the University of Pittsburgh.

There is little evidence to support balloon venoplasty and/or stenting as more durable compared to patch venoplasty or proximal bypass extension of the AVG, she added.

In Saturday's plenary, Dr. Go will present a study that she and her col-

leagues performed to assess outcomes of consecutive patients with an AVG who underwent their first thrombectomy and a venous anastomosis intervention during January 2014–July 2018.

They examined patient demographics, previous access history, central vein patency, AVG anatomy, type of intervention, and follow-up data. Kaplan-Meier was used to analyze time from thrombectomy to first reintervention (post-intervention primary patency) and time to abandonment (post-intervention secondary patency). They also used Cox regression analysis to evaluate predictors of failure.

The study included 105 patients (51 women, mean age of 64.2 years old) with 42 forearm, 51 upper arm, and 12 lower extremity AVGs.

Overall, there were 37 open revisions and 68 endovascular interventions at the venous anastomosis. In each case, technique selection was

The strongest significant predictor for primary failure was percutaneous thrombectomy (hazard ratio, 4.18).

based on physician preference. There were no differences between open and endo groups in baseline demographics or graft anatomy, material, or age, according to Dr. Go.

Grafts undergoing open revision had an average of 1.3 previous interventions whereas those undergoing endo had 0.46 previous interventions, a significant difference.

However, post-intervention primary patency for open and endo groups was 31.2% and 36.0% at six months and 21.0% and 14.0% at 12 months,

both nonsignificant differences. At six months, secondary patency was 63.9% and 51.4% for open and endo interventions, respectively, and 40.5% and 36.6% at 12 months, also nonsignificant differences, according to Dr. Go.

The open group required an average of 3.0 procedures to maintain secondary patency to 12 months while the endo group averaged 1.8 procedures, but this was nonsignificant.

The strongest significant predictor for primary failure was percutaneous thrombectomy (hazard ratio, 4.18), while the presence of an existing stent at the venous anastomosis (HR, 3.85) and the age of the graft (HR, 0.973) were significantly predictive of abandonment, according to Dr. Go.

She and her colleagues found that open vs. endovascular intervention was not predictive of failure nor abandonment.

"Open and endovascular interventions at the venous anastomosis of AVGs lead to poor but comparable patency rates at 6 and 12 months," concluded Dr. Go. **vc**

How to Earn Your CME, MOC Credits at VAM

Physician registrants can get a big boost in collecting required Continuing Medical Education (CME) and Maintenance of Certifi-

cation (MOC) self-assessment credits at the Vascular Annual Meeting.

The Society for Vascular Surgery is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. SVS has designated the 2019 Vascular Annual Meeting for a maximum of 30 AMA PRA Category 1 Credits™.

Physicians should claim only the credits commensurate with the extent of their participation in the activity.

Full credit is not available for attendance at two sessions occurring simultaneously.

A number of sessions also permit earning of MOC credits.

Participants may claim credits beginning Wednesday, June 12. Credits must be claimed by Dec. 31, 2019. **vc**

PAs Can Also Earn Credits

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The Vascular Annual Meeting is designated for 30 AAPA Category 1 CME credits. Thursday includes 3½ hours of programming specifically developed for PAs and the vascular team.

Nurses: Vascular nurses who attend the Society for Vascular Nursing Annual Conference can earn up to 13 contact hours.

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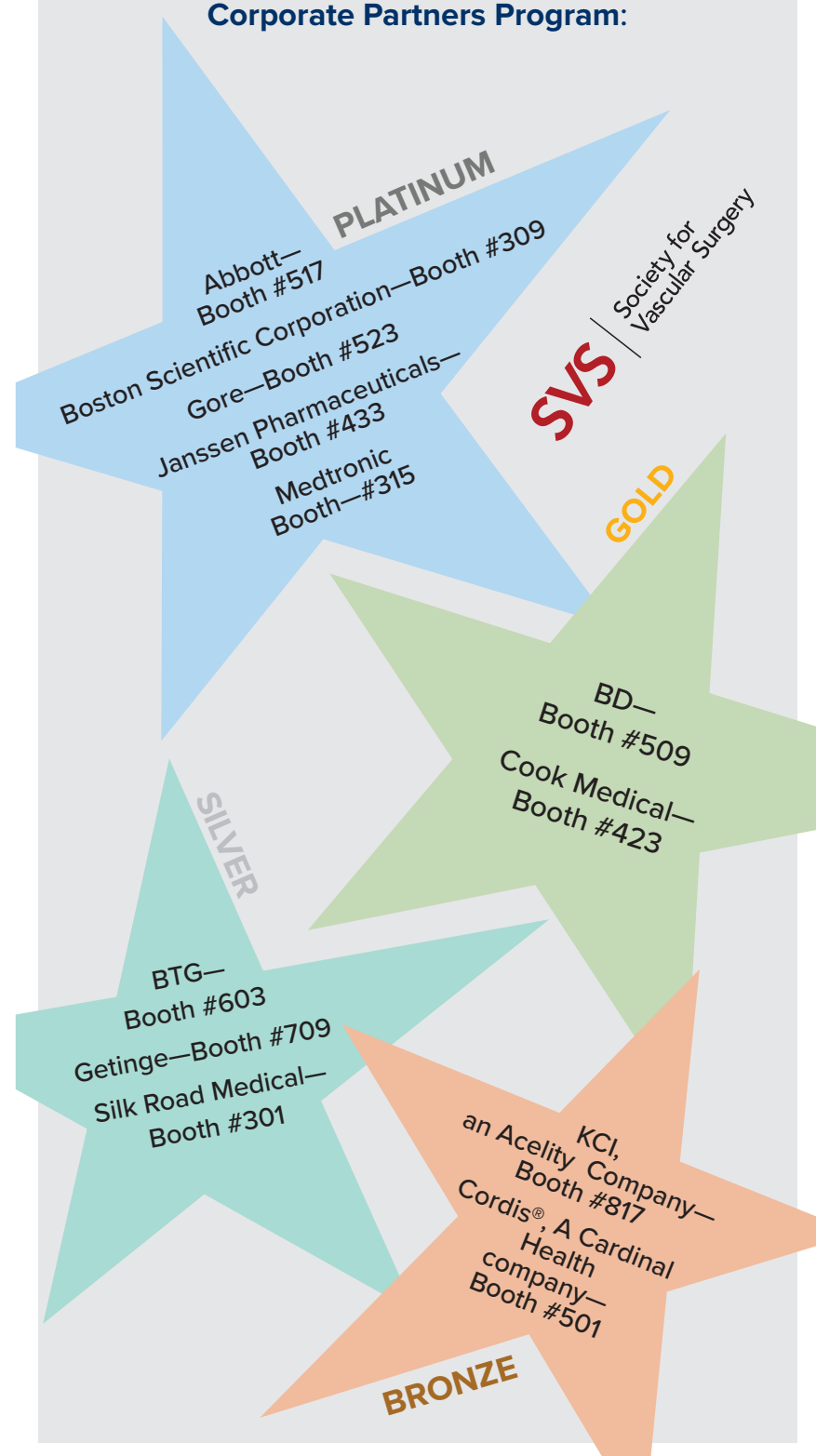
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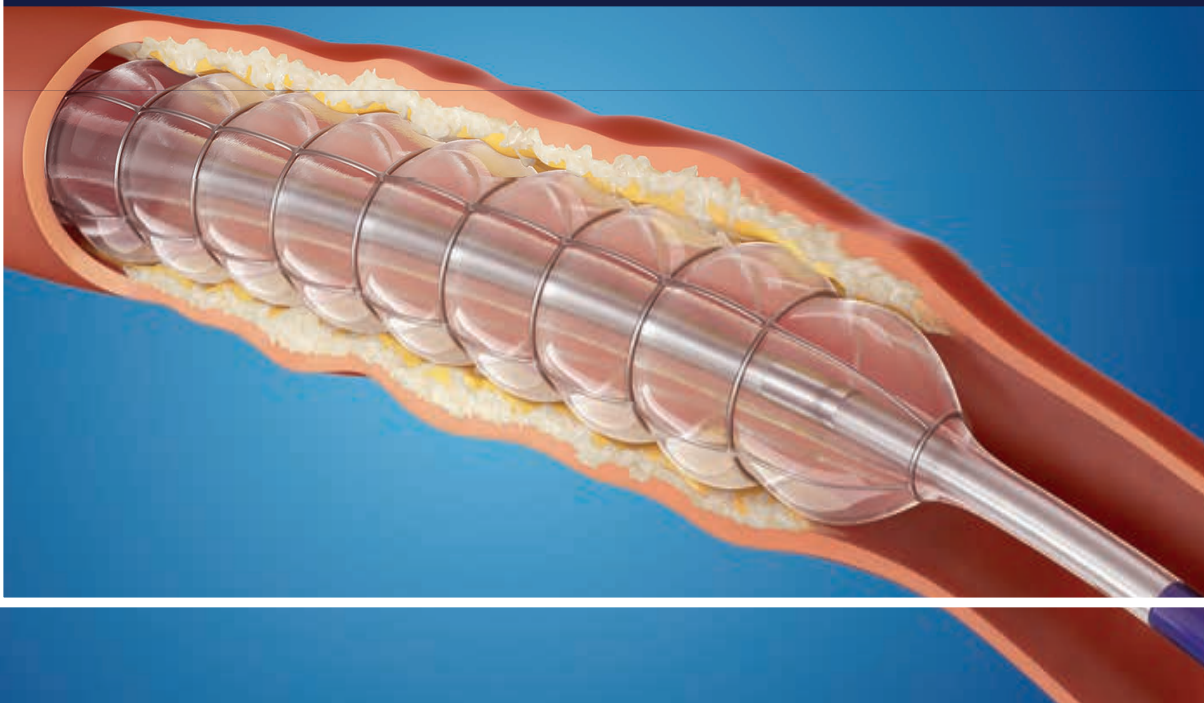
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