SNIS Society of NeuroInterventional Surgery

Fall 2020

THE Embolus

A publication of the Society of NeuroInterventional Surgery

SNIS 17th Annual Meeting

INSIDE THIS ISSUE

Even though the idea of a virtual annual meeting was new to SNIS, the 17th Annual Meeting at the beginning of August was a tremendous success. In a year that has been defined by the need to adapt and persevere, Annual Meeting Chairs Reade De Leacy and Sandra Narayanan, along with the Program Committee, leveraged a range of tools and technologies to bring more than 1,600 meeting participants the high caliber of abstract presentations, discussion forums, even virtual Exhibit Booths, that are the hallmark of this annual convening.

We couldn't have pulled this meeting off without our programming partners: the AANS/CNS Joint Cerebrovascular Section, ESMINT, ANZSNR and SVIN. We also owe special thanks to our exhibitors and sponsors who enthusiastically embraced the virtual meeting and lent their full support to SNIS.

The SNIS membership demonstrated that even within the context of the COVID-19 pandemic and the many ways it has affected neurointervention, they are hard at work finding ways address diseases of the brain, spine, head, and neck that will improve patient care. We are happy to highlight a few abstracts that were particularly compelling.

Researchers reported the success of a fully implantable wireless medical device called a stentrode brain-computer interface designed to improve functional independence in patients with severe paralysis in the study *Motor Neuroprosthesis Implanted using Cerebral Venography Improves Activities of Daily Living in Severe Paralysis*. This is the first-in-human examination of the stentrode, an implantable

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SNIS Annual Meeting On-demand

Didn't make it to a session?
View recorded sessions from the SNIS 17th Annual Meeting on-demand through November 30!

https://www.snisonline.org/meetings/snis-17th-annual-meeting/

William J. Mack, MD

Leading in Times of Uncertainty

As the president of the Society of NeuroInterventional Surgery, I appreciate the tremendous responsibility it is to lead our organization and our field during such a challenging time for our nation. Thank you to SNIS Past President Richard P. Klucznik, MD, for his dedication to guiding our field amidst a global pandemic. His leadership has been integral to advancing neurointervention.

The field is flourishing, driven by the world's brightest minds, who continue to adapt and innovate to meet the road before us. I look forward to both the challenges and opportunities to come in the year ahead; I know there will be many on both counts.

On the challenge side, we are entering a new season amid the COVID-19 pandemic. The Get Ahead of Stroke campaign continues to remind the public that stroke doesn't wait for coronavirus. Rather than avoid hospitals when experiencing stroke symptoms due to fear of exposure to COVID-19, the campaign's new initiative — launched in May — is collaborating with Get Ahead of Stroke partners and funders to encourage those with stroke symptoms to call 911 without delay to ensure the best chance at a positive outcome. To achieve this, the team has been targeting pandemic hot spots, reassessing every two weeks based on data related to the ongoing COVID-19 outbreak. They are working to place these messages of urgency in traditional media, as well as on social media platforms. Our thanks go to Cerenovus, Medtronic, MicroVention, Penumbra and Asahi Intecc for supporting this important public awareness initiative.

Understanding the importance of diversity and opportunity to our field, I was thrilled to see so many participants at the Women in Neurointervention Dinner held as part of the Annual Meeting, which featured a guest speaker, panelists and important discussions about issues facing the growing number of women neurointerventionalists. Thank you to all who showed your support by sponsoring and attending the dinner.

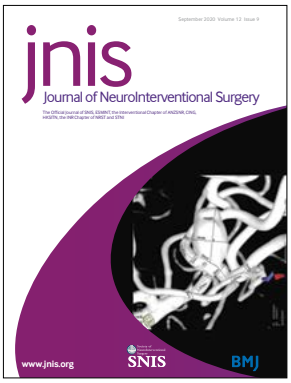
As we push into the last quarter of 2020, I invite you to reach out if there is anything you need to make your membership in SNIS more meaningful or impactful. We are a thriving field in medicine, and I look forward to all that we will achieve together in the next year.

Journal of NeuroInterventional Surgery Update

Felipe C. Albuquerque, MD / Editor-in-Chief

The September 2020 issue of the *Journal of NeuroInterventional Surgery (JNIS)* featured a variety of compelling articles.

Understanding the temporal progression of functional independence after endovascular thrombectomy (EVT), especially delayed functional independence in patients who do not experience early improvement, is essential in determining prognosis and planning rehabilitation. One study evaluated patients undergoing EVT in the setting of anterior circulation large vessel occlusion (LVO). Approximately one-fifth of patients experience early functional independence and one-third of non-early improvers experience delayed functional independence.



Another study found that the treatment of small and medium-sized aneurysms of the internal carotid artery with flow diverters is effective in achieving curative reconstruction in most cases and is associated with low rates of morbidity and mortality.

This issue also featured the first dedicated large study of transradial access for neuroangiography in pediatric patients. This approach was found to be safe and feasible, although it does carry unique challenges compared with the adult population. Despite higher rates of vasospasm and conversion to femoral access than in adults, transradial access in children is worth exploring further, given its potential benefits.

Another piece of original research discussed mechanical behavior of in vitro blood clots and the implications for acute ischemic stroke treatment. This study resulted in a selection of repeatable clot analogues with a range of mechanical properties being developed for in vitro modeling of acute ischemic stroke. Platelet contraction significantly affects clot volume and microstructure, and in turn, clot stiffness. The significant difference in mechanical properties and microstructure, but without an appreciable difference in histology, implies that histological studies of explanted human clots alone may not prove to be predictive of the mechanical behavior of the clots in thrombectomy.

The *JNIS* is committed to publishing first class research that informs and guides our field. We invite you to explore the journal in print and online at the JNIS website.

Podcast Updates

The latest Editor's Choice JNIS podcast aired on August 20, 2020, and featured my discussion with Robert Starke, MD (University of Miami MILLER School of Medicine, Miami Beach, Florida) and Justin Fraser, MD (University of Kentucky, Lexington), who recently published the paper "Transarterial and transvenous access for neurointerventional surgery: report of the SNIS Standards and Guidelines Committee."

Visit soundcloud.com/bmjpodcasts/sets/jnis-podcast to hear this episode and others.

Get Ahead of Stroke Campaign Update

At the start of the COVID-19 pandemic, hospitals around the world saw a decrease in stroke cases, leading to growing concern that patients' fear of potentially contracting coronavirus at hospitals stopped them from calling for help.

To remedy this, the Get Ahead of Stroke campaign kicked off a new initiative to spread awareness of the importance of not letting fear of contracting COVID-19 stop patients from calling 911 if they are experiencing stroke symptoms.

SNIS stroke surgeons joined the campaign team in warning Americans that not calling 911 for help immediately if they see or are experiencing signs of stroke could be deadly. The campaign also warns that ignoring stroke symptoms out of fear of overreacting or risking exposure to COVID-19 does not reduce the time-sensitive and potentially disabling and deadly nature of a stroke.

Several SNIS board members participated in a successful radio media tour on the subject. Interviews on the subject, appeared on 1,741 stations, resulting in nearly 12 million Americans hearing this important message. Since the launch, the campaign team has earned placements in local and national outlets, including FOX News, CBN and Voice of America, with campaign ad placements on Facebook, YouTube, and Google viewed more than 1 million times in COVID-19 hot spot cities across the United States.

Members can learn more about this special campaign by visiting getaheadofstroke.org/covid19.

Even with COVID-19 impacting legislative schedules, the campaign has continued to make legislative progress in working to change state policies so that patients reach the appropriate facility the first time. They remained focused on stakeholder engagement to keep stroke — even amidst the pandemic — top of mind for state legislators. A few highlights of our recent progress include:

- In early September, the campaign team received encouraging news about our pending legislation, SB302, which would strengthen triage and transport protocols for Ohio stroke patients. Ohio State Senator Dave Burke, Chairman vof the Senate Committee on Health, Human Services & Medicaid, indicated he wants to resume the hearings on this bill to ensure passage of SB302 before the end of this year.
- In Pennsylvania, the campaign team is preparing to share approved protocol language with state EMS Director Dylan Ferguson. Once that is complete, they will begin securing letters of support for new stroke protocols from legislators and key allies.
- In Massachusetts, the campaign team continued to work closely with Medtronic's local government affairs team, the Massachusetts Health & Hospital Association, and key allies. They remain focused on connecting with House Leadership to act on the standalone bill currently pending in the House Ways and Means Committee. Given the House and Senate's extension of the formal session through January 5, 2021, additional opportunities, including during state budget negotiations, are expected to ensure passage of this priority legislation.

The campaign has recently connected with several stroke survivors across the country who benefitted from thrombectomy. We know that sharing these personal experiences on our website, in media, and on social media helps both raise awareness of the importance of getting to a Level 1 stroke center and spark activism around changes in stroke systems of care.

If you recently treated a stroke patient that you think is a great story for the campaign and would be willing to talk to others about their experience, please contact LeAnne DeFrancesco at **ldefrancesco@vancomm.com**.

Challenges and Opportunities in the Field of Neurointervention

At the Annual Meeting, Mathias Unberath, PhD, presented on emerging opportunities in the field of neurointervention, specifically artificial intelligence (AI) and robotics in endovascular surgery. He explained that the next frontier includes more than just using AI in the triage and preoperative planning phases, with which many physicians are already familiar, but also can be leveraged in automated detection, algorithms for interactive segmentation, and performing automated multi-modal analysis. AI is being used for developing methods for surgical scene understanding, smart imaging, and new paradigms for image-based navigation so that these solutions integrate into the clinical workflow with ease.

"With surgical robotics, AI approaches now seek to solve subtask automation where we can think about new possibilities for cooperative control between surgical experts and an automated robot that can improve outcomes," Unberath explained.

In closing, he explained that the future for the neurointervention community is in improving the AI and machine learning readiness of the field. This would allow for identifying the most promising opportunities, understanding the workflow and requirements of multidisciplinary teams, and studying design and ethical approvals. To achieve his, engineers and clinicians must work together.

In Dr. Richard P. Klucznik's presidential address, he highlighted challenges facing our field due to COVID-19. Data suggests that individuals experiencing stroke symptoms are waiting to call for help due to fear of being exposed to COVID-19 in a hospital, if they call at all. At the same time, physical distancing is keeping family members from checking in on loved ones as often as they used to. Together, this raises concern that many strokes are being left untreated.

Another challenge raised at the Annual Meeting was the burnout experienced by health care providers, including neurointerventionalists. In his abstract presentation, Patrick Brown, MD, discussed a study he co-authored that sought to assess the prevalence and risk factors for burnout among neurointerventional non-physician procedural staff (nurses and technologists) given increasing thrombectomy demands.

> …the future for the neurointervention community is in improving the AI and machine learning readiness of the field.

The study received 244 responses and 51 percent of respondents met the established criteria for burnout. There was no significant relationship between hospital thrombectomy volume,
call frequency, call cases covered, or length of commute. On multiple logistic regression analysis, feeling under-appreciated by hospital leadership and working with difficult/unpleasant physicians were strongly associated with burnout. At participating centers, nurse and technologist attrition was 25 percent over the previous year. Over 50 percent of respondents indicated they had strongly considered leaving their position over the last 2 years.

SNIS takes these challenges to our field seriously and looks forward to collaborating with our membership to meet them head on.

SNIS Insights: Online Webinar Series

The SNIS Insights: Online Webinar Series offers an intriguing look into techniques and valuable learning opportunities, which has resulted in many repeat viewers. CME credit is available upon participation in a live webinar. These free, weekly webinars have been made possible with unrestricted educational grants from Medtronic, MicroVention and Penumbra.

In addition, members can access the "SNIS Special Webinar: Neurointerventional Guidance for COVID-19" that discusses neurointervention procedures during the COVID-19 crisis and how we as a society can help our members through it.

Members can register for upcoming webinars by going to snisonline.org/insights, where previous sessions are also available on demand.

SNIS Foundation Update

Run For Research
The SNIS Foundation Fun Run

At this year's Annual Meeting, we were virtually "Running for Research" at the SNIS Foundation's 5K Fun Run. Runners submitted their run times and distances, and all results are displayed online. Sponsors who joined us at the starting line (thank you to MicroVention, Penumbra & Stryker!) had their logos featured prominently on the T-shirts of SNIS runners. This was a great way to support our mission to improve patient care by supporting the research and educational goals of our neurointerventional community in a forum that is symbolic of the energy, stamina, and pursuit of excellence that is pervasive in our continually evolving field. Waleed Brinjikji had the best 5K time of 20:01, while Rebecca Achey ran a 10K in 46:34.

Also at the Annual Meeting, the SNIS Foundation awarded three Fellow/Young Investigator Research Grants. Congratulations to awardees Dimitri Laurent, MD with the University of Florida, Evan Luther, MD with the University of Miami and Prad Selvan, MD with the University of Southern California. We look forward to hearing more about these research projects over the next year.

Fellow/Young Investigator Research Grant Recipients

Dimitri Laurent, MD
"Sequential Release of Chemokines from Coated Coils to Target Aneurysm Healing"

Evan Luther, MD
"Optical Coherence Tomography to Evaluate In-stent Endothelial Growth following Endovascular Treatment of Cerebral Aneurysms"

Prad Selvan, MD
"Large Animal Model of Transvenous Endovascular Neurotechnology"

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brain-computer interface, which was conducted at The Royal Melbourne Hospital.

Outcomes of Endovascular Treatment of Vein of Galen Aneurysmal Malformation in Neonates described how endovascular treatment of vein of Galen aneurysmal malformation (VGAM) in babies with severe pulmonary hypertension can improve chances of survival. The study evaluated data from 52 surgery patients with VGAMs at the Meshalkin National Medical Research Center. Eleven of these patients were younger than 10 days when surgery was performed.

We also learned that expanding standard techniques during mechanical thrombectomy allows researchers to reproducibly obtain and study local leukocyte populations during human stroke, according to a study by the University of Kentucky Department of Neurology titled *Changes in Leukocyte Distribution in Intracranial vs. Systemic Blood Collected during Mechanical Thrombectomy*.

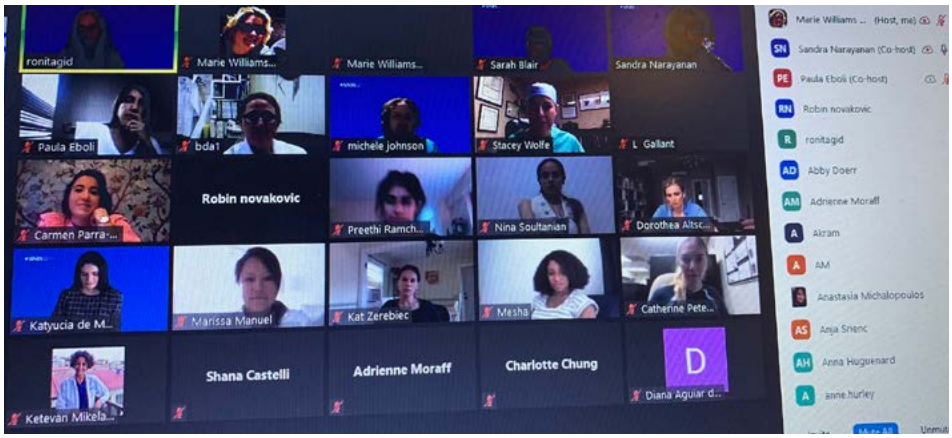
We also were thrilled to see studies presented at the Annual Meeting featured in media coverage, such as research on how racial disparities play out in the management of stroke thrombectomy. Forbes covered two reports, including one study by lead author Vineeth Thirunavi and his colleagues that found that African American patients stayed for 10.9 days in the hospital, compared to white individuals who stayed for 7.9 days. The other one by Adam Dmytriw and a team of researchers highlighted that African Americans were also more likely to experience a poor outcome post-stroke in comparison to patients who were of other races.

In addition to this new knowledge, we were excited to welcome back the Amy Walters Lecture at this year's Annual Meeting, which always provides that measure of perspective that is so important when you work in medicine. This year's lecture presented by Todd Aho, MD, was especially impactful, given that he's not only a stroke survivor but also a neuroradiologist at Henry Ford Hospital in Detroit, Michigan.

In his lecture, Dr. Aho explained that experiencing a stroke gave him insight into the patient experience, including the emotional and psychological toll it takes on an individual. He credited his family, friends, colleagues, and rehab team for all the support they gave him on his road to recovery and said the most important part is treating the patient — not the images.

"Human strength and spirit cannot be measured on a computer screen," Dr. Aho stated.

Thank you to all who engaged with the Annual Meeting this year. While we certainly expect that we will be in-person in 2021, it was satisfying to see our staff and our membership rise to the challenge of a virtual convening.



SNIS 17th Annual Meeting's Women in Neurointervention Virtual Dinner

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Calendar of Events

Disease Education Forum (DEF) 2020
May 3–4, 2021
Hôpital FOCH
Suresnes, France

SNIS 18th Annual Meeting & Fellows Course
July 26–July 30, 2021
The Broadmoor
Colorado Springs, CO

AVM 2021 5th World Meeting
September 26–28, 2021
Icahn School of Medicine at Mount Sinai
New York, NY

The Embolus

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