President’s Message

Continued Growth and New Beginnings

Ali Rezai, MD

Dear NANS members:

It is my great pleasure and honor to serve as the seventh president of NANS. I am privileged to follow in the footsteps of Immediate Past President Robert Foreman, PhD. Dr. Foreman is a true leader, scientist, teacher, and friend, and under his leadership the society has experienced remarkable growth. NANS is a strong, dynamic, and rapidly growing organization, and I look forward to working with you over the next 2 years to take NANS to new heights.

With a growing and multifaceted scope, neuromodulation is among the most active and innovative medical specialties. Neuromodulation therapies are increasingly being used to help patients with chronic pain; spasticity; Parkinson’s disease; tremors; epilepsy; psychiatric disorders; traumatic brain injury; stroke; and gastrointestinal, urinary, cardiac, pulmonary, and other conditions. Emerging uses of neuromodulation continue to appear on the horizon as research and refinements on existing techniques improve their safety profile, efficacy, and durability.

Membership

Over the past 2 years, NANS membership experienced dramatic growth from 600 to more than 900 members. Members have traditionally been pain management physicians and neurosurgeons. However, over the past few years we have witnessed a steady growth in membership from other disciplines such as neurology, urology, gastroenterology, physical medicine and rehabilitation, biomedical engineering, and the biotech and medical device industry. This is especially exciting for our society because interfacing, learning, and collaborating with other specialties is such a vital component of the growth and progress of both the specialty and society.

Education

Education is also fundamentally important for our society, and upholding the highest standards for teaching, training, and dialogue is crucial for the growth and advancement of neuromodulation. NANS is sponsoring and offering an increasing number of educational programs; in addition, our annual meetings have grown exponentially in attendee registration and sophistication. The more than 1,000 attendees and 30 exhibitors who participated in the NANS 15th Annual Meeting this past December made it the largest neuromodulation conference held worldwide. Our scientific program committee strives to consistently provide cutting-edge topics of interest, as well as practical educational programs. We are also expanding pre-meeting workshops and will be providing innovative educational programs for you in the near future.

Websites are a universal central medium for search and knowledge acquisition. The Website Committee is working hard to make the NANS website, neuromodulation.org, the go-to page for your neuromodulation news. In addition, the NANS Newsletter, edited by Chima Oluigbo, MD, will now be provided three times a year for our readership. It is also a pleasure to share that our journal, Neuromodulation: Technology at the Neural Interface, has recently been indexed in MEDLINE by the National Library of Medicine. Neuromodulation’s Editor-in-Chief, Robert M. Levy, MD, has done an outstanding job in guiding this journal to its position as the premier worldwide journal for neuromodulation.

Advocacy

Healthcare reform is multifaceted and of increasing significance as societies and the government attempt to maximize healthcare resources despite increased regulation and scrutiny. The healthcare landscape has changed significantly over the past 20 years, and more changes will be forthcoming with healthcare reform legislation that will impact neuromodulation specialists in the United States. To that end, NANS has increased its level of involvement with various healthcare policy and advocacy-related issues over the past several years. The NANS Board of Directors now includes physicians with significant expertise in coding, reimbursement, and healthcare policy. The efforts of David Kloth, MD; Joshua Prager, MD; and Todd Sitzman, MD, are much appreciated.

In the past 2 years, NANS jointly sponsored legislative sessions and Capitol Hill visits with the American Society of Interventional Pain Physicians (ASIPP). These sessions promote awareness of neuromodulation therapies and the opportunity to advocate for continued patient access to them. I encourage NANS members to join our leaders and ASIPP in this year’s effort in Washington, DC, June 11–12, 2012, when NANS will join ASIPP in meeting with our legislative representatives.

In 2011, NANS also joined with other medical societies (American Academy of Pain Medicine, American Society of Anesthesiologists, ASIPP, International Spine Intervention Society, and American Society of Regional Anesthesia) to form the Council of Pain Physician Societies (CPPS). The council offers a regular opportunity for the related societies to discuss important issues facing pain management today. This group collaborates to promote better patient access to care, develop treatment guidelines, and advocate for public policy and certification.

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The council is also committed to working on best practice and training guidelines for practitioners. More information about CPPS is available in the Fall 2011 NANS Newsletter, available on NANS’s website, www.neuromodulation.org.

It is an exciting time for NANS and neuromodulation. I am honored to have the opportunity to serve as the president of our society, and I am delighted to work with a dedicated and enthusiastic Executive Committee, Board of Directors, Executive Director, and other committee members who work hard for our society and specialty. Together, we will strive to enhance our society’s impact and fulfill our mission of being the premier society dedicated solely to the field of neuromodulation. I encourage you to become more involved with our various committees and initiatives. Please feel free to contact me or any of the other board members. We would be delighted to hear from you.

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Ali Rezai, MD
ali.rezai@osumc.edu

Members in the News

Konstantin Slavin, MD

Chima Oluigbo, MD FRCSC

Konstantin Slavin, MD, decided to become a doctor when he was very young. While watching delicate neurosurgical procedures on the human brain during medical school and seeing the challenges and limitations of this specialty, which offered the only option to improve the quality of life of these patients, he realized that he had found his calling—he wanted to become a neurosurgeon.

Konstantin Slavin, MD, is a professor of neurosurgery and chief of stereotactic and functional neurosurgery in the Department of Neurosurgery at the University of Illinois at Chicago (UIC). He also directs the fellowship in stereotactic and functional neurosurgery at UIC. He has become one of the foremost authorities in the world on neuromodulation of the peripheral nervous system and functional neurosurgery for pain. Recently, he was the editor of volume 24 in the series Progress in Neurological Surgery, an excellent compendium of the state-of-the-art peripheral nerve stimulation.

His journey to this position took him through medical school at the Azerbaijan State Medical Institute in Baku, USSR; a first neurosurgical residency in Moscow, Russia; and a second residency in neurosurgery in the Department of Neurosurgery at UIC. Following his residency in Chicago, he completed a fellowship in stereotactic and functional neurosurgery at Oregon Health and Sciences University in Portland, OR, under Dr. Kim Burchiel.

Since completing his fellowship, Dr. Slavin’s clinical practice has focused on all aspects of neuromodulation. His main clinical interests are pain surgery and surgery for movement disorders. He utilizes various neuromodulation modalities for a variety of clinical conditions such as spinal cord, peripheral nerve, and motor cortex stimulation and intrathecal infusion therapies for chronic pain, deep brain stimulation (DBS) for movement disorders and depression; intrathecal therapies for spasticity; and vagus nerve stimulation for epilepsy. He has an interesting perspective on neuromodulation since his first exposure to pain surgery actually involved ablative procedures, which were the only interventions available at the time of his first neurosurgical training in Russia. He opines that the change from traditional ablative procedures to neuromodulation, which is an inherently reversible and adjustable therapy, was a logical choice.

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ONSTIM Trial: Occipital Nerve Stimulation for Chronic Migraines

Asem Salma, MD

Although major advances into the understanding of the pathogenesis of migraines have been made and new pharmacologic treatments have been achieved recently, many patients’ migraines remain intractable in spite of medical therapy. Medically intractable chronic migraine is a disabling illness characterized by at least 15 days of headache per month.

Occipital nerve stimulation for chronic migraines is an emerging treatment strategy. Occipital nerve stimulation has a long history as a procedure used to treat chronic headache conditions, however, it is still a developing treatment for migraines. The current status of occipital nerve stimulation for chronic migraines can be highlighted by reviewing results of the Occipital Nerve Stimulation for the Treatment of Intractable Migraine (ONSTIM) trial.

Following several published reports from open-label studies that demonstrated possible efficacy of occipital nerve stimulation in a variety of primary headache disorders including chronic migraines,2,3 Saper and colleagues conducted the ONSTIM trial. A multicenter, randomized, blinded, controlled feasibility study, the ONSTIM study examined whether a well-designed, controlled study that included a valid placebo arm could demonstrate insights into the potential benefits and risks of occipital nerve stimulation for chronic migraines. These results were published in 2011 in Cephalalgia.1 In this study, eligible subjects received an occipital nerve block first, and responders were randomized to adjustable stimulation, preset stimulation, or medical management groups using a randomization ratio of 2:1:1, respectively. Subjects who did respond to occipital nerve block were included in a fourth group, the ancillary group. Patients in this group were implanted and treated in an identical manner to the adjustable stimulation group.

The randomization was not stratified for baseline characteristics. The evaluation was conducted at seven centers in the United States, one center in Canada, and one in the United Kingdom.

The study was conducted using the Medtronic model 7427 Synergy and model 7427V Synergy Versitril implantable pulse generators, and model 3487A Pisces Quad and model 3887 Pisces Quad-Compact leads. The stimulation parameters for both models of implantable pulse generator settings are the same and as follows: amplitude 0–10.5V, rate 3–130 Hz, and pulse rate 60–450 ms.

Implantation was done using local anesthesia and fluoroscopic guidance. One or two leads were implanted subcutaneously, superficial to the fascia and muscle layer at the level of C1.

During 3-month blinded follow-up visits for safety and efficacy endpoints, four types of results were reported: changes in headache days, pain, and duration; responder rates; disability and quality-of-life outcomes and safety.

Percent reduction in headache days per month was 27% to 44.8% for adjustable stimulation, 8.8% to 28.6% for preset stimulation, 4.4% to 19.1% for medical management, and 39.9% to 51% for the ancillary group. The reduction in overall pain intensity was 1.5 ± 1.6, 0.5 ± 1.3, 0.6 ± 1.0, and 1.9 ± 3.5 for adjustable stimulation, preset stimulation, medical management, and the ancillary group, respectively.

The responder rate in the adjustable stimulation group was 39%, compared with 6% in the preset stimulation group and 0% in the medical management group. The differences between the adjustable stimulation and the control groups were significant in exploratory analyses.

With regard to disability and quality-of-life outcomes, no significant improvement over baseline was shown by using exploratory analysis when comparing the adjustable stimulation group with other groups.

With regard to safety, two subjects experienced intraoperative failures. Fifty-six device-related events occurred in 36 of the 51 subjects. These events were serious in three subjects (implant site infection, lead migration, and postoperative nausea) and required hospitalization. The overall most frequently reported device-related event was lead migration, which occurred in 12 of 51 subjects. Nevertheless, there was no evidence of device-related events leading to long-term complications, potential nerve damage, or serious unanticipated complications. However, non-device-related adverse events included worsening of migraines during the 3-month testing period as compared with baseline. Nine percent of the adjustable stimulation group, 41% of the preset stimulation group, and 24% of the medical management group reported increased migraine. Adverse events related to medications were similar across treatment groups and ranged from 6% to 18%.

Demonstrating the safety of occipital nerve stimulation for chronic migraines and its valuable technical recommendations to overcome several device-related complications are the significant findings of the ONSTIM trial. With regard to efficacy, the results of this study should be interpreted carefully because this study has several limitations such as short follow-up and small sample size. In addition, the authors do not explain why some subjects received one electrode and others received two. However, as the authors indicated correctly, the findings could represent an important therapeutic signal for at least a subset of patients.

Based on currently available data, occipital nerve stimulation holds promise as a potential treatment option for chronic migraines. However, future studies are needed to refine this approach.

References
NANS 15th Annual Meeting: Overview and Highlights

Chris Welber, MBA, NANS Executive Director

The NANS 15th Annual Meeting was held at Wynn Las Vegas, December 8–11, 2011. We are pleased to announce that it was an enormous success. This year, 1,004 attendees attended the meeting, making it the largest yet in the 18-year history of NANS. Participants came from around the world, including Australia, Belgium, Brazil, Russia, Japan, Germany, and China. One hundred fifty-six abstracts were submitted and there were a total of 67 faculty presenters. The exhibit hall featured 27 exhibitors.

Thursday, December 8
On the first day of the meeting, preconference courses were held. The first was the “Spinal Cord Stimulation Workshop: A Hands-On Cadaver Course for Fellows.” Experienced faculty provided didactic instruction and training to fellows on the principles, techniques, and nuances of spinal cord stimulation. Surgical aspects of pain management were also explored and instruction given on techniques in suturing, anchoring leads, implantation of paddle leads, and percutaneous cordotomy. In addition, participants also heard presentations on spinal cord stimulation technology and emerging developments within the field. Overall, the course received very high reviews from attendees.

Favorable impressions were also reported by attendees of the other preconference course, “Neuromodulation Review: A Workshop for Nurses, Physician Assistants, Allied Healthcare Professionals, and Operating Room Personnel.” The half-day workshop, held at the Wynn, brought together 117 participants from different backgrounds who have direct involvement with neuromodulation patients. A very experienced multidisciplinary faculty addressed such topics as patient selection, troubleshooting, and complication avoidance for different neuromodulatory procedures including spinal cord stimulation, intrathecal drug delivery pumps, peripheral nerve stimulation, and deep brain stimulation.

Friday, December 9
The main scientific portion of the meeting, cochaired by Joshua P. Prager, MD, and David Caraway, MD PhD, began on Friday, December 9. The meeting cochairs were Ali Rezai, MD; Salim Hayek, MD PhD; and Ashwini D. Sharan, MD. The theme of the meeting was simply titled: Our Crystal Anniversary, highlighting breakthroughs and advances that have taken place within the field of neuromodulation during the past 15 years. In accordance with this theme, the meeting...
showcased past and emerging applications of neuromodulation along with new state-of-the-art practices in this field. Speakers from diverse specialties and backgrounds delivered lectures on their latest cutting-edge research currently being conducted in different areas of neuromodulation.

Meeting sessions highlighted specific themes such as headaches, brain stimulation, peripheral nerve stimulation, intrathecal therapies, rehabilitation, biomedical engineering, and basic science. General scientific presentations were the feature of each morning. Afternoons were composed of concurrent sessions focusing on various aspects of neuromodulation. The first general scientific session focused on the science of pain and headaches. Notable presentations were given by Robert Foreman, PhD FAHA, on the pathophysiology of pain, and Stephen Silberstein, MD, who reported on occipital stimulation for migraines. Concurrent afternoon sessions on the first day covered the brain and intrathecal therapies.

Saturday, December 10
The second day’s general scientific session covered clinical advancements in neuromodulation and included the lectures “Peripheral Nerve Stimulation” by Frank Falco, MD; “Spinal Cord Stimulation and Spinal Cord Injury” by Susan Harkema, PhD; and “The History of Neuromodulation: Intrathecal Therapies and Neurostimulation” by Elliot Krames, MD, and Joshua Prager, MD. Robert Foreman, PhD FAHA, provided a presidential address during this session and the Lifetime Achievement Award was presented to Elliot Krames, MD. K. Dean Willis, MD, was awarded the NANS Distinguished Service Award. The general session on the second day was highlighted by a special guest lecture from Ray Kurzweil, “The Melding of Mind and Machine.” The fascinating lecture, a first for NANS, focused on rapid developments in technology and their potential to be interfaced with the human mind. It was well received, and NANS hopes to continue this type of session at future annual meetings.

The parallel afternoon sessions on the second day covered emerging therapies and the interface between neuromodulation and neurorehabilitation. These two concurrent sessions were first introduced in 2010 and received much positive feedback from attendees. Highlights included a lecture by Kevin Kilgore, PhD, “Functional Electrical Stimulation for Spinal Cord Injuries,” and a presentation by Jiande Chen, MD PhD, “Clinical Application of Gastrointestinal Stimulation for Obesity.”

A new feature introduced during the 2011 Annual Meeting was a third parallel session dedicated to media training and public relations. The session was conducted by Rubenstein PR; David Kloth, MD; and David Caraway, MD PhD, and covered different techniques and opportunities for presenting and highlighting neuromodulation success stories as well as promoting neuromodulation in general via various media outlets. This course was offered as an effort to teach attendees the value of positive public relations efforts and the role they can play in helping bring attention to our growing field. The session was well attended and received positive reviews.

During the meeting, the diamond-level sponsors—Boston Scientific, St. Jude Medical, and Medtronic—were presented with awards to thank them for their continued support of the annual meeting. These three diamond-level industry sponsors provided support for two well-attended non–CME-certified luncheons and several other external events throughout the meeting.

The level of participation at the 2011 Annual Meeting points to continued growth and interest within the field of neuromodulation. The scientific caliber of cutting-edge research presented shows the potential for the future of neuromodulation basic and clinical research. The NANS Board of Directors wishes to express its appreciation to our members, sponsors, and all participants who helped ensure that the 2011 Annual Meeting was such a resounding success. We also heartily invite you to the 16th Annual NANS Meeting, which will take place December 6–9, 2012, at the Wynn Las Vegas.
Congratulations, Newly Elected NANS Board Members

Following elections in November, three members were elected to 2-year terms on the NANS Board of Directors. Congratulations, Alon Mogilner, MD PhD; Peter Konrad, MD PhD; and Salim Hayek, MD PhD.

Alon Mogilner, MD PhD

Alon Mogilner, MD PhD, is assistant professor of neurosurgery at the New York Medical College in Valhalla, NY. He received his medical degree from the New York University (NYU) School of Medicine. He then completed a residency in neurosurgery at the NYU Medical Center, where he also completed a fellowship in functional and stereotactic neurosurgery.

His clinical interests in neuromodulation include deep brain stimulation, chronic pain, and headaches. His research interests focus on the use of automation and computerized guidance in the planning and performance of deep brain stimulation procedures.

Dr. Mogilner has been actively involved with NANS for many years. He directed the first combined AANS/NANS Neurosurgical Pain Management Course for Residents in 2010 and then again in 2011. Always passionate about resident training and education, Dr. Mogilner stresses the need to increase the interest of neurosurgical residents in the field of neuromodulation.

He sees the role of NANS as making information about neuromodulation therapies available to the public and referring physicians, setting standards, and defining guidelines in the field of neuromodulation. Such standards will stress the need for procedures to be performed by appropriately trained practitioners.

Salim Hayek, MD PhD

Salim Hayek, MD PhD, is nationally and internationally renowned as a pain specialist with interests in various interventional modalities and is frequently invited as an instructor, speaker, presenter, moderator, and course director of workshops at many meetings. Dr. Hayek received his medical degree from the American University of Beirut. He then completed his anesthesiology training at University Hospitals of Cleveland. Subsequently, he obtained his PhD in Cellular Physiology at Case Western Reserve University and then completed his training in pain medicine at the Cleveland Clinic Foundation.

Dr. Hayek serves as chief of the division of pain medicine and associate professor of anesthesiology at University Hospitals of Cleveland and Case Western Reserve University in Cleveland, OH.

His primary interest is advancing the use of neuromodulatory techniques, including both intrathecal therapies and electrical neuromodulation for the treatment of chronic neuropathic pain. His contributions range from the basic sciences to the development of innovative techniques and therapeutic methods in treating patients suffering from chronic back pain, complex regional pain syndrome, visceral pain, and occipital neuralgia.

Dr. Hayek has been a part of various committees on guidelines for pharmacological and interventional pain medicine treatments for the American Society of Interventional Pain Physicians. He has served as a director-at-large on the NANS Board of Directors since 2009 and was reelected in 2011.

Peter E. Konrad, MD PhD

Peter E. Konrad, MD PhD, is director of functional neurosurgery at the Vanderbilt University Medical Center and an associate professor of neurosurgery and biomedical engineering at Vanderbilt University School of Medicine. With a double degree in medicine and biomedical engineering, Dr. Konrad seeks to combine his expertise in clinical medicine with translational research. He had an early passion for implantable electronic devices. Prior to medical college, he earned his master’s degree and doctorate in neurophysiology and biomedical engineering at Purdue University.

It was his work and experience with leading minds of the time that inspired Dr. Konrad to further explore the realms and possibilities of biomedical engineering. He later earned his medical degree from Indiana University School of Medicine and completed his neurosurgery residency training at Vanderbilt University. His current research focuses on the development of optical nerve stimulation, neuropsychological atlas, and implantable neuroprosthetic devices.

In 2009, Dr. Konrad was awarded an National Institutes of Health grant to support his research in establishing a universal brain atlas for implanting and managing deep brain stimulators. In addition, he has been developing a novel approach to neural stimulation utilizing pulsed infrared lasers to create a contact-free, damage-free, artifact-free spatially specific modality that may potentially alter the course of neuromodulation—in particular, microstimulation of neural networks necessary for future success of neuropsychotics such as the brain computer interface.

Dr. Konrad joined the NANS Board of Directors in 2009 and was reelected in 2011. Through this leadership role, he hopes to advocate for the future of neural implants and promote the technical aspect of understanding these cutting-edge devices.

The following individuals will continue their existing terms on the board:

President
Ali Rezai, MD

President Elect
David Kloth, MD

Immediate Past President
Robert Foreman, PhD FAHA

Vice President
Ashwini D. Sharan, MD

Secretary
Konstantin Slavin, MD

Treasurer
B. Todd Sitzman, MD MPH

Directors at Large
David Caraway, MD PhD
Jiande Chen, MD PhD
Robert Levy, MD PhD
Lawrence Poree, MD PhD

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Meetings of Interest

NANS members are encouraged to attend these meetings of interest presented by other pain, spine, and neurology associations. Please see the following contacts for more information.

April
AANS Annual Scientific Meeting
American Association of Neurological Surgeons
April 14–18, 2012
Miami, FL
www.aans.org

May
SNS Meeting
Society of Neurological Surgeons
May 19–22, 2012
Atlanta, GA
www.societyns.org/meeting_info.html

JNS 26th Annual Meeting
Japan Neuromodulation Society
May 26, 2012
Tokyo, Japan
www.neuromodulation.com/japan

June
ASSFN 2012 Biennial Meeting
American Society for Stereotactic and Functional Neurosurgery
June 3–6, 2012
San Francisco, CA
http://assfn.org/

Pain 2012
Pain Education Society
June 10–12, 2012
Huntington Beach, CA
www.paineducationsociety.org/education.html

5th Annual Conference of the CNS
Canadian Neuromodulation Society
June 15–17, 2012
Vancouver, BC, Canada
www.neuromodulation.ca

ASIPP 13th Annual Meeting
American Society of Interventional Pain Physicians
June 25–29, 2012
Washington, DC
www.asipp.org

July
SNIS 8th Annual Meeting
Society of Neurointerventional Surgery
Colorado Springs, CO
July 25–29, 2012
www.snisonline.org/

August
IASP World Congress on Pain
International Association for the Study of Pain
Milan, Italy
August 27–31, 2012
www.iasp-pain.org/Milan

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Among other fields, his research in neuromodulation involved spinal cord stimulation for cerebral vasospasm. He performed the first North American clinical study investigating the use of cervical spinal cord stimulation (SCS) in treatment and prevention of arterial vasospasm following aneurismal subarachnoid hemorrhage. The study was investigator initiated and funded based on specially obtained Investigational Device Exemption (IDE). He has also been involved in research on the feasibility and effectiveness of occipital nerve stimulation for migraines, peripheral nerve stimulation for neuropathic pain, DBS for depression, and SCS versus reoperation in failed back surgery. In the past, he participated in studies of SCS for neuropathic pain, intrathecal ziconotide for non-cancer pain, motor cortex stimulation for post-stroke recovery, 3-Tesla MRI for DBS targeting, and multiple other projects.

Dr. Slavin’s commitment to NANS is commendable. A board member since 2008, he was reelected in 2010 and became the secretary in 2011. His other NANS activities have included serving on the scientific program committee for the annual meeting, participating on the NANS education and practice committee, cowriting NANS guidelines on spinal cord stimulation training requirements, and directing the NANS symposium for midlevel practitioners. He is also the associate editor of Neuromodulation, the official journal of NANS and INS, where he is in charge of the peripheral nerve stimulation section. Dr. Slavin views the role of NANS as encompassing education, research, and advocacy; setting standards and developing guidelines; advancing the field of neuromodulation; and ensuring access to neuromodulation therapy modalities for patients who suffer and become disabled over time. He envisions NANS leading educational efforts of the neuromodulation community, starting with education of residents and fellows and continuing to the education of recent graduates and experienced practitioners, to introduce them to the field of neuromodulation and improve their theoretical knowledge base and practical skills through a comprehensive set of interactive events. M
NANS thanks attendees of the 2011 Annual Meeting for making it the largest neuromodulation meeting held worldwide.

Access high-quality educational content from the meeting at neuromodulation.org. Downloadable content includes:
- Audio recordings of highly attended sessions
- Presentation slides
- Videos
- Photos

Neuromodulation.org