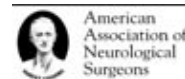


Stereotactic and Functional NEUROSURGERY NEWS



Spring 2005

AANS/CNS Section on Stereotactic and Functional Neurosurgery and American Society for Stereotactic and Functional Neurosurgery

Editor: Konstantin Slavin, MD

From the President

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Andres M. Lozano, MD

Seize the Opportunity

I am honored to be asked to serve as the president of the American Society for Stereotactic and Functional Neurosurgery at this point in our subspecialty's

development. The level of activity and excitement in our field is palpable. We are truly experiencing a rediscovery of functional neurosurgery, and tremendous progress is being achieved. The activity is driven by important advances in the understanding of the pathophysiology of disease and technological advances in neural imaging and neurosurgical techniques.

These important developments have led to a flurry of activity in a number of disorders, not only in Parkinson's disease and other movement disorders but also in the application of functional neurosurgical procedure in the treatment of pain, in the treatment of epilepsy and in the reemerging field of neurosurgical procedures for psychiatric disorders.

This excitement was abundantly apparent at the ASSFN biennial meeting in Cleveland, which took place under the stewardship of Ali Rezai, MD, and Past-President Rees Cosgrove, MD, and with the expert scientific direction of the scientific program chair Philip Starr, MD. The meeting was outstanding in its scope and its capture of the state of the art in the field of stereotactic and functional neurosurgery. At just one year after the 2003 ASSFN meeting in New York, the attendance at the meeting in Cleveland was at record levels, and the quality of the invited and the platform presentations as well as the posters was outstanding.

In the upcoming years our field of interest will continue to blossom. I am delighted to be joined by a terrific group of colleagues serving on our executive board. These talented individuals

are devoted to better serving our membership. To increase the number of new members and improve services for our existing members, we have decided to create four new positions on the council (two-year terms):

Membership Coordinator. The council agreed that one member should be designated as membership coordinator. This individual will work with Ron Engelbreit and AANS Member Services to make certain the membership list is accurate. This will involve cross-referencing the membership list at the AANS with the mailing list from Karger, the publishing house for the society journal; updating mailing addresses and e-mail addresses as needed; and working with the webmaster to make sure that the member roster on the ASSFN Web site is up to date. Nicholas Boulis, MD, will assume this position.

Webmaster. This individual will review the current ASSFN Web site content and identify areas that need to be updated. He or she will work with our current Web service provider, to update content including the membership list. Emad Eskandar, MD, will assume this position.

Newsletter Editor. This individual will work with a staff editor at the AANS, and with the secretary-treasurer, to generate the yearly section newsletter. Konstantin Slavin, MD, will assume this position.

Society Historian. A position of section historian has been created, which will be held by Philip Gildenberg, MD.

We are clearly in a phase of rapid growth and, I think, enormous potential for making an impact in patients whose lives are impacted by disease. We have a tremendous opportunity and also a large responsibility to seize the moment and move forward. Please join with me in achieving these goals.

Andres M. Lozano, MD, PhD, FRCSC
Toronto, Ont.

2004 ASSFN Biennial Meeting: Neuromodulation

Emad Eskandar, MD

The recent meeting of the American Society for Stereotactic and Functional Neurosurgery in Cleveland was highly successful in terms of overall attendance, scientific content, and general organization. The meeting was held between Oct. 1 and 3 at the new Inter-Continental Hotel and Conference Center on the Cleveland Clinic main campus. This was a wonderful facility, with excellent technology that, for example, allowed for instant electronic polling of attendees. An informal survey suggested that most attendees were highly impressed by the meeting and by the quality of both the scientific and clinical papers. The opening reception was held at the Rock and Roll Hall of Fame along the shores of Lake Erie.

This meeting focused specifically on neuromodulation; a review of some of the talks and topics that were presented follows.

During the first session, the mechanisms of deep brain stimulation were discussed. Alim Benabid, MD, reviewed data suggesting that DBS leads to a functional inhibition of the area being stimulated, while Jerrold Vitek, MD, reviewed some new primate data in which DBS appears to stimulate axons resulting in the expected downstream effects. Subsequently, Andres Lozano, MD, gave an overview of the future of neuromodulation and movement disorders. Two papers suggested that DBS of the subthalamic nucleus or globus pallidus internus might be useful in the treatment of neuroleptic-induced tardive dyskinesia, although the results are preliminary. Several interesting research papers were presented. One paper suggested that abnormal oscillatory activity in the subthalamic nucleus in human Parkinson's disease is abolished by voluntary movement, while another paper proposed that DBS of the subthalamic nucleus in the rat results in enhanced nigral dopamine release. In addition, early experience with real-time guidance of DBS placement using magnetic resonance imaging was reviewed.

The second session focused on the potential for using electrical stimulation to treat otherwise intractable epilepsy. There are a number of possible approaches, including DBS, cortical stimulation, a combination of the two and, of course, vagal nerve stimulation. There is no consensus yet on the indications or the best targets, but much promising preliminary work was reviewed. Among the potential targets for DBS are the anterior nucleus of the thalamus, the centromedian nucleus of the thalamus, and the subthalamic nucleus. Also presented was a review of current progress in the trial of a closed loop system, wherein electrical stimulation is given upon detection of epileptiform activity.

The third session was focused on neuromodulation for the treatment of chronic pain. One of the more interesting potential applications of DBS is the use of hypothalamic stimulation for the treatment of cluster headaches.

The fourth session concentrated on the surgical treatment of psychiatric disorders. Scott Rauch, MD, reviewed the circuitry and imaging while Ali Rezai, MD, reviewed the various potential targets. A number of papers reviewed preliminary results for the treatment of



Rees G. Cosgrove, MD, 2002-2004 ASSFN president (left) presents the appreciation award to Alim L. Benabid, MD, the honored guest of the 2004 ASSFN Biennial Meeting in Cleveland.

Tourettes syndrome. Among the approaches discussed were DBS of the globus pallidus externus, the anterior limb of the internal capsule, or the centromedian nucleus of the thalamus. The results that were reported reflected the small numbers of patients studied and their limited follow-up. Due to the extreme sensitivity of surgical treatment for psychiatric conditions, progress in this area must be made within the context of formal studies with qualified psychiatrists.

The final session covered potential applications for DBS that are still in the experimental stages. Among the topics reviewed were DBS for brain injury and obesity, and cortical stimulation to enhance stroke recovery. In addition, Gerhard Friehs, MD, of Brown University presented preliminary work on a brain machine interface in patients with spinal cord injury. The basic premise is that an array of microelectrodes chronically implanted in the motor cortex can provide the necessary information to reliably drive some type of prosthesis such as a robotic arm or other device. One such patient has been implanted and was able to control a cursor on a computer monitor. While there are limitations to this particular implementation, these early results give a hint of what is yet to come.

*Emad Eskandar, MD
Boston, Mass.*



ASSFN Biennial Meeting — Boston 2006

G. Rees Cosgrove, MD

The American Society for Stereotactic and Functional Neurosurgery is pleased to announce that the 2006 ASSFN Biennial Meeting will take place in Boston, Mass., at the Fairmont Copley Plaza Hotel from June 1 to 4, 2006. This meeting promises to be as exciting as the immensely successful meeting that took place in Cleveland this past October, and its focus will be directed toward neurosurgeons, neurologists, neuroscientists, neuroradiologists, and psychiatrists.

The meeting will be held under the guidance of Andres Lozano, MD, our society's president, with the scientific program being directed by Robert Maciunas, MD, and Ron Alterman, MD. Emad Eskandar, MD, and I are directing the local arrangements and the organization of the meeting itself.

Boston is the perfect city for our meeting with its wealth of educational, business, cultural and sporting institutions. The concentration of both intellectual and venture capital has made Boston a hotbed of scientific advancement, which is the perfect backdrop for our meeting. June is also the ideal month to experience all the city has to offer.

Stereotactic and functional neurosurgery is the most rapidly expanding subspecialty in neurosurgery. Emerging applications, advances in technology and developments in basic science also make it the most exciting subspecialty. An international faculty of pioneers and leaders will be on hand to present and discuss recent clinical advances, innovative therapies, and the latest developments in movement disorders, epilepsy, pain, psychiatric illness, functional restoration, tumors, and radiosurgery.

We anticipate a fabulous meeting and look forward to welcoming you to Boston!

G. Rees Cosgrove, MD, Boston, Mass.



**2006 ASSFN Biennial Meeting
Boston June 1-4, 2006**

From the Editor

Konstantin Slavin, MD

Over the last several years, there has been a tremendous surge in interest in the field of functional neurosurgery among the medical community, society as a whole, and most of all—the neurosurgeons. This translates into constant widening of surgical indications, improvement of surgical techniques, development of new devices and technologies, and, ultimately, a tireless effort to improve functional outcomes and quality of life for our patients. In this time of change, exchange of scientific information among the specialists becomes extremely important and drives the progress of the field. Timely delivery of ideas and experiences along with the peer review of information is now an important priority of the American Society for Stereotactic and Functional Neurosurgery.

The change in frequency of ASSFN meetings is probably the best indicator of this increase in volume of information. Making these meetings biennial (instead of quadrennial) will give the American functional neurosurgery community the opportunity to meet twice as often in order to keep up with the lightning pace of developments in all areas of our work.

The record attendance and number of submissions at the October 2004 meeting of the ASSFN in Cleveland illustrated the growing interest in the subspecialty. The intensity of the program and high quality of presentations were supplemented by an informal spirit and excellent local arrangements. The World Society of Stereotactic and Functional Neurosurgery meeting will take place in June of 2005 in Rome (visit www.wssfn.org for information), and the next ASSFN meeting is scheduled for June 2006 in Boston.

In addition to these dedicated meetings, the section's sessions during the annual meetings of the American Association of Neurological Surgeons and the Congress of Neurological Surgeons have become an established tradition that attracts many "general" neurosurgeons. In particular, recent special symposia that took place in Orlando and San Francisco attracted rooms full of attendees due to the relevance of topics and the high caliber of the speakers. At the April 2005 meeting of the AANS in New Orleans, our symposium will be dedicated to "Pain and the Brain"—a topic that definitely will be at the center of everybody's attention. Selected meeting listings are included in this issue of the newsletter.

A change in the format of the journal *Stereotactic and Functional Neurosurgery* is another major development for ASSFN. This journal is now published in a large format and will appear more frequently. Six issues will be published in 2005, and the time from submission to publication is now minimized due to the efforts of the editor, David Roberts, MD, and the editorial board. Time from acceptance to publication is further decreased by having all articles appear online even before the printed issue is mailed out. As a reminder, the subscription to this valuable resource, including its online version, is one of the benefits of membership in the ASSFN.

Konstantin Slavin, MD
Chicago, Ill.

Stereotactic and Functional Neurosurgery at the 2005 AANS Meeting

The 2005 Annual Meeting of the American Association of Neurological Surgeons, themed "Education and Innovation in Neurosurgery," will be held April 16-21 in New Orleans. The most up-to-date meeting information is available online at www.AANS.org/annual/2005.

Monday, April 18, 2:45–5:15 PM

Moderator: Michael Schulder

723 **2:45–3:00 PM**
Deep Brain Stimulation for the Treatment of Obesity in the Rat
Authors: Sepehr B. Sani, Kirk W. Jobe, Jeffery Kordower, Roy A. E. Bakay
Discussant: Ali R. Rezai

724 **3:00–3:15 PM**
Intraventricular Passive Immunization against β -Amyloid as a Treatment for Alzheimer's Disease in Transgenic Mice
Authors: Terry Lichtor, Neelima B. Chauhan, George J. Siegel
Discussant: Gordon Hirsh Baltuch

725 **3:15–3:30 PM**
High Frequency Stimulation of the Caudal Zona Incerta for the Treatment of Parkinsonian and Non-Parkinsonian Tremor
Authors: Puneet Plaha, Steven S. Gill
Discussant: Philip A. Starr

726 **3:30–3:45 PM**
Surgical Treatment of Dystonia With Deep Brain Stimulation: Results in Child and Adult Patients
Authors: Carlo Marras, Angelo Franzini, Nardo Nardocci, Giovanna Zorzi, Giovanni Tringali, Luisa Chiapparini, Giovanni Broggi
Discussant: Roy A. E. Bakay

Invited Lecturer **3:45–4:15 PM**
Stereotactic Radiosurgery: Scientific, Educational, Political and Economic Forces That May Affect the Future
Speaker: L. Dade Lunsford

727 **4:15–4:30 PM**
Integration of Fibertracking Into Functional Neuronavigation
Authors: Christopher Nimsky, Oliver Ganslandt, A. Greg Sorensen, Rudolf Fahlbusch
Discussant: Mitchel S. Berger

728 **4:30–4:45 PM**
Lesional Occipital Lobe Epilepsy: Clinical Profiles and Outcomes Following Resective Surgery
Authors: Nitin Tandon, Andreas V. Alexopoulos, Ann Warbel, Imad Najm, William E. Bingaman
Discussant: Dennis D. Spencer

729 **4:45–5:00 PM**
Microsurgical Robotic System for the Deep Surgical Field Development of Prototype (Micromanipulator Type 1; MM- 1) and Feasibility Study in Animal and Cadaveric Experiments
Authors: Akio Morita, Shigeo Sora, Mamoru Mitsuishi, Shinichi Wari-sawa, Daisuke Asai, Shoichi Baba, Ryo Mochizuki, Takaaki Kirino
Discussant: M. Peter Heilbrun

730 **5:00–5:15 PM**
On the Optimal Opening Pressure of Hydrostatic Valves in Cases of Idiopathic Normal-Pressure Hydrocephalus: A Prospective Study With 122 Patients
Authors: Ullrich Meier, Johannes Lemcke, Michael Kiefer
Discussant: Mark G. Luciano

Wednesday, April 20, 2:45–5:30 PM

Moderators: Michael Schulder, Philip A. Starr

Symposium **2:45–3:45 PM**
Pain and the Brain
Moderator: G. Rees Cosgrove

2:45–3:05 PM
The History of Brain Stimulation for Pain
Speaker: Donald E. Richardson

3:05–3:20 PM
Central Ablative Procedures for Pain
Speaker: Alain C. J. De Lotbiniere

3:20–3:40 PM
Motor Cortex Stimulation for Pain
Speaker: Jaimie M. Henderson

3:45–3:50 PM
Philip L. Gildenberg Award Presentation
Introduced by: G. Rees Cosgrove
Recipient: TBD

840 **3:50–4:00 PM**
A Unilateral, Randomized, Double-Blind, Placebo-Controlled Trial of GDNF Infusion in Patients With Parkinson's Disease Who Have Already Received Bilateral Chronic GDNF Infusion Over 2 Years.
Authors: Puneet Plaha, Nikunj Patel, Gary Hotton, David Brooks, Deidre O' Brien, Peter Heywood, Steven S. Gill



French Quarter balconies (left) and St. Louis Cathedral with Andrew Jackson statue (above). Photos courtesy of the New Orleans Metropolitan Convention and Visitors Bureau, Inc.

841 **4:00–4:10 PM**
Phase I Study of AAV-GAD Gene Therapy of the Subthalamic Nucleus for Parkinson’s Disease
Authors: Michael G. Kaplitt, David Eidelberg, Andrew Feigin, Paul Mattis, Robert Zimmerman, Linda Heier, Yu-Hung Kuo, Kristin Strybing, Andres Lozano, Matthew During

842 **4:10–4:20 PM**
Gamma Knife Surgery for Recurrent or Residual Pituitary Adenomas in Cushing’s Disease
Authors: Jayant Jagannathan, Jason P. Sheehan, Aaron S. Dumont, Mary Lee Vance, Edward R. Laws, Ladislau Steiner

843 **4:20–4:30 PM**
Development of Anti-Apoptotic Gene Transfer as a Means for Neuroprotection Against Excitotoxicity
Authors: Nicholas M. Boulis, Mary E. Garrity-Moses, Teng Qingshan

844 **4:30–4:40 PM**
Superior Vestibular Nerve Sectioning: Outcome and Cost Effectiveness
Authors: Max B. Medary, James Atkins

845 **4:40–4:50 PM**
Bilateral High Frequency Stimulation of the Caudal Zona Incerta for Parkinson’s Disease: Better Clinical Outcome than Subthalamic Nucleus Stimulation
Authors: Puneet Plaha, Yoav B. Shlomo, Nikunj Patel, Steven S. Gill

846 **4:50–5:00 PM**
Frameless Stereotactic Aspiration and Thrombolysis of Spontaneous Intracerebral Hemorrhage: Effects on 30-Day Survival
Authors: Ryan J. Barrett, Rahat Hussain, Samera Berry, Robert R. Johnson II, J. Ricardo Carhuapoma

847 **5:00–5:10 PM**
Surgical Management and Outcome of Orbitofrontal Epilepsy
Authors: Nitin Tandon, Samuel R. Borsellino, Andreas Alexopoulos, Ann Warbel, Imad Najm, William E. Bingaman

848 **5:10–5:20 PM**
Can Anterior Temporal Lobectomy for Temporal Lobe Epilepsy Be Performed Successfully Based on MRI and PET Scans Alone?
Authors: David D. Yeh, Khaled Aziz, Hwa-Shain Yeh

849 **5:20–5:30 PM**
Effectiveness of Pallidal Deep Brain Stimulation for Generalized Dystonia Depends Upon the Etiology
Author: Fredrick S. Junn

Clarification of Membership Categories and Member Benefits

Philip Starr, MD, PhD

Starting with this issue of the newsletter, we have a new membership application form that clarifies the different membership categories and many benefits of membership in the American Society for Stereotactic and Functional Neurosurgery. (The details are provided in the application form). In addition to the previous categories of Active (practicing neurosurgeons) and Resident/Fellow members, the application form now includes the categories of Senior (retired neurosurgeons who are over 65) and Associate (non-neurosurgeon) members. ASSFN members in any category are automatically members of the AANS/CNS Section on Stereotactic and Functional Neurosurgery, as long as the individual holds a membership in the American Association of Neurological Surgeons or the Congress of Neurological Surgeons.

Journal subscriptions. As in prior years, Active members will automatically receive the journal, *Stereotactic and Functional Neurosurgery*, as part of their membership. Starting this year, members in all other categories who wish to receive *Stereotactic and Functional*

Neurosurgery are eligible for a reduced subscription rate (\$135/year). To obtain this subscription, ASSFN members in the Resident/Fellow, Senior, and Associate categories should write a check payable to the ASSFN with ASSFN journal referenced in the memo field and mail it to ASSFN c/o AANS, 5550 Meadowbrook Drive, Rolling Meadows, IL 60008, or call AANS Member Services at (847) 378-0500.

Online access to the journal. Starting this year, subscriptions to the journal *Stereotactic and Functional Neurosurgery* will include online access in addition to the hard copy. In early 2005 the publisher of the journal, Karger Inc., will contact each subscriber to provide an access code. If you have not received your access code at the time of publication of this newsletter, please contact Karger directly (contact Esther Coscino, e.coscino@karger.ch)

Philip Starr, MD, PhD
Secretary-Treasurer, ASSFN
San Francisco, Calif.

The Drive to Update Membership Information

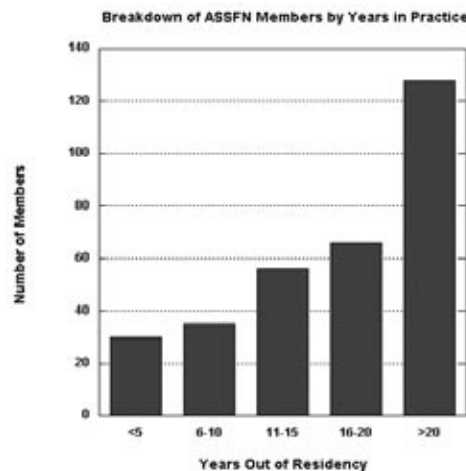
Nicholas M. Boulis, MD

In order to keep pace with the rapid growth in our subspecialty, we have begun to reorganize the administration of the American Society for Stereotactic and Functional Neurosurgery. One of the key changes involves shifting dues collection and membership tracking from Karger to the American Association of Neurological Surgeons. The AANS provides several advantages to our society. First, we anticipate that communication with administrative staff will be streamlined. Unlike Karger, the AANS is a domestic organization. Having the headquarters in the United States should improve accessibility. Currently, there are 340 active members of ASSFN. Of this group, 191 are "Active" members of the AANS. Of ASSFN members, there are only 43 who have no affiliation with AANS or Congress of Neurological Surgeons, and 28 are members of the CNS only.

Given the changing of the administrative guard, we would like to take the opportunity to reassess the membership and update contact information. In 2005, the AANS will be performing a census. We ask all ASSFN members, including those who are not members of the AANS, to participate in the census at www.MyAANS.org. The information provided will enhance understanding of the ASSFN member demographics and validate members' contact information. We hope to have updated information on ASSFN members by the AANS annual meeting in April.

A brief look at the current membership demographics using existing information reveals the following picture of ASSFN membership. Apart from stereotactic and functional neurosurgery, major neurosurgical subspecialties listed by ASSFN members included; tumor (50 percent), spine (38 percent), epilepsy (23 percent), vascular (21 percent), pain (16 percent), skull base (9 percent), pediatric (6 percent), and peripheral nerve surgery (5 percent). The largest number of members practice in

academic health centers (40 percent), with 16 percent in group practices, 13 percent in HMOs, and 9 percent with local or federal government hospitals. The ASSFN is 96 percent male, and 72 percent Caucasian.



Most surprising, however, is the observation that younger neurosurgeons are relatively underrepresented. In fact, membership seems to correlate with years out of residency (see histogram). One explanation is that a large part of our discipline is not currently affiliated with the ASSFN. At present, 476 AANS members list stereotactic surgery as a subspecialty but are not ASSFN members. We anticipate that the new relationship between ASSFN and the AANS will facilitate the process of bringing these individuals into our organization. As we continue to push the boundaries of functional neurosurgery, please encourage your colleagues to participate in the ASSFN.

Nicholas M. Boulis, MD
Membership Coordinator, ASSFN
Cleveland, Ohio

