



World Society for Stereotactic
and Functional Neurosurgery

NEWSLETTER

Fall 2010

A Message from the President



Dear Colleagues:

Just one year ago, our 15th Quadrennial Meeting was held in Toronto, Canada hosted by Professor Andres Lozano. It was a very successful meeting both scientifically and socially and I would especially like to congratulate the Toronto team of functional neurosurgery for their splendid hospitality.

Since I was appointed President of WSSFN, the activities of the society have broadened. The leaders of the society communicate almost every day via email and every 2-3 months via telephone conference. We were pleased to have organized a WSSFN booth in the WFNS Boston meeting and the ASSFN meeting in New York City. These efforts promote our society and encourage the enrollment of new members.

For 25 years, I have been pursuing excellence in the field of functional neurosurgery. Today, as the President of WSSFN, I have been given the opportunity to serve from a more comprehensive vantage point. I feel honored and take great pride in being the President of this society. I am aware that being President gives me myriad opportunities to serve functional neurosurgery.

I believe this year will provide us with opportunities to expand functional neurosurgery in the developing world. We started the Outreach Program for those who are practicing in countries lacking modern technology. Our Interim Meeting will be held in Cape Town, South Africa in November 2011 and will serve as an educational forum for local physicians. However, all of you are most welcome to attend the first scientific meeting on functional neurosurgery in Africa. And please remember that our 16th Quadrennial Meeting will be held in Tokyo, Japan in May 2013.

If you have any suggestions or questions, please do not hesitate to contact me via email at ttaira@nij.twmu.ac.jp.

I am looking forward to seeing you all in Cape Town in 2011 and in Tokyo in 2013.

Yours sincerely,

President, WSSFN
Takaomi Taira, M.D., Ph.D.

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Featured Neurosurgeon: Nasir Raza Awan

Dr. Awan graduated from King Edward Medical College, Lahore in 1990. After completing two mandatory years in rural medical service, he joined the surgical residency program at Mayo Hospital, Lahore in 1994 and moved to Lahore General Hospital, Lahore in 1996 for neurosurgical training. He completed his training in 2001.

Dr. Awan started his career as assistant professor at Lahore Medical and Dental College, Lahore in 2002. With no pre-existing neurosurgical facilities there, he established a fully independent department of neurosurgery in one of the affiliated hospitals, Ghurki Trust Teaching Hospital, Lahore. In 2005, Dr. Awan took up an offer to serve at King Fahad Medical City, Riyadh, Saudi Arabia as assistant consultant. The high-tech and cutting edge environment of the neurosciences center at the medical city there kindled his interest in neurosurgical technology. Working in Saudi Arabia also helped him save enough to sponsor himself for a fellowship in functional neurosurgery from 2008 into 2010.

Dr. Awan completed a research fellowship in functional neurosurgery with Professor Andres Lozano at the Neurosciences Center, Toronto Western Hospital, Toronto, Canada and a fellowship in functional neurosurgery and radiosurgery at University of Pittsburgh Medical Center, Pittsburgh, USA with Professor Douglas Kondziolka and Prof. L. Dade Lunsford. He has returned to Pakistan enthusiastic to start the first DBS program in the country. He lives with his wife, Dr. Saira Rathore, who has just finished her FCPS in histopathology and their three children.

You have been involved with neurosurgery for a number of years. How did you become interested in this specialty?

I come from a strong medical tradition. My parents, my sister, her husband, my wife, are all physicians. Growing up in a household where academic interests were nurtured and medicine was looked up to as the noblest of professions, my becoming a physician was natural. Choosing neurosurgery was a result of my persistent fascination with the human brain. And the journey still continues. Although I was always happy doing the thing that captivated me, it has not always been easy for my family. I could never have done this without the encouragement and support from my wife and my father.

Which technologies or indications are of most interest to you?

I find therapeutic possibilities at the interface of psychiatry and neurosurgery the most fascinating. Controlled electrical stimulation of the brain, to me, is going to be the next big revolution not only in medicine but in science in general. The whole brain is there for us to explore and technology is now ripe to provide us the tools to do it. Real time functional imaging, minimally invasive and stereotactic techniques and adjustable brain stimulation allow us an immense avenue not only to study the final unexplored frontier, the human brain, but these technologies also provide us with means to treat the illnesses that befall it.

My ultimate desire and aim is to bring these technologies and therapies to Pakistan and to try to make them affordable and accessible to people in the third world, *Insha Allah!*

The scope of your training brought you to various countries and institutions. How is the training in your country different from the countries where you have studied?

We are still in a process of evolution regarding our own way of training. In Pakistan, to a very large extent, we follow the British training system in professional education. It is based on apprenticeship. This has worked well as we have an abundance of clinical material. But the Col-

lege of Physicians and Surgeons, Pakistan is also striving to bring versatility, uniformity and standardization to our training system.

Personally, I feel lucky to have had the opportunity to get exposed to the North American way of training. In Saudi Arabia, almost all the neurosurgeons were North American trained and were extraordinary in their professional knowledge and skill.

That encouraged me to explore the “other side”, so to speak. But the one thing that has had the most impact on the way I will practice neurosurgery has been my training in Pittsburgh. World leaders in their fields, my trainers there were extremely generous. The patience with which they train and the time and effort they extend towards their trainees is remarkable. Especially, I feel privileged to have gained personal acquaintance with Professor Kondziolka.

How is practice different in Pakistan compared to where you have trained and where do you envision yourself and your country's neurosurgical training and practice in the upcoming years?

Neurosurgery in developing countries is versatile by necessity and innovative by consequence. But the more you spread out, the more you thin out as well. Whereas doing general neurosurgery lends Pakistani neurosurgeons immense resourcefulness and skill, it unfortunately also limits their evolution towards subspecialization.

Subspecialties of neurosurgery, as a result, did not get the opportunity to develop in Pakistan. However, things are on the verge of a change now. There are young neurosurgeons who are breaking this long held inertia and branching out towards fields of their interest. This is the time when international bodies like the WSSFN can facilitate their further training to encourage more neurosurgeons to take up subspecialization. The biggest limiting factor in such a move is funding. I hope to be able to work towards overcoming this obstacle for neurosurgeons from the forum of the Pakistan Society of Neurosurgeons.

Would you also share a little about your personal interests and activities outside of medicine?

My hobbies include music, amateur astronomy and recently, digital photography. I am a self-taught musician and play many instruments including harmonica, drums, guitar, keyboards and sitar. In my college days, I was a member of a band and we performed at many music concerts.

I have been an ardent star gazer since school. In 1995 I founded the Lahore Astronomical Society, one of the most active amateur astronomy groups in the region. We have held different public astronomy events and the society still holds regular meetings, lectures and observation sessions.

I am also an avid reader of science fiction. Imaginativeness breeds development in science and like many other scientists of my day, contemporary speculative literature has been a significant influence in my career choice.



Stereotactic and Functional Neurosurgery at the Burdenko Neurosurgical Institute

The pioneer of Russian stereotactic and functional neurosurgery (SFN) is Professor Edvard Kandel from the Burdenko Neurosurgical Institute (BNI), Scientific Centre of Neurology, Moscow. At the end of 1950s, he was the first to introduce stereotactic methods for the treatment of Parkinson's disease and other movement disorders. He modified the stereotactic device that D. Fairman introduced in 1968 which is still in use at the Moscow Centre of Neurology. Professor Kandel is the author of the first Russian monograph of SFN that remains a standard textbook in Russia.

The other important figure of SFN in Russia is the neurophysiologist Natalia Bechtereva from St. Petersburg. Under the leadership of Professor Bechtereva, the Institute of Experimental Medicine was the first to introduce externalized multiple deep brain electrodes for subcorticography, microelectrode recording, test/therapeutic stimulation, and therapeutic anodic lesions in different cerebral structures (1967). They used a modified Riechert frame and homemade gold electrodes with 6 contacts to investigate and treat extrapyramidal movement disorders, central pain, epilepsy, and psychosurgery (mainly obsessive-compulsive disorder). Professor Bechtereva is the author of the concepts such as 'stable pathological condition', "memory of the disease", and "artificial stable functional connections", as well as many others.

Unfortunately, the idea of therapeutic deep brain stimulation (DBS) by completely implanted devices was not embraced by either professors Kandel or Bechtereva and progress in this area of SFN was delayed in Russia for several decades. Lesional SFN, however, continued to be practiced in Russia till the end of eighties at twelve SFN centers in six cities in Russia. The most popular targets for cerebral lesions were the thalamus (motor, sensory, and nonspecific nuclei), subthalamic structures, globus pallidus-interna, and the dentate nucleus.

Stereotactic CT, and later MRI-navigation, was introduced at BNI toward the end of Eighties. The Riechert frame was adapted for CT-navigation as a part of supra- and subtentorial stereotactic procedures and the first 3D computer stereotactic atlas was created in 1991. Nevertheless, almost all other Russian centers during the Nineties continued to use ventriculograms as well as pneumoencephalograms for stereotactic procedures. Although the number of SFN centers in Russia decreased from twelve to four in the Nineties because of national economic problems during that time, interest in modern SFN such as neurotransplantation and neuromodulation was very high.

Since 1990, BNI (in cooperation with Institute of Developmental Biology, Moscow) has been a participant of the international Network of CNS Transplantation and Restoration (NECTAR). According to the protocol developed through NECTAR, 11 Parkinson's disease patients were treated with bilateral neurotransplantation in the head of the caudate nucleus and putamen. Ten year follow up results of this multicentre research was presented in Switzerland in 2006.

During the same period BNI (in cooperation with the Institute of



Optico-Physics Measurement, Moscow) created the Russian devices for DBS and SCS. These devices consist of bipolar electrodes, subcutaneous receiver and an external pulse generator. More than 100 patients with Parkinson's disease, cerebral palsy, spinal spasticity, and neuropathic pain have been treated using these devices.

The appearance of the first Medtronic devices for SCS and DBS in Russia in 2000 has opened a new era of SFN in Russia. BNI was the first to introduce neuromodulation in clinical practice and remains the national leader in this field. Almost all technologies of neuromodulation are applied: DBS, MCS, SCS, SNS, PNS and ITB. The huge geographic territory of Russia has been a serious problem in the support of patients in the follow-up neuromodulation therapies. For this reason, comprehensive educational program in neuromodulation has been developed for neurosurgeons, neurologists, algologists, urologists, cardiologists, angiologists and other specialists from the different regions of our country. The results of the activity of the neuromodulation training centre at BNI has been the creation of new centers of neuromodulation in different regions of Russia: Vladivostok (O. Pak), Novosibirsk (E. Melidi), Tumen (A. Sufianov), Ufa (A. Timershin, A. Orlov, A. Bektimirov), Kazan (Z. Zilalova, A. Gabidyllin), Samara (O. Kamadey), St-Petersburg (D. Rzaev, A. Petrov) and three additional centers in Moscow. Most of these centers perform SCS for treatment of neuropathic pain and spasticity and four centers currently offer DBS in cases of movement disorders and central pain.

The number of implanted devices per year in Russia has increased from 25 in 2003 to 200 in 2010. Additionally, in 2010 ITB became available in Russia at centers mentioned above for treatment of spasticity and dystonia with support from BNI.

As is evident from this brief review, SFN, especially neuromodulation, has rapidly developed in Russia during this past decade. Similarly, stereotactic radiosurgery in Russia, having started in 2006, is growing with Gamma-Knife programs in Moscow, St-Petersburg, and soon to be in Tumen

**Vladimir Shabalov,
Burdenko Neurosurgical Institute**

Stereotactic and Functional Neurosurgery Residency Training

A certain amount of discussion from time to time arises around the issue of the components of fellowship training, but very little attention is directed to the components of our subspecialty that should be addressed in Residency Training. Several months ago we distributed an initial round of the attached survey to try to begin investigating whether any consensus existed regarding what content areas should be covered in residency, what resources were used to guide these decisions, and how resident learning was assessed. All surveys were distributed by email. We tried two different approaches. For the United States programs, we contacted residency program directors, since they are the responsible party for reporting program data to the accrediting body. Because we were not certain our survey was worded correctly to ask the appropriate questions in all countries, we also emailed the survey to all registered members outside the US for commentary.

The preliminary response has been interesting. Eighteen programs responded by email. Five were from the United States, 3 from Japan, 2 from the United Kingdom, and one each from Argentina, Brazil, Taiwan, Saudi Arabia, France, Israel, India and Iran. In most countries and programs, all of the questioned areas were considered part of S&FNS residency training, including pain, movement disorders, epilepsy, psychiatric indications, stereotactic biopsy, stereotactic radiosurgery, and spasticity. Write in responses included neuronavigation or image guided surgery, transplantation, basic sciences including physics, mathematics, and computer software training, and tumor resection in eloquent cortex. External guidelines were minimal, although some broad residency training guidelines were deferred to in America and Japan. National and regional guidelines are in development at several other sites. The choice of texts was broad, with the Textbook of Stereotactic and Functional Neurosurgery by Lozano, Gildenberg, and Tasker referred to most commonly, by 5 of the 18 programs. Written testing was used at 8 of the 18 sites, and many sites commented that their regular national board exams included some S&FNS material, and this was considered the primary evaluation. Several other methods of assessment were used, including assignment of a monograph or original research project, or direct formal oral examination, but most evaluations were simply the typical rotation evaluation of the program for residents on the service to which they were assigned.

These results are very preliminary, and our investigation of residency training patterns in S&FNS around the world is ongoing. A copy of the survey can be found below. Any additional comments, suggestions, or explanations relevant to this project are very welcome as well. Please be careful to identify yourself and your program, if any, in all correspondence about this project, as it is important for accurate reporting of the aggregated responses. Thank you for your responses!

1. Who is responsible for educating your residents in stereotactic and functional neurosurgery? Is it one specific faculty member, and if so who?
2. What areas do you consider part of stereotactic and functional neurosurgery for instruction during residency? (please check any that apply)
 - Pain?
 - Movement Disorders?
 - Psychiatric Indications?
 - Epilepsy?
 - Stereotactic biopsy?
 - Radiosurgery?
 - Spasticity?
 - Other (please indicate)
3. Are there external guidelines you use to determine curriculum? If so, what?
4. Is there a text you use? If so, what?
5. Do you use any written tests? ____ Yes ____ No
6. Any other formal evaluation of knowledge or mastery in stereotactic and functional neurosurgery?

If you have any additional comments or questions please contact:

Erich Richter, MD
Assistant Professor of Neurosurgery
LSU Health Science Center, New Orleans
ericht@lsuhsc.edu

**Please fax your response to my attention at 504-568-6127
Or send as an attachment to ericht@lsuhsc.edu**

Reminder: Outreach Program



The WSSFN led by Dr. Taira continues to promote the dissemination of information regarding stereotactic and functional neurosurgery to the developing world. The outreach program, organized by

Dr. Jason Schwalb along with Karger Publications, is offering complimentary one year membership to the first 50 neurosurgeons from developing countries who apply for WSSFN membership. This includes a one year online subscription to the journal *Stereotactic and Functional Neurosurgery*. Further information on what countries meet the criteria established by the World Bank, and information on how to apply can be found on the web site at www.wssfn.org.

WSSFN Quadrennial Meeting

May 27-30, 2013

Hotel Nikko Tokyo
Tokyo, Japan



Upcoming Meetings

ESSFN XIX Meeting
Athens, Greece
September 22-25, 2010

North American Neuromodulation Society
Las Vegas, Nevada
December 2-5, 2010

Congress of Neurological Surgeons
San Francisco, CA
October 16-21, 2010

Joint Meeting Brazil/Argentina on
Neuromodulation & International Joint Meeting
on Stereotactic and Functional Neurosurgery
Goiania, Goias, Brazil
November 17-20, 2010

10th Biennial Congress and Exhibition of the International Stereotactic Radiosurgery Society
Paris, France
May 8-12, 2011

American Association of
Neurological Surgeons
Denver, CO
April 9-13

ASSFN 2012 Biennial Meeting
San Francisco, California
June 3-6, 2012

WSSFN Interim Meeting

November 20-23, 2011

Cape Town, South Africa



Memorial: Chihiro Ohye



**Chihiro Ohye, MD, DMSc
Takasaki, Japan**

WSSFN would like to acknowledge the outstanding contributions and leadership of Dr. Chihiro Ohye who passed away in January this year. He truly was an exceptional neurosurgeon, teacher and very special individual who will be missed. Dr Ohye was a pioneer of selective Vim thalamotomy, and even after retirement from Professorship of Gunma University, he continued working in the field of gamma-knife thalamotomy. Dr Ohye served as the President of WSSFN and held the memorable 1989 Society meeting in Maebashi, Japan.

Stay Tuned

Dr. Taira is planning a business meeting for all WSSFN leadership that may be attending the ESSFN meeting to be held in September in Athens, Greece.

The business meeting is scheduled for Friday, September 24, 2010 from 13.00 to 14.00. Further location details will be forthcoming, as well as agenda items.

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