

Neurosurgery in Mexico and Latin-America

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1. Neurosurgery in Central America and the Caribbean.

It was not until the second half of the twentieth century when the first signs of neurosurgery were discovered in different regions of Central America. During explorations around 1920s and 40s by Silvanus Marley (Princeton University and Carnegie Foundation) human skulls were found with trepanation, with new ossification at its edges suggesting a healing process in people either after confrontations or tribal disputes. These findings were similar to those found in the Maya, Zapotec, Aztec and Inca cultures that lived in Mesoamerica and the Andes. The use of sharp objects such as jade and animal bones used by different civilizations had this in common.

It was not until 1950 that many colleagues returned from training in North America, South America, Europe and specifically from Panama. Dr. Antonio González Revilla graduated from Johns Hopkins under the mentorship of Dr. Dandy Walter. St. Thomas hospital was the first neurosurgery department. The Society of Neurological Surgeons has 38 physicians who specialize in adults and children. The Public Health System provides coverage of 85% of workers and their families (3.5 million people is the total population). The health system has diagnostic and treatment equipment including CT, MR, SPECT, neuronavigator, angiograms and other equipment. In 2004 The XXXI Latin America Conference (CLAN) was held in Panama and was chaired by Dr. Guzman Aranda. The current president of the Society of Neurosurgery Panama is occupied by Dr. Avelino Gutierrez.

Costa Rica is the only country in the region with a social security system that covers 90-95% of the population, similar to European countries. With a population of 4.5 million and 35 neurosurgeons, private practice is very limited. There is a postgraduate residency program for 1 or 2 doctors every year. The Society of Neurosurgery of Costa Rica is affiliated with FLANC, WFNS and ASOCAN. Dr. Jorge Badilla is the current representative. On the other hand, neurosurgery in Nicaragua has had its low points due to the military conflict in the 80's and neurosurgeon migra-

tion to its neighboring countries and the United States. It was not until the early 90s when some of the doctors return that private practice and public hospital services emerge. Today, with the help of Dr. Harry Torres, Dr. Victor Vega and Dr. Marvin Salgada, The Neurosurgical Society of Nicaragua has resumed graduate studies with the help of local health authorities and the University of Nicaragua. Recently, the World Federation of Neurosurgical Societies visited the country to donate basic equipment and support postgraduates in the field. It is affiliated with the FLANC and ASOCAN. Nicaragua has 14 neurosurgeons for a population of 6.8 million people. In the 1950s Dr. John Tavernier from France visited El Salvador after a personal invitation from Dr. Julio Bottari motivated to visit the Salpetriere Hospital in Paris and NY Presbyterian Hospital. After these experiences, Neurosurgery was introduced as a medical service in El Salvador with Dr. Antonio Ramirez Amaya who traveled and completed his training under the supervision of Dr. Clemente Robles and Ramon del Cueto in Mexico City, finishing at the Department of Neurosurgery at Mercy Hospital in Chicago.

After his return, he joined the Military Hospital and the Hospital Bloom. Other colleagues who also completed their education at other schools helped to take the specialty to the next level. In the 1970s the residency program was founded, with 1 or 2 residents accepted each year who continued their training in several other hospitals around the world.

Today El Salvador has 44 neurosurgeons for a population of 8 million people. Dr. Ernesto Herrera has represented the organization at events such as ASOCAN WFNS. In 2010, the FLANC XXXI congress was held in which Dr. Ernesto Herrera was the President.

With regards to Guatemala, the country with the largest population (14 million people), Dr. Rafael de la Riva, studied in the USA and in Europe between 1950-1960. He opened the way for trainees in different hospitals and institutions worldwide. Recently FIENS has changed the

structure of the residency program, adopting modern technologies and adhering to the protocols established by the FLANC and WFNS. The Society of Neurosurgery has 16 active members and is affiliated with the FLANC and ASOCAN. Dr. Mannucci and Dr. de la Riva have represented both organizations. Dr. de la Riva is the current President of the Guatemala neurosurgical society.

It was not until the 1950s that the first neurosurgeons returned to Honduras after completing their training in different countries. Dr. Carlos Mena, who studied at the Walter Reed Hospital in the United States, Dr. Rafael Molina-Castro and Dr. René Valladares-Lemaire from the Asenjo Institute of Chile, laid the foundation for Neurosurgical practice in public hospitals and the Honduran Institute of Social Security. He also held three programs that are fundamental to medical students: Neuroanatomy, Neurophysiology and Neurological semiology. In the 1970s other neurosurgeons returned, some have excelled in this field, including Dr. Cesar Castellanos. He was a brilliant professional and later changed his passion for politics. Dr. Castellanos was Mayor of Tegucigalpa, capital of Honduras. He died tragically in a helicopter crash in 1998. In 1980 a new generation of neurosurgeons returned home. They came from different schools and hospitals such as The Asenjo Institute of Chile, The Specialty Hospital of Caracas, the Mexican Social Security Institute, General Hospital, Glasgow, Scotland, Neurosurgical Clinic of Cali and others.

In 1980 Dr. Marco Molina completed his residence in the Mexican Social Security Institute under the mentorship of Dr. José Humberto-Mateos and Dr. Mauro Loyo. He visited advanced neurosurgery departments in Europe and USA before returning to Honduras. The first microsurgical laboratory was created at the Honduran Social Security Hospital of Tegucigalpa and began microprocedures such as skull base tumor recessions, Transsphenoidal Hypophysectomy, Extra-Intracranial Aneurysm Clipping, spine stabilization, cerebral arteriovenous malformations embolization; first endoscopic procedures, monitoring of intracranial pressure in the ICU and others.

Along with other colleagues, Dr. Molina contributed and founded in 1990 the neurosurgical residency program from the local university, which has graduated 25 neurosurgeons up to today. This has significantly improved the quality of medical care in Honduras. His collaboration includes FIENS in Miami University, University of Colorado and other committees of the WFNS, helping student exchange and the development of the surgical skills of young neurosurgeons. In 1980, the CT and MR were introduced to Honduras. These improved the quality of medical practice in the country. Around the same time the first laboratory of neurophysiology was founded to study and follow-up patients with sleep disorders.

The Honduras Neurosurgery Society was founded in 1980 and joined the FLANC in 1984, and in 1995 ASOCAN WFNS was created in Copan Ruins. The Society of Neurosurgery in Honduras (SHNC) is the most active in the

region, organizing scientific meetings and conferences. It has been recognized with numerous awards for its efforts. Dr. Molina has been President of the FLANC, and has represented this organization in different events around the world. In 1996 the XXVII FLANC Congress was held in the city of San Pedro Sula. Dr. César Castellanos was President of the Congress.

There are two important locations in the practice of neurosurgery in the region; Tegucigalpa and San Pedro Sula, but recently other minor towns have added a neurosurgeon in the public hospital such as La Ceiba, Santa Rosa de Copan, Comayagua and Choluteca. Recent additions are Neuroradiology, Endovascular neurosurgeons and multi-slice CT, linear accelerator, Neuroendoscopy, Neuro-oncology, Neurotology and MR.

Belize is the youngest country with the population of 350 thousand people, with only one neurosurgeon at the General Hospital in the capital Balmopan. Belize is part of the British Commonwealth, Commowelt. The country has some basic services in the primary health care level.

Neurosurgery Services are present at all countries in Central America with medical facilities equipped with state of the art Diagnostic Imaging Studies, multi-slice CT, MRI, SPECT, Digital Angiography, EEG, Radiofluoroscopia, EMG, SSEP, Endovascular Catheterization, linear accelerator, Minimally Invasive Neurosurgery team, stereotactic frame, C-Arm, Surgical Microscope, Neuronavegadores, ICP monitoring, Neuropathology, Biomolecular laboratories, and genetics.

Central America has a global population of 44 million people, with 200 neurosurgeons: a neurosurgeon for every 220,000 people. A total of 70 TC, 20 MR, 6 linear accelerators, 12 C-arms, 4 neuronavigation, 6 ultrasonic aspirators, 15 surgical microscopes, 4 Microsurgery Laboratories 8 services endovascular procedures with 600 beds in 18 neurosurgical services to assist neurosurgical patients and 60 NIUC beds. All countries have a residency program in neurosurgery and graduates between 8-10 young neurosurgeons per year in total.

In the near future globalization will erase the borders between our countries and we will be brought together with one purpose, to reduce the gap between rich and poor countries and offer our patients the opportunity for a better quality of medicine, especially in Neurosurgery.

2. My Vision for This Journal

My vision of the International Journal of Neurosciences should bring neurosurgeons together to expand their knowledge in neurosciences. The editorial board covers the 5 continents and allows updating the general knowledge of neurosciences. A great number of journals have been added around the world in recent and knowledge rapidly changing every day I congratulate and honor Professor Madjid Samii, creator of this idea and director of a huge project that will revolutionize and simultaneously integrate the different specialties of neuroscience for current and future neurosurgeons.