Global Theme Issue on Poverty and Human Development
Neuroradiology

Comentario Editorial – Editorial Commentary

Development and Advance in the Field of Neuroradiology in South East Asia: Experience in Philippines and India

S. Mohan, B.M.S. Go.

Department of Neuroradiology, National Neuroscience institute, 11 Jalan Tan Tock Seng, Singapore 308433.

Rev Soc Med Quir Hosp Emerg Perez de Leon 2007; 38(Suppl 1):52-55.

The original scope of this piece is "Development and Advance in the Field of Neuroradiology in South East Asia" -- which seemed too broad a topic to cover given the differences in healthcare systems and uneven spread of resources within this geographical region. Hence, we've decided to write from the perspective of our respective practices in the Philippines and India.

In these two places, availability of top of the line technology and notable expertise are not in question. However, in the Philippine setting, economics plays a big factor as socialized healthcare is available to a bare minimum – actually, more bare than minimum. It is thus more of a question of accessibility to rather than availability of resources.

The Philippine premiere national tertiary referral centre operates a 1500 bed on a budget less than a small district hospital in the USA. The vast majority of patients seen here are the poorest of the poor, unable to afford US$0.15 cents to purchase their permanent record id. These people are cared for by providing utmost cost-cutting schemes, to the point of skipping confirmatory diagnostics to make way for administration of essential therapeutics which often have to come from the pockets of the doctors directly in charge of them. In this setup, clinicians in this environment tend to have very sharp diagnostic acuity. In many instances, this was proven when the same doctors went for further studies in first world institutions and compared their pure clinical diagnosis to the one made after the usual full baseline workup. In this regard, the state university has put more effort into the field of biomedical engineering where applications in medicine are home grown to cut costs as well as customize applications for Filipinos.

On the other hand, when one has money, the Philippines is a great place to go. The compassion and expertise found there is all that is needed for overall healthcare. Top of the line equipment are also available to these subset of people. Many a time citizens of neighboring countries have flown in because the cost of diagnostics and therapeutics is just a fraction compared to their native regions and at the same time the whole 7107 islands is such a tempting place for discovery and self-renewal.

In India, its government heavily subsidizes medicine and laboratory workup costs. A CT scan in this setup, for example, will cost around US$13.33. The latest technology has started to reach out to the extremely poor where treatment is at minimal cost or even free of charge. It goes without saying that the private and semi-private hospitals all have the latest available technology.

Specialized health care in India started to develop after Independence (1947) in all corners of the country. With the establishment of the All India Institute of Medical Sciences (AIIMS) hospital in New

Delhi, in 1959, by an act of the parliament of India, it not only got a boost but also a direction to develop medical education, research & patient care activities of the highest order.

Figure 1. Pictures of Philippine General Hospital and the University of Philippine College of Medicine.

In the early days, direct needle puncture of the carotid artery in the neck was the rule. Burrhole myodil ventriculography with conventional fluoroscopy was used to study the posterior fossa. The lumbar route pneumo-encephalogram with auto-tomography to study the cistern, ventricular system displacements & cortical sulci was routine. Spinal studies were done with oily contrast media myodil. But, it was soon realized that it was difficult to practice neuroradiology, as a part of general radiology because it needed focused involvement of the radiologist, not only for reporting but also for technical purposes, if meaningful quality was to be attained, maintained & passed on.

Hounsfield's discovery in 1972 made it clear that the practice of neurosciences and particular neuroradiology would have to take on more responsibility as part of clinical teams. It was a sheer co-incidence that Prof. S. Bhargava, the then Chair of Radiology at All India Institute of Medical Sciences (AIIMS), New Delhi, while visiting the Mass General Hospital in Boston in the summer of 1972, was suggested by Dr. J.M. Taveras to attend a neuroradiology course at the Albert Einstein Medical Centre in New York. At this course Dr. James Bull a neuroradiologist from the Neurological Institute, Queen Square, London brought Dr. G.W. Hounsfield with him, who announced his spectacular discovery of the CAT at this meeting. The audience was struck with awe & excitement, considering the potential of this technique which would spare the patient, discomfort associated with conventional methods & moreover it would be an outpatient procedure & relieve the pressure on hospital beds, which was a constant worry because of our galloping population. Prof. Bhargava was acutely aware of this country specific problem and realized the relief it would bring to patients & doctors alike, though she had not bargained for the increased workload it would entail & source for funds required for procuring the machine. She returned home determined to acquire the system. The CAT, short for computerized axial tomography, knowing it could only help contribute towards patient care & safety of our large volumes. The visit by Prof. Torgny Greitz in early 1978 to the institute, helped obtain a substantial Swedish International Development Agency grant to acquire a second generation CT system (EMI CT1010) in 1978, manufactured then only by EMI of England.

From 1978 to 1980 this was the only CT available in this part of the world which provided services not only to all parts of our country but also to the neighbouring states of Nepal, Bhutan, Srilanka, Bangladesh etc. From 1980 onwards purchasing CT scans passed into the hands of the private sector who provided hobs to doctors and service patient in every state. Government funding for CT systems was not available till mid eighties and until today a large majority of public hospitals do not have CT scanners, though they cater to a huge patient population. This is largely due to the poor state of the economy and meager budget for health services.

As a developing nation, this country is burdened by infectious diseases & infestations. The newly acquired CT was exploited to study more extensively intra

cranial tuberculosis & neurocysticercosis. Our studies confirmed many of the findings earlier authors had suspected, such as of multiplicity of foci of infection, coexistence of various stages of development of the disease, the form & shape of the granulomas based on pathology & immune response of the hosts. But more important was the discussion these findings provoked, the lessons we learnt & finally stumble onto the disappearing CT lesions. There was appreciable increase in the range & extent of diagnostic services & this alerted the faculty to the need for preserving & enhancing the skills acquired during the pre-Hounsfield era by improving further the diagnostic set up. Thus started the quest for manpower to shoulder the responsibility to develop interventional skills.

Figure 2. Sanjay Gandhi Post-Graduate Institue of Medical Sciences, Lucknow, India.

The development of specialized neuroradiology service in India was helped to a great extent by frequent visits to the country dating back to 1983 by a team from London, Ontario, Canada, comprising of late Prof. Charles Drake, Prof. A.J. Fox, and Prof. Fergusson etc. Subsequently Prof. Luc Picard visited KEM Hospital in Mumbai, where a workshop was conducted by him with live demonstration of interventional cases. During the international Congress of Neurological Surgery, held at New Delhi in 1989, Prof. P. Lasjaunias visited the country. Few more such meetings were conducted at various centers in the country by Prof. Picard & Prof. J. Moret & Prof. K.Terbrugge, which have helped immensely the neurointerventionists of this country to fine-tune their skills & has attracted more professionals to this field.

While these developments were going on not only in Delhi, but also in Trivandrum, Lucknow & Mumbai a critical mass of manpower was now available to take over more responsibility. Chairs in neuroradiology were created in various institutes across the country. For the first time in history of this country, a full fledged neuroradiology department was set up at the Neurosciences Centre, AIIMS in 1996, headed by Prof, RK Goulatia & with all the equipment, including a DSA system (then a novelty), required to provide diagnostic & therapeutic interventional services. Today the expertise of various neuroradiology departments of the country is sought by patients not only from this country but from many of our neighboring countries. Intensive training to residents to create manpower, growth & development of the faculty is ensured & research contributions are made both open ended as well as targeted in collaboration with various other departments. MRI has been introduced into clinical practice in the country around 1993 & it contributed significantly to the development in this field. Many more systems are in pipeline, besides a large number of installations in the private sector. For endovascular work, the continued interest & enthusiasm across the country has resulted in installation of quite a few state of art DSA systems, though some interventionists in the country have to still contend with small units.

The specialty of Neuroradiology has shown spectacular growth in the country in the last 10 years, establishing its merit as a sub-specialty deserving a unique status among the different neurological sciences. This has been achieved by improving the technological platform of neuroimaging to meet the expertise and knowledge of neurointervention. The number of diagnostic and therapeutic neuroradiologists have increased in all parts of India, with almost all major institutions and diagnostic centres in

India engaged in the practice of neuroradiology. It was only a matter of time that separate chairs and departments of neuroradiology were created in some major institutions in the country.

The technological progress in India has been in consonance with the rest of the world. All the major centres are currently equipped with high profile imaging facilities like super-conducting magnets and spiral scanners. This has enabled these centres to work at a cutting edge level of technology and research.

In addition to neuroimaging, interventional neuroradiology has also grown leaps and bounds. All the major centres in the country are currently engaged in endovascular management of various vascular anomalies of the head & neck including the brain and the spinal cord like arterial-venous malformations and fistulae. Coiling of aneurysms has become a part of routine clinical practice in many centres of India. Stroke management is becoming increasingly recognized with many centres already having an interventional neuroradiologist as a part of acute stroke management teams.

The true growth of the specialty cannot be more truly reflected than by the fact that there are already three centres in the country running a three year super specialty post graduate DM programme in neuroradiology, and one institute running 1-year, Post-Doctoral Certificate Course (PDCC) in neuroradiology. Notable is Sanjay Gandhi Post-Graduate Institue of Medical Sciences, Lucknow, which would facilitate the systematic growth of neuroradiology in the country. This is in addition to the courses in neuroimaging technology being provided for radiation technologists in many centres of the country.

In closing, we hope this discourse has given you a window as to how things are in our part of the world. It is amazing how small the world gets with technology. Experts from all parts of the globe can actually come together and help anyone with a phone line and a computer.

Corresponding Author: Berlin Melissa S. Go, e-mail: berlin.msg@gmail.com.