

NEUROLOGY IN PAKISTAN - A VISION

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Pak J Neurol Sci 2006; 1(3):159-61

The beginnings of clinical neurology in Pakistan can be traced to three academic departments that were established around the same time, in the late 1960s and early 1970s. Although centers in the private sector have now come up, in those days academic medicine in Pakistan was the exclusive domain of large public-sector teaching hospitals. The first department of neurology was established by Dr. Munawar Hayat at King Edward Medical College and Mayo Hospital in Lahore, and was soon followed by Dr. Akhter Ahmed's department at Dow Medical College and Civil Hospital and Dr. Zaki Hasan's department (which combined neurology and psychiatry) at Jinnah Postgraduate Medical Center - both in Karachi.

The emergence of clinical neurology lagged behind neurosurgery, which had already acquired prominence as an important clinical specialty in Pakistan, having found a tireless champion in the late Dr. O.V. Jooma. Even among medical specialties, neurology had been preceded by the emergence of cardiology and cardiac services. This late entry for neurology is easily understood because even by the early 1970s the specialty offered limited options for patients. The therapeutic science of clinical trials had not fully taken hold in the field, and the neuroimaging revolution was still in the future.

Through the 1980s and 1990s, neurology departments began to grow across the country. By the year 2000, prominent academic departments had been established at Khyber Medical College in Peshawar, Army Medical College and Rawalpindi Medical College in Rawalpindi, and Aga Khan University Medical College in Karachi, in addition to postgraduate centers such as Sheikh Zayed Hospital in Lahore and Shifa International Hospital and Pakistan Institute of Medical Sciences in Islamabad. These departments included training programs for clinical neurology as well as the standard spectrum of clinical services.

At present there are at least 16 neurology departments in

various cities of Pakistan (9 public sector and 7 private sector), although they are mostly concentrated in the major urban centers of Karachi, Lahore, and Rawalpindi-Islamabad.

Of note, even in 2006, free-standing neurology departments are still absent from many of Pakistan's premier medical colleges, including Nishtar Medical College in Multan, Ayub Medical College in Abbotabad, Punjab Medical College in Faisalabad, and Liaquat University of Medical Sciences in Jamshoro. This is a surprising anomaly and looks strangely anachronistic in the 21st century, because neurological diagnostics and therapeutics have matured to a level of effectiveness that no academic medical center can be considered complete without them. It appears these institutions have allowed themselves to ignore neurology because the undergraduate M.B., B.S. curriculum of the Pakistan Medical and Dental Council does not stipulate clinical neurology as a mandatory requirement. This is an outdated omission, because undergraduate medical curricula worldwide now include neurology as a core component.

A clinical discipline requires three crucial ingredients to sustain itself - (i) demand, in the form of prevalent disease burden; (ii) resources, in terms of feasible diagnostic services and effective therapies; and (iii) a robust cadre of personnel, including qualified specialists and a set of active professional societies and bodies. Today neurology has carved an important clinical and professional status for itself - not just internationally, but certainly in Pakistan as well - because it amply meets all three criteria.

Modern neurology offers accurate diagnostic tests for imaging the brain in health and disease (CT, MRI, functional imaging modalities) and for monitoring electrical properties of both the central (EEG and evoked potentials) and peripheral (EMG and nerve conduction studies) nervous systems.¹ Evidence-based effective treatment is available for a range of neurological diseases, including

epilepsy, Parkinson's disease, myasthenia gravis, immune-mediated neuropathies, and infections of the central nervous system (CNS). Ischemic stroke, long the poster-child of therapeutic nihilism in neurology, can be treated with thrombolysis in the acute phase and future recurrences prevented with medication and risk factor management. Even for a complex degenerative condition like dementia, there is evidence-based treatment, albeit with modest therapeutic benefit.

Although extensive population-based data are lacking, everyday experience in hospitals and clinics across Pakistan attests to the abundant prevalence of neurological ailments. Burden of stroke, epilepsy and CNS infections (especially tuberculous meningitis) is a shared experience across all neurology departments and services in the country. Neuroimaging facilities are also fast developing.² CT scanning is available in virtually all teaching hospitals, both in the public and as well as the private sector, as well as in a number of Pakistan's smaller cities, including Sargodha, Gujranwala, Dera Ghazi Khan, Larkana, and Sialkot. Although MRI scanners are limited to the major urban centers, market forces could soon take them to the smaller cities too.

Neurological specialists are also being steadily produced.³ The College of Physicians and Surgeons Pakistan offers a fellowship examination (FCPS) in neurology that certifies successful candidates to be independent clinical specialists. Accredited training programs associated with several of the neurology departments in the country prepare trainees for this examination and, on average, up to 5 candidates are declared successful in a given year. The FCPS program, in combination with the small but steady stream of Pakistani neurologists repatriating from Western countries, accounts for Pakistan's current estimated 80-strong consultant neurologist workforce.

The professional organization of the specialty, too, has rapidly advanced. The Pakistan Society of Neurology (PSN) represents professional interests of neurologists and provides a platform for advocacy on behalf of patients with neurological illnesses. It holds an annual conference in springtime as well as a regular winter update that attract delegates from neighboring countries and beyond. Under the PSN umbrella, subspecialty societies focusing on headache, stroke and epilepsy are also functioning.

All this is not to suggest, however, that the scenario is rosy, because important gaps and limitations exist. Given Pakistan's vast population exceeding 150 million, the pool of qualified specialists as well as availability and extent of clinical facilities are still underdeveloped, leaving clinical needs unmet in many cases. We must recognize that neurology still has a nascent professional identity in

Pakistan. Most people in our society will not be able to describe who a neurologist is, or what he or she does. Greater momentum and a rising profile from PSN and affiliated bodies can address this gap.

Economic realities are the ultimate constraints. Median per capita income in Pakistan is still under US \$1,000, and third-party health coverage is scant. Against this backdrop, neurological care involving technology-intensive diagnostics and innovative pharmaceutical products will inevitably be prohibitively expensive. For example, the standard adult dose for thrombolytic treatment in stroke costs Rs. 90,000 (US \$ 1,500), the monthly cost of beta-interferon for prevention of multiple sclerosis relapse is Rs. 60,000 (US \$ 1,000), and the typical 5-day regimen of intravenous immunoglobulin in Guillain-Barre syndrome is Rs. 300,000 (US \$ 5,000) - all out of reach of the great majority of Pakistani families. The situation is complicated by an unregulated pharmaceutical market in which effective evidence-supported prescriptions have to compete with unproven remedies and unscrupulous advertising.

The hard news is that there is much to do, but the good news is that much of it is doable. The way forward requires a vision based on clear objectives and feasible strategies. PSN can take the lead in articulating the next steps, at least some of which should include the following:

- Promotion of academic foundations of neurology through applied research relevant to local needs.
- Establishment and maintenance of residency and fellowship training programs meeting stringent standards to sustain steady supply of qualified practitioners.
- Development of a forum for regular professional dialogue based on CME and other updates.
- Recommendation of guidelines for safe, ethical, and efficacious clinical practice.
- Support and promotion of public health approaches to neurological problems.
- Liaison with Pakistani neurologists overseas.
- Liaison with professional neurology societies in the region.

A realistic vision for neurology in Pakistan must include advances in all three key areas of teaching, service and research. We have the resources and professional

strength to continue to develop high-quality neurology and neurological subspecialty training programs throughout the country. This will produce a large cadre of specialists and sub-specialists. At the same time, economic development can be expected to improve health facilities, including widespread availability of CT and MR scanning, as well as of clinical neurophysiology tools and technologists. As academic departments flourish, a steady locally relevant research output in the form of novel diagnostic and therapeutic developments can be expected to follow. Ultimately, government action through public health programs and policy advocacy will translate these advances into benefits for patients. It will not be easy, but then hardly anything is. Perhaps we can be forgiven for thinking that we are standing on the edge of a defining era for neurology in Pakistan.

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