

Access this article online

Quick Response Code:



Website:

www.neurologyindia.com

DOI:

10.4103/0028-3886.263226

Service delivery in Neurology: Jack of all trades?

Madhu Nagappa, Sanjib Sinha

Neurological disorders affect over one billion people and account for 12% of the global burden of disease. They are the leading cause of disability and the second leading cause of death. In countries such as India, there is a shift in the epidemiology of neurological disorders is commensurate with lifestyle changes, longer survival, control of infections and malnutrition, improved awareness, and access to health care services.^[1] As noted by Nadig *et al.*, in this issue of Neurology India, among their cohort of 1500 patients seen in the Neurology Outpatient Department (OPD) over 2 months, headache disorders, followed by muscular and radicular pain, seizures, and hemiparesis/monoparesis were the commonest diagnoses. Although headache is the commonest disorder, it paradoxically has a low academic focus.^[2] These observations provide direction for prioritization in clinical services besides empowering a teaching program that emphasizes on common conditions and translates to a need-based effective training. In this context, it is worth reminiscing the key observations of some of the large studies from the neurology OPD setup from India and other countries.

In India, Singhal *et al.*, carried out an audit of patients seen by neurologists across the country, including those in office practice and/or university teaching hospitals. Epilepsy, headache, and stroke constituted more than 50% of the neurological disorders seen. This was followed by psychiatric disorders.^[3] In the Scottish Neurological Symptoms Study, a multicentric study of all National Health Scheme (NHS) neurological centers in Scotland, the diagnoses in 3781 new referrals were analyzed over 15 months.^[4] This, as well as the Association of British Neurologists' study, identified headache, epilepsy, psychological/functional disorders, stroke, and peripheral neuropathy as the consistent "top-five" neurological diagnoses.^[4] Data of 1812 patients referred to the specialist adult neurology OPD run

once a week in a tertiary care center in urban Ghana revealed that stroke, epilepsy/seizure disorders, and movement disorders were the commonest diagnoses. Some patients had more than one neurological diagnoses, with post-stroke epilepsy and vascular dementia being the commonest co-existing conditions.^[5] Among 8892 patients attending a specialized neurology OPD in Bangladesh, headache (46%), stroke (10%), neuropathy (5%), and vestibular disorders (5%) emerged as the commonest diagnoses.^[6] An audit of 2076 patients with neurological disorders attending the neurology OPD of a tertiary care center in Saudi Arabia over 1 year showed that epilepsy and seizure disorders (37.71%), headaches (15.51%), stroke (9.29%), and multiple sclerosis (7.4%) were the commonest diagnoses.^[7]

The methodological differences between the studies explain the lack of cohesiveness in data. Studies differ in being either community- or hospital-based, "general" neurology and/or "specialized" clinic-based, inclusion of children and/or adults, and setting in an urban or rural region. Data from community-based studies may not reflect the repertoire of neurological disorders seen in the neurology OPD; the vice-versa is also true. Headache and other pain syndromes are the commonest neurological disorders in the community. On the contrary, headache is one of the commonest disorders in some of the OPD-based studies, but not in others.^[7] In a study from Saudi Arabia, stroke was the third most common disorder seen in the neurology OPD, but the community prevalence was lower.^[7] The contribution of improved access to neurologists and the availability of better diagnostic tools, neuroimaging in particular, has led to a change in the relative frequencies of various neurological disorders, which also need to be acknowledged. Thus, the number of patients with multiple sclerosis and demyelinating disorders seen in neurology OPDs is increasing.^[7] Improved awareness that

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Nagappa M, Sinha S. Service delivery in Neurology: Jack of all trades?. *Neurol India* 2019;67:650-2.

Department of Neurology,
National Institute of Mental Health and Neurosciences (NIMHANS),
Bangalore, Karnataka, India

Address for correspondence:
Dr. Sanjib Sinha,

Department of Neurology, NIMHANS,
Bangalore - 560 029,
Karnataka, India.

E-mail: sanjib_sinha2004@yahoo.co.in

dementia is not just “normal ageing” has led to its “increased prevalence.”

Furthermore, data from one center may not necessarily extrapolate to other centers. For instance, the burden of functional and other non-neurological disorders may vary depending on the clinic setting. In some clinics, the neurologists are expected to see the “general” neurology or medicine cases, while in others, the patient clientele is restricted by an imperative referral and appointment system. The frequency of these clinics ranges from once a week to all week-days.^[4,6,7] Data may sometimes be skewed when only patients attending the “general” neurology OPD are included: in a large study, epilepsy constituted <2% of patients in the OPD. The under-representation was due to the fact that majority of the patients attended the specialized epilepsy clinic!^[6] In the current study by Nadig *et al.*, syncope, vertigo, and neuro-psychiatric disorders are conspicuously low.^[2] As the center is well equipped with all medical specialties, unlike certain centers such as the National Institute of Mental Health and Neurosciences (NIMHANS) and Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), these patients may be attending other departments, viz., general medicine, otorhinolaryngology, and cardiology. Particularly in an urban setup, patients who are “medically educated” may choose the specialty/specialist/center. Singhal *et al.*, reported that roughly one-third of patients visited the neurology OPD directly, while the rest were referred by either physicians or other practitioners.^[3] Referral to neurologists, who are known “experts”, or to centers that have established advanced facilities for the management of specific disorders, such as epilepsy, neuropathy, movement disorders, etc., may also introduce bias in the observations made in these studies.

Conditions such as headache, backache and other pain syndromes, vertigo, and syncope may be managed by physicians or family doctors. The gamut of disorders seen at the specialist neurological services may differ from that seen in the primary care setting clinics and is also dependent on the availability of specialist services. Patients with dementia are managed by geriatric psychiatrists in some centers. Psychiatrists may manage patients with epilepsy in regions where neurologists are few, and likewise, neurologists may evaluate patients with functional disorders in centers lacking a psychiatrist.^[4,5] Similarly, patients with backache are managed often by orthopedicians or neurosurgeons and the numbers of patients seen by either specialty varies from one center to the other.

It is interesting to note that infections of the central nervous system (CNS) and other encephalopathies are hardly represented in these studies. Singhal *et al.*, reported that 2.4% of the patients attending neurology OPD had CNS tuberculosis.^[3] It is likely that infections are discounted in OPD- or community-based studies because majority of these patients are seen in the emergency services by physicians or pediatricians. This may also be the reason for the lower frequency of stroke in some of the studies, as these patients are seen in the emergency services during the acute phase and in the rehabilitation services thereafter. Besides, conditions such as leprosy or neurocysticercosis may be coded under “neuropathy” or “epilepsy,” respectively, rather than as

infectious disorders. A simultaneous audit of patients seen in the OPD, inpatient, or emergency services may provide a complete and comprehensive picture.

There are several points to ponder upon. It is largely felt that a significant number of patients can be managed by general physicians and do not require specialist neurologist input. Inadequate awareness and application of knowledge of basic neurological principles among physicians lead to a higher number of referrals to specialist neurologists or tertiary care centers for a second opinion. Adequate training of medical students focused on the common neurological disorders, and periodic updating of primary care physicians who have established practice may aid in optimal utilization of resources. On the contrary, neurology training programs are expanding exponentially, perhaps leading to an increase in the number of neurologists infringing on the domain of primary care physicians.

The practice of neurology is also changing. With an increasing understanding of the etiopathogenesis, and the development of newer diagnostic techniques and treatment modalities, it is not possible to grasp the complexities and garner in-depth knowledge in all neurological disorders within the training period. This has led to the demand for focused training or “sub-specialization” in a specific field, viz., epilepsy, movement disorders, stroke, etc.^[8] It is also worth pondering that neurological training is focused on “in-patients” due to the established pattern of hospital-based residency programs. There is a definite dearth of training regarding minor ailments and ambulant patients who are seen in the OPD. While a neurologist practicing in the community has about 87.5% of the case load in the OPD, only 10–20% of the time during residency is spent in OPD.^[9]

In conclusion, the spectrum of neurological disorders and their relative frequencies may depend on the clinical setting and referral patterns. Amidst these prevailing differences, there is a definite felt-need for strengthening the neurology residency training program as well as empowering the primary care physicians so that the community needs are met with. Data on the patterns and prevalence of common neurological disorders have important implications for strategic planning and resource allocation, including funding for research. Periodic revamping of the curriculum, and a neurological training that focuses on developing diagnostic reasoning faculties while applying new techniques and knowledge to everyday practice, is desired.

References

1. GBD 2016 Neurology Collaborators. Global, regional, and national burden of neurological disorders, 1990-2016: A systematic analysis for the Global Burden of Disease Study 2016. *Lancet Neurol* 2019;18:459-80.
2. Nadig R, Namapally US, Sarma GRK, Mathew T. Outpatient burden of neurological disorders: A prospective evaluation of 1500 patients. *Neurol India* 2019;67:708-13.
3. Singhal BS, Gursahani RD, Menken M. Practice patterns in neurology in India. *Neuroepidemiology* 1992;11:158-62.
4. Stone J, Carson A, Duncan R, Roberts R, Warlow C, Hibberd C, *et al.* Who is referred to neurology clinics?—the diagnoses made in 3781 new patients. *Clin Neurol Neurosurg* 2010;112:747-51.

5. Sarfo FS, Akassi J, Badu E, Okoroza A, Ovbiagele B, Akpalu A. Profile of neurological disorders in an adult neurology clinic in Kumasi, Ghana. *eNeurologicalSci* 2016;3:69-74.
6. Chowdhury A, Ghose S, Ahmed KG, Hasan A, Saha K, Sina H, *et al.* Pattern of disorders in neurology outpatient department: Experience from a tertiary care hospital in Bangladesh. *J Dhaka Med Coll.* 2016;25:53-7.
7. Al-Khamis FA. Spectrum of neurological disorders: Neurology clinic experience of university tertiary care hospital. *Saudi J Health Sci* 2016;5:11-4.
8. Gourie-Devi M. Training neurologists in India: Past, present and future. *Neurol India* 2016;64:602-3.
9. Naley M, Elkind MS. Outpatient training in neurology: History and future challenges. *Neurology* 2006;66:E1-6.

Copyright of Neurology India is the property of Wolters Kluwer India Pvt Ltd and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.