

Spectrum of Neurological Disorders: Experience in Specialized Outpatient Clinic in Bangladesh

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Abstract:

Objective: To examine the burden of neurologic disorder as encountered in a specialized neurology clinic at tertiary care level.

Methods: This retrospective study was carried out in specialized neurology outpatient clinic of Dhaka Medical College Hospital from July 2010 to June 2011, which included 3173 patients. Data were collected through a predesigned questionnaire from the hospital database kept at the clinic.

Result: Among all the patients attending outpatient clinic, 88.7% had 44 types of neurological disorders. Distribution of disease was similar in all age group from 21-30 years to 51-60 years. Stroke (28.2%) and Headache (24.7%) were two most common neurologic disease, where headache was prevalent among female aged less than 30 years and stroke in male of >40 years. Epilepsy, peripheral neuropathy, Parkinson's disease, pseudo vertigo were also present in a considerable number of patients. Patients with peptic ulcer (3.02%), anxiety neurosis (2.6%) and other non neurological disease were also given consultation in the clinic.

Conclusion: Neurological diseases are not uncommon. Different diseases predominate in different age and sexes. Knowing pattern of disease distribution in community will help managing them properly.

Keyword: Neurologic disorder

Introduction:

Neurological disorders encompass approximately 20% of global burden of disease, the majority being in the developing countries¹. The incidence of neurological disorder in UK is 0.6% with an overall 6% lifetime prevalence rate². Epidemiology plays an important role in elucidating the patterns in the disease occurrence in the community. The information on frequency of neurologic disease in our settings is lacking. Neurology emerged as a new specialty in Bangladesh during the 1960s. As one of the least developed countries, Bangladesh has an overall life expectancy of 60 years³. Infection and malnutrition are common in this part of world. It is estimated that about a fifth of 43 million deaths per year occur due to infection and parasitic disease⁴. Apart from these, there is an excess burden of early onset cerebrovascular disease⁵ and stroke carries a comparatively higher risk of mortality in Bangladesh⁶. A large number of people with common neurological ailment don't receive

appropriate treatment. In addition to this, the social and cultural stigma surrounding the neurologic disorders, make the diagnosis and treatment even more challenging. Moreover a large section of population live in rural areas where there is lack of logistic facilities for managing these conditions. They are mostly referred to Medical College Hospitals. We tried to observe the frequency of neurologic diseases in Dhaka Medical College Hospital (DMCH) to get a glimpse of the problem in the community.

Material and methods:

This is a retrospective observational study. We reviewed the database from specialized neurology outpatient (OPD) clinic of Dhaka Medical College Hospital (DMCH) from July 2010 to June 2011. Study population included 3173 patients from the hospital database over the period of one year. Each patient was received at first by post graduate trainee doctors. They took history and performed proper physical examination. Later

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the patients were evaluated and classified by consultant neurologist in the clinic following the International Classification of Disease (ICD-10, chapter-VI) codes for neurology. Information regarding the demographic and disease profile was gathered through a predesigned questionnaire.

Results:

A total of 3173 patients were seen in neurology OPD in one year, out of which the number of neurologic disorder were 2815 (88.7%) and non neurologic cases were 358 (11.3%). The number of patients was more or less similar and commoner in age group of 21-30years (20.4%), 31-40 years (16%), 41-50 years (19.6%) and 51-60 years (18.8%). But the patients visiting the OPD were very few in both extremes of age, below 10 years (0.53%) and above 70 years (3.7%) (Table-I). Disease pattern was different among the young and older patient. Headache was common below 30 years, whereas stroke was frequent in patients older than 40 years. The sex ratio was almost 1:1 with male (51%) slightly outnumbering the female.

Table-I

Socio demographic profile of the patients (N=3173)

Parameter	n	%
Age		
0-10yr	17	0.53
11-20yrs	404	12.7
21-30yrs	648	20.4
31-40yrs	508	16
41-50yrs	623	19.6
51-60yrs	577	18.2
61-70yrs	278	8.7
>70yrs	118	3.7
Sex		
Male	1619	51
Female	1554	49

Table-I: Shows the age group and sex distribution of patients. Most common age of presentation was 21-30 years and 41-50 years.

Patients took OPD consultation for almost 44 neurologic conditions. Among them ischemic stroke (21.2%), tension type of headache (18.8%), hemorrhagic stroke (7%), migraine (5.9%) and peripheral neuropathy (2.8%) were the most five common conditions. Conditions like, primary generalized tonic clonic seizure (2.4%), Parkinson's disease (2.1%) pseudovertigo (1.5%), benign paroxysmal positional vertigo (1.3%), lumbar spondylosis (1.8%), disc prolapse (1.3%), benign essential tremor (1.1%), paraplegia (1%) were seen in

some patients. Some other conditions eg Transient ischemic attack (TIA), focal seizure, dystonia, dementia, central nervous system tumor etc though not rare, but was seen in a few. Despite all the efforts, 4.7% cases remained undiagnosed (Table-II).

Table-II

Common Neurological diseases (N=3173)

Neurologic disease	n	%
Tension type headache	597	18.8
Migraine	188	5.9
Other headache	41	1.29
Ischaemic stroke	672	21.2
Haemorrhagic stroke (ICH)	224	7
Subarachnoid haemorrhage	28	0.9
Transient Ischemic Attack (TIA)	29	0.9
Focal seizure	32	1
Primary Generalized Seizure	78	2.4
Juvenile Myoclonic epilepsy	7	0.2
Parkinsons Disease	68	2.1
Dystonia	31	0.9
Chorea	5	0.1
Wilson's disease	6	0.1
Benign essential tremor	39	1.1
Peripheral neuropathy	93	2.8
Transverse myelitis	12	0.3
Cauda equina syndrome	3	0.1
Motor Neuron Disease	18	0.5
Dementia	21	0.6
Spinal Muscular Atrophy (SMA)	11	0.3
Myopathy	12	0.3
Quadriplegia	15	0.4
Paraplegia	32	1
Cranial nerve palsy	25	0.8
Cervical spondylosis	28	0.9
Lumbar spondylosis	57	1.8
Disc prolapse	42	1.3
Potts disease	19	0.6
Meningitis	10	0.3
BPPV	41	1.3
Vestibular neuronitis	5	0.15
Pseudovertigo	49	1.5
Primary brain tumor	7	0.22
Secondary brain tumor	27	0.8
Cerebral Arterio-Venous Malformation	3	0.09
Cerebral palsy	5	0.15
Hydrocephalus	7	0.22
Multiple sclerosis	4	0.12
Encephalopathy	5	0.15
Undiagnosed	147	4.6
Others	72	2.2

Table-II shows the overall frequency of neurologic diseases at OPD.

Patients with no neurologic deficit were also referred to neurology OPD. Among them peptic ulcer disease (3.02%), anxiety neurosis (2.6%), diabetes mellitus (1.8%), depression (1.3%) were common. Other non-neurological conditions were not frequent (Table-III).

Table-III

*Non neurologic disease at outpatient department
(N=3173)*

Non Neurologic disease	n	%
Peptic ulcer disease	96	3.02
Somatoform disorder	25	0.8
Anxiety neurosis	83	2.6
Post menopausal syndrome	4	0.12
Depression	36	1.13
Rheumatoid arthritis	5	0.15
Valvular heart disease	3	0.1
Ischemic heart disease	16	0.5
Bronchial asthma	4	0.12
COPD	11	0.34
Diabetes mellitus	56	1.8
Hypothyroidism	2	0.06
Others	17	0.53

Table- III shows the frequency of non neurological disease.

Discussion:

Neurological disorders had been managed by internists or doctors with special interest in neurology, for many years in Bangladesh. Though the number of neurologists has increased over last 15 years, there are only less than 100 neurologists for almost 160 million people of Bangladesh. In India the ratio of neurologist to general population is 1:3.2 million, in marked contrast to United States (1:29000) and United Kingdom (1:233600)^{7,8}. Even the most of the neurologists in Bangladesh are available in big cities. Due to the uneven ratio they have a considerable workload. The number of new patients seen in Neurology OPD of India is approximately 50 patients per week, compared to 8.3 in United States⁹. Stroke is a major killer and cause of disability in developing world. Stroke causes 1.6 million death in China and 0.6 million death in India⁴ in each year. About 20% of the stroke victims die within three months of cerebrovascular episode. Though the major burden of stable stroke patients in DMCH is dealt at specialized stroke clinic on every Sunday, it was also the commonest cause of consultation in neurology OPD. This is due to the fact that, a large number of patients who come from distant parts of Bangladesh, fails

to reach stroke clinic within the scheduled time of 8:00 am to 11:00 am each Sunday. These patients usually attend the Neurology OPD. Not only in neurology, but stroke also grabbed the top spot among all the emergency hospital admission in Medicine department of DMCH. In the year 2010, a total of 3572 patients were admitted in Medicine department⁹. Similar pattern is also observed in other Asian country¹⁰. Despite the fact that, Neurology department of DMCH also runs specialized Headache and Epilepsy clinic in every week, the number of these patients were not few either. Reason might also be the same. In a survey of practice pattern in India, Headache and Epilepsy were reported the most common symptoms for neurology consultation⁹. The annual incidence of epilepsy (50 per 100000 population) in developing countries is twice that of the developed world¹². The trend was also similar in our setting. The disease frequency varies in different countries. Boongird et al showed the five common neurological disorders in OPD of Thailand were stroke (38.4%), headache (9.8%), epilepsy (9.5%), polyneuropathy (4.7%), Parkinson's disease (4.2%)¹³. In a similar study in Malaysia the order of frequency of neurological disorder were epilepsy (19.4%), headache (13.6%), stroke (9.1%), peripheral neuropathy (8.2%), Parkinson's disease (5.4%)¹⁴. The result of our study was quite similar to that of Lim et al¹⁰. In Singapore, he showed that headache, stroke, seizure disorder, neuromuscular disorder and movement disorder were common in neurology OPD.

Conclusion:

All the data obtained from neurology outpatient department had the benefit of categorization by specialist neurologists. So this study accurately reflects the burden of neurologic disorder at OPD. Many physicians think that most of the neurological diseases are not curable. But the most common ailments like stroke and headache are quite easily manageable and sometimes preventable. Pattern of diseases predominance is not same in all age group. This is also true for both sex, where headache predominate in female, stroke is common among male.

Conflict of Interest: None.

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