PATTERN OF DISORDERS IN NEUROLOGY OUT-PATIENT DEPARTMENT: EXPERIENCE FROM A TERTIARY CARE HOSPITAL IN BANGLADESH

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Abstract

Objective: *To determine the pattern of neurologic disorder in the specialized neurology out patient at tertiary care level.*

Methods: *This observational study was carried out in specialized neurology outpatient clinic of Dhaka Medical College Hospital from July 2015 to July 2016, which included 8892 patients. Data were collected through a predesigned questionnaire from the hospital database kept at the clinic.*

Result: *A total of 8892 patients were seen in neurology OPD in one year. About one third of the patients presented at 21-30 years of age. There was a male dominance (53%) with a male to female ratio of 1.12:1. Most of the patients had hypertension (3201, 36%) followed by diabetes and ischemic heart disease (1956, 22%; 1423, 16%) as co-morbid condition. Majority had Headache (4090, 46%) followed by vertigo (1067, 12%); vomiting (711, 8%) and neck and/ back pain (702, 8%) as presenting symptom at onset. Majority of the patients (46%) were diagnosed as headache disorder (Tension type headache in 33.5%, Migraine 7.5% and mixed headache in 5%) followed by ischemic stroke (896, 10%); polyneuropathy (446, 5%); vestibular disorder (441, 5%); movement disorder (267, 3%) and anxiety/depression (254, 3%). About 15% (1346) patient were undiagnosed at initial visit.*

Conclusion: *Neurological diseases are not uncommon even at middle aged patients. Headache, vertigo, neck/back pain are common presenting symptom. Headache disorders and stroke are the commonest neurologic diagnosis at OPD.*

Key words: *Headache, stroke*

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Introduction:

Neurologic disorders are not uncommon. Several studies have demonstrated that it encompass approximately 20% of global burden of disease, the majority of which are in the developing countries[1]. The incidence of neurologic disorder in United Kingdom is 0.6% and the overall lifetime prevalence rate is 10 times of the incidence[2]. In general the epidemiologic studies are lacking in Bangladesh, let alone the burden of neurologic disorders. But this type of studies always helps with facts and figures that are very important at policy making.

Neurology emerged as a different specialty from the internal medicine, during the sixties in Bangladesh. With a boom in the economy, Bangladesh has now become a lower middle income country. Though the infection and

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malnutrition are common in this part of world[4] with an estimated death of 9 million per year, there has been a paradigm shift. Now there is an excess burden of early onset cerebrovascular disease[5]. Report says stroke carries a comparatively higher risk of mortality in Bangladesh[6]. Addressing these noncommunicable disorders are immensely important as many of these disorders requires lifestyle modification and control of risk factors which is not possible without a national consensus about making people aware of these diseases. But it is practically impossible to act against these diseases without knowing the magnitude of the problem. Although the facilities for the treatment of neurologic disorders are increasing day by day in tertiary care hospitals and institutes, patient number are also in the surge in outpatient departments. So, we decided to observe the pattern and burden of neurologic diseases in neurology OPD of Dhaka Medical College Hospital (DMCH) to get a snap shot of the problem.

Methods:

This is a cross sectional type of observational study. We reviewed case record forms of all the patients from specialized neurology outpatient (OPD) clinic of Dhaka Medical College Hospital (DMCH) from July 2015 to July 2016. Study population included 8892 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 the patients were finally evaluated and classified by consultant neurologist in the clinic. The objectives of the study along with its procedure, risks and benefits of this study were explained to the patients/attendants in easily understandable language and then informed written consent was taken from each patient/attendant. It was assured that all information and records would be kept confidential and the procedure would be helpful for both the patient and the researcher. Information regarding the demographic and disease profile was gathered through a predesigned questionnaire. Data analysis was done with the help of Statistical Package for the Social Sciences (SPSS) version 19.0 software facilities. Appropriate statistical methods were applied for data analysis and comparison among different variables with 95% confidence interval (CI) taking p value d" 0.05 as significant.

Results:

A total of 8892 patients were seen in neurology OPD in one year. About one third of the patients presented at 21-30 years of age (Table-1). There was a male dominance (53%) in terms of number patients at OPD with a male to female ratio of 1.12:1 (Figure-1). Regarding the co-morbidity most of the patients had hypertension (3201, 36%) followed by diabetes and ischemic heart disease (1956, 22%; 1423, 16%) (Figure-2). Majority had Headache (4090, 46%) followed by vertigo (1067, 12%); vomiting (711, 8%) and neck and/ back pain (702, 8%) as presenting symptom at onset followed by tingling/numbness (4%, 365), convulsion (3%, 272), involuntary movement (3%, 267), palpitation (3%, 266), facial weakness (2%, 178) and insomnia (2%, 172). A very few patients (4 1%) had limb weakness in different forms (Figure-3). Majority of the patients (46%) were diagnosed as headache disorder (Tension type headache in 33.5%, Migraine 7.5% and mixed headache in 5%) followed by ischemic stroke (896, 10%); polyneuropathy (446, 5%); vestibular disorder (441, 5%); movement disorder (267, 3%) and anxiety/depression (254, 3%). Around 4 1% patient had intracerebral hemorrhage, subarachnoid hemorrhage, primary epilepsy, secondary epilepsy, central nervous system infection, myelopathy, myasthenia gravis, myopathy etc, (Figure-4). About 15% (1346) patient were undiagnosed at initial visit.

Table-I

Distribution of study patients by age group.

Age Group (In years)	Number	Percent
1-10	89	1
11-20	1241	14
21-30	2559	29
31-40	1946	22
41-50	1464	16
51-60	972	11
>60	621	7

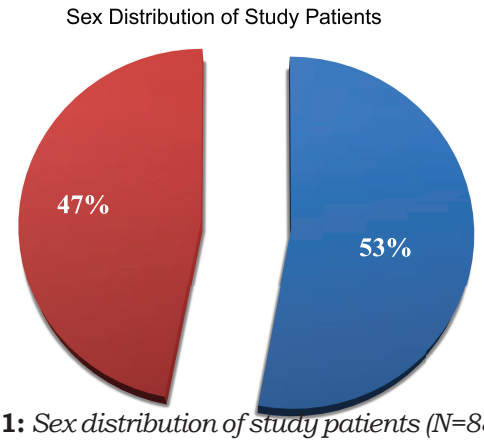

Fig.-1: *Sex distribution of study patients (N=8892).*

Figure-1 showing majority of the patients (53%) were male.

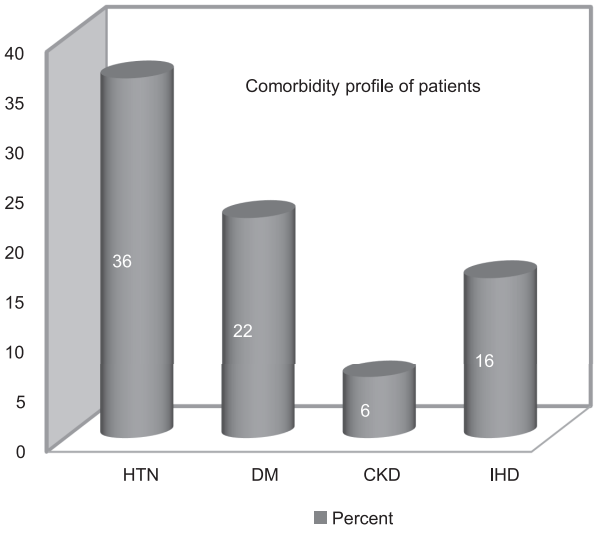

Fig.-2: *Comorbidities of study patients (N=8892).*

Figure-2 showing most of the patients had hypertension (3201, 36%) followed by diabetes and ischemic heart disease (1956, 22%; 1423, 16%).

Figure 3 showing the common presenting symptoms in among study patients. Majority had Headache (4090, 46%) followed by vertigo (1067, 12%); vomiting (711, 8%) and neck and/ back pain (702, 8%).

Figure-4 is showing the distribution of patients by diagnosis. Majority of the patients (46%) had Headache (MCH in 33.5%, Migraine 7.5% and mixed headache in 5%) followed by ischemic stroke (896, 10%); polyneuropathy (446, 5%); vestibular disease (441, 5%); movement disorder (267, 3%) and anxiety/depression (254, 3%).

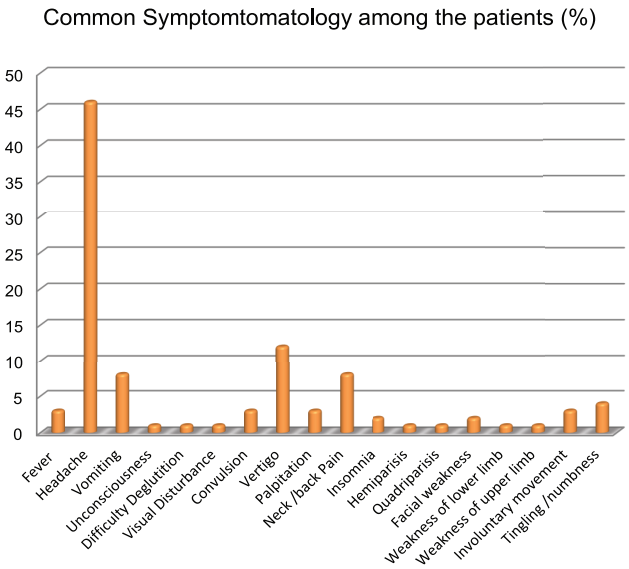

Fig.-3: *Distribution of study patients by symptomatology (N=8892).*

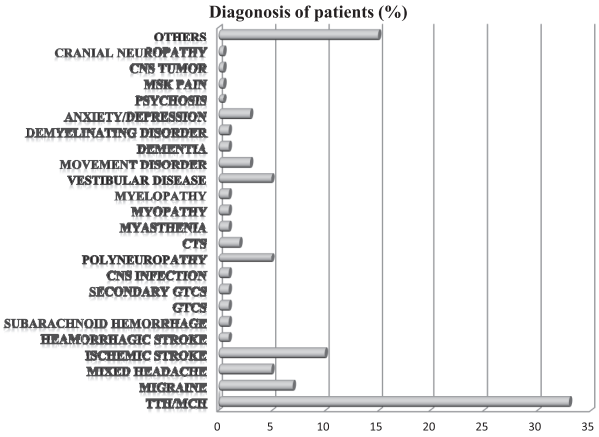

Fig.-4: *Diagnostic distribution of study patients (N=8892).*

Discussion:

Neurology emerged as a different specialty in recent decades. Earlier the neurologic disorders were managed by internists in Bangladesh. Pattern of neurologic disorders seen at in-patient and out-patient department varies. Neurologic disorders with a more acute and dramatic presentation like stroke most commonly attends the emergency department, while patients with more chronic symptoms attends the neurology OPD and specialized clinic. Studies depicting the distribution of neurologic disorders at out-patient department are lacking. Most of the research in this filed were done on patients admitted in hospital,

which reflects more of the acute neurologic conditions. This study was conducted at neurology OPD of Dhaka Medical College Hospital. So the result reflects more off the chronic neurologic problems in our society.

Although stroke is a major killer and cause of disability in developing world, causing 1.6 million death in china and 0.6 million death in India[4], headache, vomiting and vertigo was the most common symptoms in our patients. This is probably due to the fact that, in addition to the primary headache disorders, it may be a presenting symptom of many other nurologic disorders like stroke, CNS infection etc. Similar to this study, Lim SH et al[7] also showed in his survey of hospitals in Singapore that Headache and facial pain was the commonest problem at OPD. Quite reasonably, primary headache disorders were the commonest diagnosis made at OPD. Similar to the above mentioned study, we also had stroke as second commonest disorder[7]. But number of epilepsy patients in our series, were much lower than Lim SH et al reported. The reason for this difference might lie in the presence of our specialized epilepsy clinic. We have a large number of registered epilepsy patients who come to regular follow up in epilepsy clinic, not in general neurology OPD.

We have also observed the frequency of co-morbid conditions like HTN, DM, Ischemic heart disease, chronic kidney disease among the patients. Hypertension was the most common co-morbidity among our study population. But with an extensive search in Pub Med and Med Line we did not find any study elsewhere that has reported the frequency of such co-morbid conditions among patients at out-patient department, to compare our result. In a previous study from our department on admitted stroke patients, Mondal BA et al[8] also reported hypertension, DM and ischemic heart diseases are most common co-morbid conditions. But reasonably enough, the frequency of hypertension was much higher (57% versus 36%) in that study on hospitalized acute stroke patients that included ischemic stroke, intracerebral hemorrhage and subarachnoid hemorrhage.

There is a wide racial and geographic variation in pattern of neurologic disorders worldwide. In a survey of practice pattern in India, Headache and Epilepsy were reported the most common symptoms for neurology consultation[9]. 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%)[10]. In a similar study by Jusoh R et al[11] 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%).

A similar study was done from the same department by Chowdhury RN et al[12] in 2010-2011 involving 3173 patients, in contrast to our findings, showed that Stroke was the most common neurologic disease followed by headache. The explanation of this discrepancy may lie in relatively less number patients in that study. Moreover that specialized OPD service was given only twice per week, whereas now the OPD is open for six days a week.

Conclusion:

Neurological diseases are common in all age groups with high frequency at adolescent and mid adult life. Headache, vertigo, neck/back pain are common presenting symptom. Headache disorders and stroke are the commonest neurologic diagnosis at OPD. Knowing this distribution pattern of neurologic disorder will help in creating awareness of these diseases among both the physicians and patients.

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Availability of data and materials:

The database will not be available online as the informed consent given by the respondents does not include the further availability of database online.

Competing interest: None.

Authors Contribution:

AHC was involved in planning the study, setting the methodology, consultation and data

collection for this study. ATM HH was involved in data analysis, data interpretation and writing the manuscript. The rest were involved in consultation and data collection. All the authors have read and approved the final version of the manuscript.

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