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Burden and Pattern of Neurological diseases seen in Neurology department of a tertiary care Hospital in Baluchistan

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ABSTRACT

INTRODUCTION

Neurologic disorders represent a major burden of disease globally. These are common and represent a major public health problem. The spectrum of diseases ranges from non communicable disorders like stroke and neurodegenerative disorders to central nervous system infections. The burden of neurological diseases may be on the increase especially in developing countries. Improved outcome in these settings may require appreciation of the spectrum of neurological diseases and the impediments to their management. The pattern of neurological admissions in hospital varies amongst different regions of the world and this depends on many factors including the regional burden of neurological disorders.

OBJECTIVE

To determine the burden (frequency) of neurological diseases in patients presenting to in- and out-patient of Neurology department of Bolan medical complex hospital, Quetta, Baluchistan.

Patients and Methods: Our study population included 1810 patients. All new inpatient and outpatient presenting to Neurology in Bolan medical complex hospital, Quetta were eligible for inclusion.

Study Design: Cross-sectional study. **Study Setting:** Neurology in- and outpatient department of Bolan Medical Complex Hospital, Quetta. **Duration of study:** 1st Jan 2016 to 30th June 2016 (6 Months).

Results: Out of 1810 patients the most common neurological diagnoses were: Stroke (514, 28.4%), Radiculopathies (358, 19.8%), Primary Headache Syndromes (228, 12.6%) and Epilepsy (187, 10.3%). CNS Infections (70, 3.9%) and Cerebral Palsy/ Mental Retardation (68, 3.8%), Bell's Palsy (57, 3.1%), Dementia (51, 2.8%) Peripheral Neuropathy (36, 2.0%), Mononeuropathies (36, 2.0%), Parkinson Disease and Other Movement Disorders (37, 2.0%), GBS (33, 1.8%) Functional (32, 1.8%), Demyelinating Illnesses (26, 1.4%), Myasthenia Gravis (23, 1.3%), Diseases of Spinal Cord (20, 1.1%) MND (19, 1.0%) were less common. Conditions like Myopathies (8, 0.4%) and Encephalopathies (7, 0.4%) were even less common diagnoses. **Conclusion:** The spectrum of neurological diseases in Baluchistan is similar to that found in other parts of the country and the region. Stroke, Radiculopathies, Primary Headache and Epilepsy were found to be the most frequent neurological disorders.

KEYWORD

Neurological diseases.

INTRODUCTION

Overall burden of Neurological Diseases in the world is around 6.5%. It ranges from 4-5% in the lower income countries (like Pakistan) as compared to 10-11% in high income countries. [1]. Major contributors to the neurological burden are Stroke, Migraine, and Epilepsy. These diseases account for 83% of the neurological burden. More than half of the disability

due to neurological diseases is related to stroke followed by Migraine, Epilepsy [1] The spectrum of neurological disorders seen in Baluchistan is similar to that in other parts of the country and the region. Some patients with other primary diagnoses may also develop neurological complication in the course of illness or as a part of complication. A population based study conducted in India surveyed 102,557 individuals in Bangalore found 3355 individuals with neurological

disorders per 100000 population. The most frequent disorders were headache, febrile convulsions, Epilepsy, Stroke and mental retardation. [2] Approximately 40% of the inpatients in medical wards have neurologic problems [3-6]. Apart from infection and malnutrition, an excess burden of cerebrovascular disease and stroke at an early age poses a higher risk of mortality and morbidity [7, 8]. As neurologic disorders are quite common and there are lack of facilities elsewhere in the province, varieties of neurological problems are referred to Bolan Medical Complex Hospital (BMCH), Quetta. We therefore tried to audit the nature of neurologic involvement among patients presenting to in- and out-patient of Neurology department.

METHODS

This is a prospective observational study, conducted at Neurology department of Bolan Medical Complex Hospital (BMCH) from 1st Jan 2016 to 30th June 2016 (6 Months). Our study population included 1810 patients. All new inpatient and outpatient presenting to Neurology in BMCH were eligible for inclusion. Patient with hysterical neurological complaints were also included. Patient with depression and anxiety were excluded. Each patient was examined by the Consultant Neurologist. Patient's problem was diagnosed clinically with proper history, examination and with help of investigations in required cases. Neurological diagnoses were categorized under 20 broad headings (Figure 1). Analysis was done using SPSS version 21. Mean and standard deviation was calculated for continuous data and number (percentages) for categorical data. Age was into 7 categories. Age and gender specific frequencies of neurological disorder were calculated by chi-square test. All p values were two sided and <0.05 was consider statistically significant.

RESULTS

A total of 1810 patients were seen by neurologists within this period of time. The mean age at presentation was 39.3 ± 15.4 years. Most of the patients (64%) presented after the age of forty years. Only (2%) patients were below 10 years. The female patients (1041, 57.5%) predominated. (Figure 2) Stroke was the most common neurological diagnosis (514, 28.4%) followed by Radiculopathies (358, 19.8%), Primary headache syndrome (228, 12.6%), Epilepsy (187, 10.3%). But CNS infection (70, 3.9%), Cerebral palsy/ mental retardation (68, 3.8%), Bell's

palsy (57, 3.1%) Dementia (51, 2.8%), Peripheral neuropathy (36, 2%), Mononeuropathies (36, 2%) Parkinson disease and other movement disorders (37, 2%), GBS (33, 1.8%) and Functional (32, 1.8%) were less common. Conditions like Demyelinating illnesses (26, 1.4%), Myasthenia Gravis (23, 1.3%), diseases of spinal cord (20, 1.1%), MND (19, 1%), Myopathies (8, 0.4%) and Encephalopathies (7, 0.4%) were rare diagnoses (Table 1).

Figure 1:
Distribution of Neurological diseases in patient presenting to Neurology department, BMCH, Quetta.

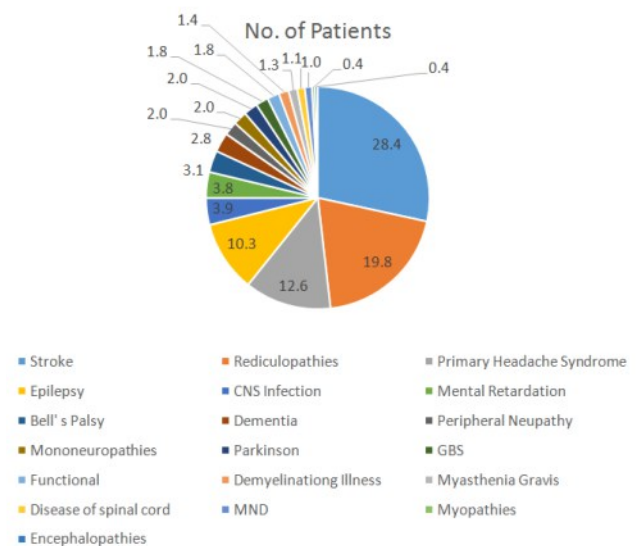
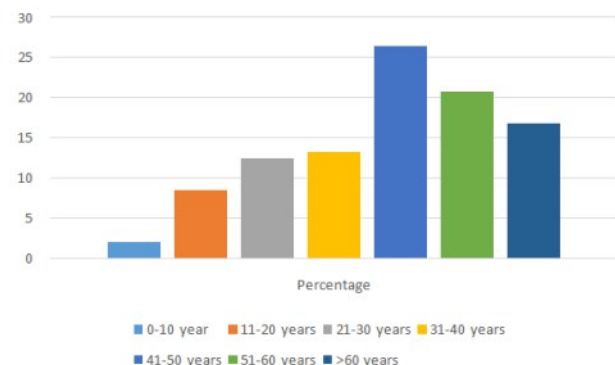


Figure 2:
(N = 1810) compare the age categories with top 5 diagnoses



DISCUSSION

The patient demographic profile reflects that the proportion of was less as compared to similar studies conducted in Bangladesh and India [2, 9]. Most of the patients in our study, presented after the age of forty years similar to many other studies looking for burden of major Neurological diseases like Stroke, epilepsy etc. Advancing age is one of the important risk factors for these neurological diseases all over the world. [10] In our study, stroke was found to be the most common neurological disease similar to other studies conducted in countries [11,12] In addition to advancing age.. Stroke is the major reason for morbidity and mortality in developing world like us. Stroke causes 1.6 million deaths in china and 0.6 million deaths in India [13].The incidence or prevalence of these major neurological diseases in our country is not known [14]. The available information on the pattern and frequency of major neurological disorders in Pakistan is scanty and limited mainly to hospital-based populations which may not be totally representative of the community. Radiculopathies especially lumbosacral radiculopathy is the second leading cause of adult disability in the United States. Although 80% of U.S. citizens will experience acute low back pain in their lifetimes, a significant minority will have symptoms persisting >3 months [15]. Although the prevalence for ages 24 to 39 years is 4.2%, the prevalence progressively increases with age, reaching 19.6% when patients through age 59 years are included [16]. Primary headache syndromes e.g; Migraine, Tension type headache etc. were found to be the next common neurological condition affecting especially female and middle age group population, presenting mainly to our outpatient department. The frequency of headache in our general neurology out- patient population was found to 12.6%. In other studies, the frequency of headache was found to be even higher (25%), patient age, and gender were similar to results in cohorts of headache patients. [17,18] Epilepsy is amongst the most common serious neurological conditions. The global prevalence of epilepsy is generally taken as between 5 and 10 cases per 1000 persons. Overall prevalence of epilepsy in Pakistan is estimated to be 9.99 per 1000 population. Highest prevalence is seen in people younger than 30 years of age. [19]

The frequency of other neurological problems like, cord disease, Motor Neuron diseases, CNS infection, and peripheral neuropathy was very low. The pattern of these less common diseases, was similar to European studies [20,21]. Our study gives an idea about the burden of neurological cases in the neurology department of BMCH, Quetta.

CONCLUSION

Keeping in view the high frequencies of major

neurological diseases in our study, it is of utmost importance to identify the prevalence of these major neurological diseases in Pakistan by a national health survey. Accurate and quantifiable data on these major health problems prevalent in a community are required to formulate objective and credible health policies for Neurological diseases in Pakistan. This will help to further expand the neurological workforce and neurological care in our country.

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Author's contribution:

Wazir Akbar; concept, data collection, data analysis, manuscript writing, manuscript review
Noor Ahmed Khosa; data collection, data analysis, manuscript writing, manuscript review
Abdul Bari Nasar; data analysis, manuscript writing, manuscript review