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ORIGINAL ARTICLE

Spectrum of neurological diseases in patients presenting to a tertiary care hospital of Peshawar.

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ABSTRACT… Objective: The aim of our study was to note the spectrum of neurological diseases in Out Patient department of hospital. **Study Design:** Observational Cross Sectional study. **Setting:** Rehman Medical Institute, Peshawar. **Period:** Jan 2019 to June 2019. **Material & Methods:** All the patients presenting/referred to neurology OPD were included. There demographic characteristics, level of disability and diagnosis was noted on proforma. The diagnosis was made by neurologist and the neurological diseases were grouped according to International Classification of Disease in different categories. Data was entered and analyzed on SPSS 22. **Results:** Out of 455 patients, 54.7% (n=249) were female. Mean age was 42.92±17.69. 54.7% (n=249) belong to urban area. Psychiatric illness was the most common group of illness accounted for 29.5% (n=134) followed by nerve disorders 23.3 %(n=106) and Headaches 23.10 %(n=105), muscular disorders 14.70% (n=67), vascular diseases 13.40% (n=61) and epilepsy 5.9% (n=27). Vascular diseases were significantly more in males (P value < 0.05). Female predominance was observed in nerve and psychiatric disorders (P value < 0.05). Vascular diseases, movement disorders and dementia was observed in elder age group. (P-value < 0.05). Epilepsy effected pediatric, headache and psychiatric illness were seen in young age and nerve disorder were common in middle aged people mostly. (P value <0.05). **Conclusion:** Psychiatric disorder was the top most diagnosis followed by nerve disorder and headache. Most of the disorders were significantly more in specific age groups and few were gender specific.

Key words: Disability, Epilepsy, Headache.

INTRODUCTION

Neurological disorders are the fifth leading cause of death worldwide. They are responsible for 5.53% of total deaths at global level.[1] They contribute for more than 20% of the world's burden of disease and they are responsible for up to 28% of disability worldwide.[2] The burden of these neurological diseases is higher in developing countries that constitute about 85% of the world's population.[2] Tension-type headache, migraine, medication overuse headache and Alzheimer's disease including other dementias are considered most prevalent neurological disorders in West.[3] Morbidity wise stroke is on the top followed by Alzheimer's disease and other dementias.[3] The situation is different in developing countries, World Health Organization estimates that 80% of all strokes occur in developing countries.[4] Epilepsy affects approximately 70 million people worldwide and 90% of the people suffering from epilepsy are in developing countries.[5]

There is limited data to highlight the burden of neurological diseases in Pakistan. In a review carried out by Ghulam Hussain et al, they compared the available data of NDs in Pakistan with the data of Iran, China, India, and Saudi Arabia. This review showed a wide difference in pattern of NDs among different countries of Asia.[6] In a study done in 2015 in one of the private hospital in Peshawar described that Headache was the most common presentation of patients attending neurology clinic followed by followed by cerebrovascular diseases and Epilepsies.[7] In a study carried out in Sindh province stated that Headache was the most common disorder encountered in neurology OPD followed by lumber radiculopathy, stroke and epilepsy.[8] A

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study from Balochistan described that Stroke was the most common Neurological illness in neurology OPD followed by Radiculopathies, Primary Headache Syndromes and Epilepsy.[9] These few studies have shown different spectrum of neurological diseases in Pakistan.

We tried to look into the spectrum of neurological diseases in Out Patient. We also intend to describe age, gender and area specific distribution of Neurological diseases.

MATERIAL & METHODS

It was an observational cross sectional study, carried out over the period of 6 months from Jan 2019 to June 2019 at Rehman Medical Institute, Peshawar. The study was approved by Hospital Ethical Committee (RMI/RMI-REC/Article Approval/32) and informed written consent was taken from study participant or attendant. All the patients presenting to or referred to neurology OPD were included in the study. A pre designed pre forma was used to collect data regarding patient's demographic characteristics, level of disability and diagnosis. The diagnosis was made by neurologist and the neurological conditions were grouped according to International Classification of Disease[10] in different categories.

Data was entered in SPSS version 22. The frequency and percentages were calculated for qualitative data and Mean ± Standard Deviation was calculated for quantitative variables. Age, gender, residence and education wise stratification was done and frequencies of diseases were calculated. T test and chi square test was applied where ever indicated. P value < 0.05 was considered significant.

RESULTS

Total 455 people visited neurology OPD during study period. 54.7% (n=249) were females and rest were males. Mean age of the patients were 42.92±17.69. 54.7% (n=249) belong to urban area while 45.3 % (n=206) came from rural areas. Educational status, disability grade and co morbid states have been summarized in the Table-I.

Demographic Features		% (n=455)
Mean age		42.92±17.69
Country of origin	Pakistan	81.1% (n=369)
	Afghanistan	18.9% (n=86)
Education	Illiterate	53% (n=241)
	Matric	21.8% (n=99)
	Intermediate	7.9% (n=36)
	Bechalors and above	16.7% (n= 76)
Residence	Urban	54.7% (n=249)
	Rural	45.3% (n=206)
Gender	Male	45.3% (n= 206)
	Female	54.7% (n=249)
Disability	Grade 0	49.5% (n= 224)
	Grade 1	33% (n= 150)
	Grade 2	7% (n= 32)
	Grade 3	5.3% (n=24)
	Grade 4	4.2% (n=19)
	Grade 5	1.3% (n= 6)
Co morbid states	HTN	14.1% (n=64)
	DM	4.4% (n=20)
	IHD	2.6% (n=12)
	More than 1 Premorbid states	8.8 % (n=40)

Table-I. Demographic Characteristics of Study Participants.

Psychiatric illness was the most common group of illness accounted for 29.5% (n=134) followed by nerve disorders and Headaches that were present in 23.3% (n=106) and 23.10% (n=105) patients. 14.70% (n=67) had muscular disorder and 13.40% (n=61) suffered from vascular disease. Epilepsy was diagnosed in 5.9% (n=27) patients. Rest of the disorders were less frequently observed as figured in Figure-1.

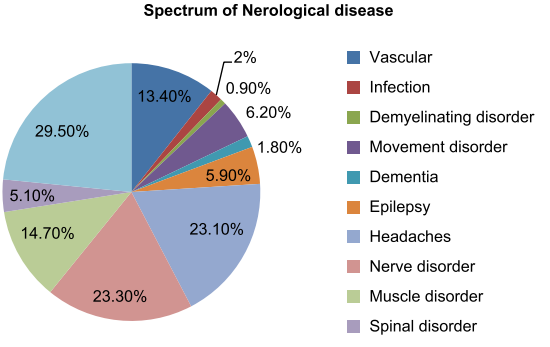

Figure-1. Spectrum of neurological diseases.

Gender specific trend of neurological diseases is described in table-II. Vascular diseases were significantly more in male gender (P value 0.005). Nerve disorders and psychiatric disorders were observed significantly more in females (P value < 0.05). Gender based disease frequency is detailed in Table-II.

Over all maximum study population belong to age group 16-35yrs. Age stratification was carried out to look for disease trend in different age groups. Vascular diseases were significantly more in 56-75yrs age group (P value < 0.05). Movement disorders and dementia were most commonly observed on age > 75yrs (P value 0.000). Epilepsy was most commonly observed in pediatric age groups (P value 0.002). Headaches affected age group 16-35yrs more commonly (P value < 0.05). 35.3% (n=55) patients from age 36-45yrs had nerve disorder (P value < 0.05). Psychiatric disorders were more commonly observed in age group 16-35yrs (P value 0.001).

Stratification of patients according to residence showed no significant distribution of disease pattern. There were few diseases that were seen more in Afghani population i.e. headaches and psychiatric disorders P value < 0.05 in each. Epilepsy and Nerve disorders were more frequently seen in Pakistanis as compared to afghan population (P value < 0.05).

Neurological Disease	Male %(n= 206)	Female% (n= 249)	P-Value
Vascular	18% (n=37)	9.6% (n= 24)	0.005
Infections	2.4% (n= 5)	1.6% (n=4)	0.5
Demyelinating diseases	1.0% (n=2)	0.8% (n=2)	0.8
Movement disorders	7.8% (n=16)	4.8% (n=12)	0.19
Dementia	2.9% (n=6)	0.8% (n=2)	0.08
Epilepsy	6.3% (n=13)	5.6% (n=14)	0.75
Headaches	20.4% (n=42)	25.3% (n= 63)	0.21
Nerve disorders	14.1% (n= 29)	30.9% (n=77)	< 0.05
Muscle disorders	14.6% (n=30%)	14.9% (n=37)	0.92
Spinal disorders	5.3% (n=11)	4.8% (n=12)	0.8
Psychiatric disorders	24.8% (n=51)	33.3 (n=83)	0.046

Table-II. Gender wise distribution of neurological diseases.

Neurological Disease	< 15yrs n=17	16-35yrs n=167	36-55yrs n=156	56-75yrs n=96	>75yrs n=19	P-Value
Vascular	0.00% (n=0)	4.2% (n= 7)	14.7%(n=23)	27.1% (n=26)	26.3% (n=5)	< 0.05
Infections	0.00% (n=0)	3.0%(n=5)	1.3% (n=2)	1.0% (n=1)	5.3% (n=1)	0.539
Demyelinating diseases	5.9% (n=1)	1.2%(n=2)	0.6% (n=1)	0.00% (n=0)	0.00% (n=0)	0.185
Movement disorders	0.00% (n=0)	1.8% (n=3)	3.8% (n=6)	14.6% (n=14)	26.3% (n=5)	< 0.05
Dementia	0.00% (n=0)	0.00% (n=0)	0.00% (n=0)	4.2% (n=4)	21.1% (n=4)	< 0.05
Epilepsy	23.5% (n=4)	7.2% (n=12)	3.8% (n=6)	2.1% (n= 2)	15.8% (n=3)	0.002
Headaches	29.4% (n=5)	36.5% (n=61)	19.9%(n=31)`	7.3% (n=7)	5.3% (n= 1)	< 0.05
Nerve disorders	5.9% (n=1)	16.2%(n=27)	35.3% (n=55)	22.9%(n=22)	5.3% (n=1)	< 0.05
Muscle disorders	5.9% (n=1)	13.8% (n=23)	17.3% (n=27)	15.6%(n=15)	5.3% (n=1)	0.480
Spinal disorders	11.8% (n=2)	4.2%(n=7)	5.8% (n=9)	5.2%(n=5)	0.00% (n=0)	0.552
Psychiatric disorders	17.6% (n=3)	40.1%(n=67)	26.9%(n=42)	21.9%(n=21)	5.3%(n=1)	0.001

Table-III. Age wise stratification of neurological diseases.

Diseases	Residence		P-Value	Country of Origin		P-Value
	Rural	Urban		Pak	Afghan	
Vascular	12.6% (n=36)	14.8% (n=25)	0.44	12.7%(n=47)	16.3%(n=14)	0.44
Infection	2.4%(n=6)	1.2%(n=2)	0.34	2.2%(n=8)	1.2%(n=1)	0.57
Demyelinatng disease	0.7%(n=2)	1.2% (n=2)	0.59	0.8%(n=3)	1.2%(n=1)	0.75
Movement disorder	6.3%(n=18)	5.9%(n=10)	0.87	6.8%(n=25)	3.5%(n=3)	0.25
Dementia	2.1%(n=6)	1.2% (n=2)	0.47	1.9%(n=7)	1.2%(n=1)	0.64
Epilepsy	4.9%(n=14)	7.7%(13)	0.22	7.0%(n=26)	1.2%(n=1)	0.03
Headache	20.3%(n=58)	27.8%(n=47)	0.06	20.9%(n=77)	32.6%(n=28)	0.02
Nerve disorders	24.1%(n=69)	21.9%(n=37)	0.58	25.5%(n=94)	14.0%(n=12)	0.02
Muscle disorders	16.4%(n=47)	11.8%(n=20)	0.18	14.9%(n=55)	14.0%(n=12)	0.82
Spinal disorders	6.3%(n=18)	3.0%(n=5)	0.11	5.7%(n=21)	2.3%(n=2)	0.20
Psychiatric disorders	29%(n=83)	30.2%(n=51)	0.79	26.0%(n=96)	44.2%(n=38)	0.001

Table-IV. Residence wise distribution of neurological diseases.

DISCUSSION

Mean age of our patient was 42.92±17.69 in our study that is comparable with other studies.[7,8,9,11]

Females were predominant, and this finding is consistent with other international and national studies.[8,9,11-13]

51.5% patients had some level of disability, maximum had disability Grade-1. This aspect was not documented in any other study before.

Stroke followed by headaches are the commonest pattern of neurological diseases at global level as well as in South East Asia.[14] While Stroke, headaches and Radiculopathies are the most commonly observed pattern of ND's in different studies across Pakistan.[8,9,15]

Our findings are different from other studies. Firstly, we studied OPD patients only and stroke patients usually present in ER so we got very less number of patients with CVA. Secondly maximum patients had psychiatric disorders, this finding was not observed in any other study before, the reason for this observation can be the high prevalence of psychiatric illness in pukhtoons and Afghan population that made significant part of our study subjects.[16] Furthermore lack of awareness/reluctance of patients to consult psychiatrist may also have contributed to high load of psychiatric patients in neurology OPD.

Gender specific disease trend demonstrated that psychiatric disorders and nerve disorders were significantly common in females, this finding is similar to other studies.[8,16,17] Frequency of CVA was more in males, this finding is supported by many studies at national and international level.[18] Different studies have mentioned increased prevalence of Headaches in females,[8,15,17] however we didn't find any gender specific pattern in any other disease group.

Age specific diseases were CVA , movement disorders, dementia, these were seen in old aged patients, epilepsy was significantly more frequent in patient's younger than 15.These findings are concordant with other studies.[5,17] Nerve disorders were significantly seen in middle aged people, finding supported by a study done in FaisalAbad.[17] While headaches and psychiatric disorder effected the young aged patient of same age group, this finding is unique to our study as other studies these disorders were commonly seen in relatively higher age group.[17] The reason for this difference is the rising trend of depression in young people of KPK.[19]

We did not find any significant difference in rural/urban population in terms of disease pattern, but we did observe significantly high frequency of psychiatric disorders and headaches in Afghani people. Our study findings are supported by different studies done on Afghan population showing that the incidence of tension type

headache and depression is high in Afghani people.[20,21]

Our study is unique in terms of the results, we noticed that maximum number of patients presenting to neurology OPD had Psychiatric illness significantly effecting younger age group. This finding wasn't observed in any study before. This reflects the high rate of depressive illness in our people and lack of awareness/reluctance of patients to see a psychiatrist. Secondly Afghan were also a part of our study subjects and it has been highlighted previously that the incidence of psychiatric illness is significantly high in them.

It is a single hospital based study; further community based studies are required to generalize the results to population. Another limitation to this study is that we categorized patients into major disease groups; we didn't focus on specific diseases.

CONCLUSION

Our study concluded that Psychiatric disorder was the most commonly encountered in OPD setting followed by nerve disorder and headache. Most of the disorders were significantly more in specific age groups and few were gender specific.

Neurological diseases are one of the major health problems causing significant disability. Their pattern and prevalence in a community are required to formulate objective and credible health policies for Neurological diseases in Pakistan. More over estimation of age, gender and area specific disease burden can help in targeting specific population for allocation of resources to help prevention and treatment of NDs in Pakistan.

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1	Wajeeha Qayyum	Design of study, Manuscript writing, Data analysis, Final revision & approval.	
2	Muhammad Shahid Iqbal	Data collection, Manuscript writing, critical review of article.	
3	Sohail Khan	Data collection, Manuscript writing, Critical review, Final approval.	
4	Muhammad Fozan Khan	Manuscript writing & its critical review, Data collection.	
5	Mohammad Jawad	Designed data collection performa, Data entry, Analysis & interpretation, Manuscript writing, Critical review.	
6	Fawad Jan	Manuscript & Critical review of data and article text.	