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Research Article

NEUROLOGICAL DISORDERS AND DISEASES: PREVALENCE AND INCIDENCE IN TERTIARY CARE HOSPITAL

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Abstract:

Aims and objectives: The aim is to explore concerning prevalence and incidence of neurological diseases and disorders with in a tertiary care hospital. **Methods:** A prospective, observational study was conducted out throughout the neurology department of Aware Gleneagles Global Hospitals, Hyderabad. A maximum of 161 cases were been eventually diagnosed to neurological disorders in the in-patient Department, study was carried out for a period of 6 months categorized based on the inclusion and exclusion criteria. On the side of the study, data was obtained from in-patient case records, and patients were assessed accordingly. **Results:** A total of 161 patients were chosen, with males comprising 98 (61%) and females accounting 63 (39%). Most people affected belonged to the age group of 51- 60 years. 78 % of the subjects had coexisting diseases. Subjects with neurological disorders that had been diagnosed were stroke 70, migraine 6, vertigo 4, meningitis 2, meningoencephalitis 3, vestibular neuronitis 5, seizures 34, neuropathies 7, Guillian Barre syndrome 16, psychiatric disorders 6, Parkinson's disease 9, spinal injury 16, brain tumors 2, traumatic brain injury 12, sciatica 2, and in Alzheimer's disease, bell's palsy, trigeminal neuralgia, headache, intracranial hypertension, Sjogren's syndrome, myasthenia gravis are of 1 in each. Guillian Barre syndrome was 95 % more prone in autoimmune disorders, with GBS with autonomic neuropathy 13 %, GBS with Hepatopathy 10%, and GBS+AIDP, CIDP, and Diabetic neuropathy 1 in each. Subjects with traumatic brain injury had their GCS scores properly assessed, and thus 25 % had GCS 3-8, 42 % had GCS 9-12, and 33 % had GCS 13-15. **Conclusion:** The prevalence and incidence of neurological disease and disorders were studied first at demographics of the patients; it was observed that males are more prone to neurological ailments, while their age range is between 13 and 85 years.

Key words: Stroke, seizures, migraine, guillian barre syndrome, myasthenia gravis.

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INTRODUCTION:

Neurology is a branch of medicine concerned [1] with quite a group of medical abnormalities primarily impacts the nervous system, referred to as nervous system or neurological disorders [2]. Neurological disorders, according to the World Health Organization (WHO), comprise diseases that impact the general nervous system, including the central and peripheral nerve systems [3].

Central nervous system neurological disorders:

Cerebrovascular disease (CVA) / stroke: A stroke is a neurological disorder in which poor blood supply causes cell death, when the blood flow to a part of the brain is interrupted by a ruptured or blocked blood vessel. Brain cells which may not receive a steady supply of oxygenated blood may die, resulting in prolonged brain damage [4].

Seizures: Seizures are defined as an abnormal and/or combination of various cortical neuron occurrences that cause transient neurological symptoms [5].

Epilepsy: Epilepsy is identical with "seizure disorders,"[6] which is a chronic condition caused by recurring, spontaneous seizures [7].

Meningitis: It is infection of the central nervous system [8] that causes acute inflammation of the meninges, the protective membrane [9].

Alzheimer's disease: Alzheimer's disease (AD) is a neurodegenerative disease that typically begins slowly and worsens [10].

Multiple sclerosis: Multiple sclerosis (MS), also referred as encephalomyelitis disseminata, is a demyelinating illness [11] that affects neurological dysfunction [12] and was been a chronic inflammatory [13] and immune-mediated disorder primarily impacts the central nervous system (CNS) [14].

Headache: Headache is a most prevalent neurological indication [15] of discomfort in the face, head, or neck, [16] that can be caused by tension on or aggravation of meninges and blood vessels [17].

Spinal tumors: Spinal tumors are neoplasm's that develop in the vertebral column or the spinal cord. [18]

MATERIALS AND METHODS:

Study site: The study was conducted out throughout the neurology in-patient department of Aware Gleneagles Global Hospitals, Hyderabad.

Study design: A prospective, observational study was conducted on 161 in-patients with in Intensive care unit, Medical Intensive care unit, and Surgical Intensive care unit at a hospital.

Sample size: A maximum of 161 cases were been eventually diagnosed to neurological disorders in the in-patient ICU, MICU, and SICU departments of Aware Gleneagles Global Hospital, LB Nagar.

Study period: The research was carried out over a six-month period, from September 2021 to March 2022.

Study criteria:

Table 1: Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Patients over the age of 11	Patients who refuse to partake in the study
Genders are male and female	Out-patients
History of smoking and alcohol dependence	Women who are pregnant or breast - feeding
Patients who have and do not have co morbidities	Infants and Pediatrics

Study approval: The study was authorized by the Sree Dattha Institute of Pharmacy's Ethics Committee.

RESULTS:

Table 2: Percentage distribution of subjects as per gender

Gender	No. of subjects	Percentage
Female	63	39%
Male	98	61%

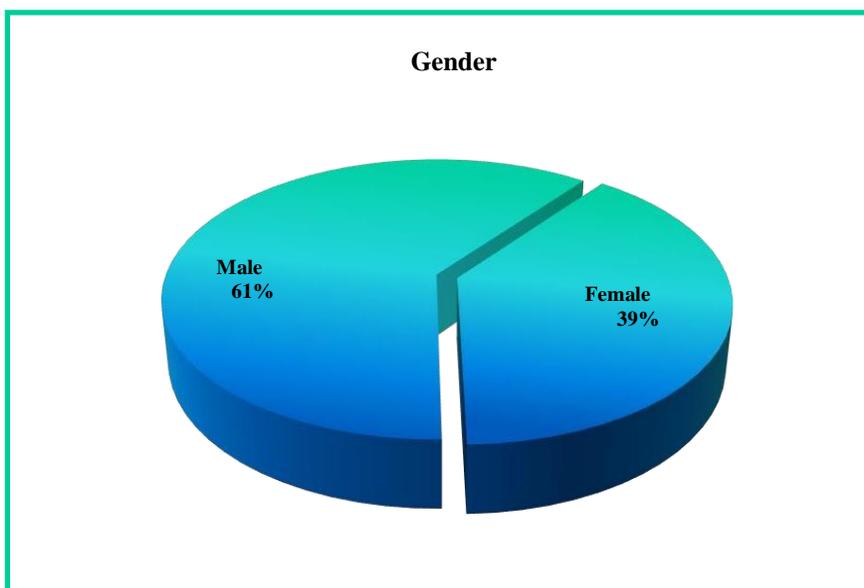


Figure 1: Distribution of subjects as per gender

In the study, approximately 161 subjects with neurological conditions were admitted to the hospital, with males accounting for approximately 98 (61 percent) of the subjects and females accounting for the remaining 63 (39 percent).

Table 3: Subjects grouped based on their age

Age Range	Subjects
11-20yrs	11
21-30yrs	11
31-40yrs	24
41-50yrs	22
51-60yrs	32
61-70yrs	29
71-80yrs	27
81-90yrs	5

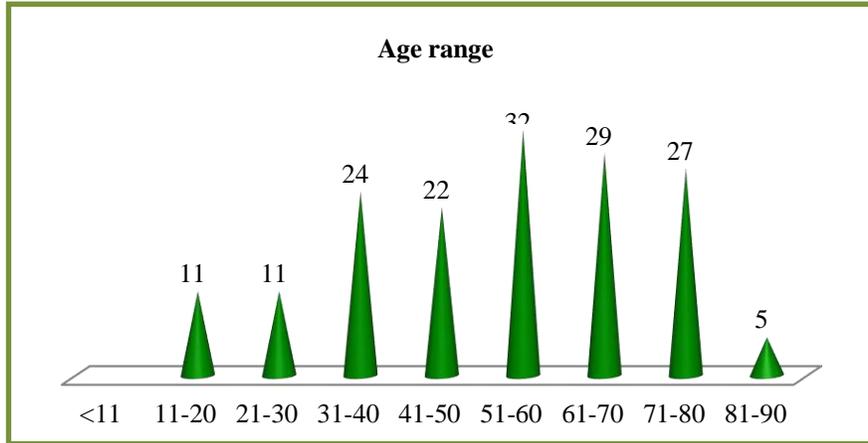


Figure 2: Distribution of subjects based on age

In this study, children under the age of 11 were excluded, and the age range among the subjects was as follows: 11-30 yrs range 22 patients admitted, 31-40 yrs range 24 subjects admitted, 41-50 yrs range 22 subjects admitted, 51-60 yrs range 32 subjects presented around the age group 51-60 yrs, 61-70 yrs range 29 subjects, 71-90 yrs range 32 subjects presented. The highest number of subjects presented was 32 in the age group 51-60 years.

Table 4: Distribution of subjects based on Co-morbidities

Category	No. of subjects	Percentage
With Comorbidities	126	78%
Without Comorbidities	35	22%

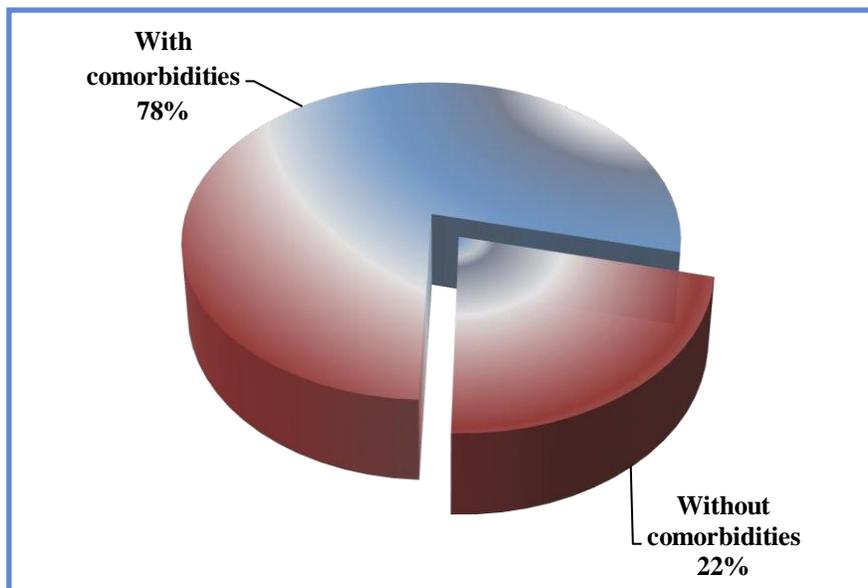


Figure 3: Distribution of subjects based on Co-morbidities

There were approximately 161 patients, with 126 subjects (78 percent) presenting with Comorbidities and 35 subjects not presenting with Comorbidities (22 percent). Subjects who had neurological conditions or a history of neurological diseases, as well as concomitant diseases, subjects were more likely to have deficits in brain functioning.

DISCUSSION:

Overall distribution of patients with neurological illnesses varied based on gender with in ongoing study. In comparison to the previous survey, it reported female accounts to be around 64.7%, the current study showed female accounts only 39% and male accounts 61%. In comparison to previous studies, males showed a significant difference and were susceptible to neurological problems.

In tertiary care hospital patients, the distribution of neurological illnesses is determined on the age factor. In the previous study, age groups ranging from 16 to 85 years were included, so in the current study, age groups ranging from 11 to 85 years were included, with the 51-60 year age group being more susceptible to neurological problems.

Patients with cerebrovascular accidents, and also social issues, were studied. Cigarette and tobacco addiction was reported to be around 40.3% in a previous research of 236 stroke patients. In this study, 161 participants were examined, with smoking and alcoholic consuming are of 18 and 22 percent, respectively. As a result, smoking and alcohol both found to be the trigger causes in stroke patients.

Based on co-morbid hypertension, the distribution of patients with neurological diseases was determined. In a prior study, 80 stroke patients were examined, with migraine (12%) and tension-type headache (66%) being most common coexisting disorders. The most common coexisting conditions in this study were vertigo (60%), migraine (10%), & anemia (30%). The symptoms of neurological diseases were alleviated when the co-morbid disease being diagnosed and treated.

Stroke patients with type 2 diabetes have been studied. It is assessed by patient's concerns or clinical manifestations. In an earlier study, 50 stroke patients with Type II diabetes were included, with 76% being conscious and oriented, 24 % having an altered conscious level, 90% hemiplegic or hemiparesis,

72% dysarthria, 4% dysphasia, and 16 % having other disabilities. Hemiparesis (21%) hemiplegia (7%), paraesthesia and facial palsy (2%), dysphasia (4%), aphasia (9%), dysarthria (12%), altered sensorism (11%) and conscious and oriented (32%) were all present in the current study. Hemiparesis and dysarthria were most frequent clinical manifestations in both present and previous studies.

Patients with stroke have been categorized based on risk factors that cause morbidity and mortality. Hypertension (64%), hyperlipidemia (48%), and diabetes mellitus (31%) were the most common risk factors in the previous study, while hypertension (46%), diabetes mellitus (30%), coronary artery disease (11%), thyroid disease & respiratory disease (5%), and kidney disease (3%) were the most common risk factors in the current study. In comparison to previous research, hypertension was found to be the primary risk factor for neurological impairments.

In a tertiary care hospital, neurological diseases were deemed an emergency. Around 1743 admitted in the prior research study, with cerebrovascular events (26.5%), headache disorders (13%), and seizures (12.7%) being the most common diagnoses. In the current study, 145 patients are selected, with cerebrovascular accidents 49%, headache disorders 12%, seizures 24%, and GB syndrome 11%, and head injury patients 8% in total. The Neuro-Emergency department has quite a great experience & practice treating ER patients.

Subjects are divided based upon that type of headaches they could be experiencing. In a recent study, migraine and tension type headaches were found to be 46% and 24%, respectively, chronic daily headaches were 13%, and other headaches were 18%. Only 13 people with headaches were reported in this study, out of 161 individuals, with migraine being the most common and followed by vertigo. Females, on either side, are much prone to headaches, despite migraine being most prevalent.

In a tertiary hospital, the population experiencing Guillian Barre Syndrome was allocated. GBS with autonomic neuropathy and respiratory paralysis (13%), GB syndrome with Hepatopathy (10%), GB syndrome with diabetic neuropathy, Acute/Chronic IDP (6-8%), and GB syndrome alone (56%) were all included in this study. AIDP and AMAN were the most prevalent variations in the prior study, with 93.5

percent and 16.1 percent in ascending paralysis and respiratory failure, respectively, and a 6.45 percent in-hospital death rate. In comparison to previous studies, the current study's mortality rate was zero.

Regarding the past analysis, GCS 13-15 were 99 % and lost to 71 % in GCS 9-12 & 41 % in GCS less than 9. In the present work, 12 individuals with TBI in which GCS 13-15 33% creating a positive recovery and the percentage increased to 42% in GCS 9-12 and in GCS percent having favorable conditions. As compared to prior studies, the death rate has dropped, and the patient's recovery has been satisfactory.

Acute stroke patients are factored, and also on Glasgow coma scale. In prior study, there were 49.13% cerebral Infarcts, 31.89% intracerebral hemorrhage, and 18.96% subarachnoid hemorrhage. GCS within 13-15 mortality was 0. In the current study, 82 stroke patients were viewed, with cerebral infarcts 81%, hemorrhage 9%, intracranial hemorrhage 6%, and subarachnoid and subdural hemorrhage 2% each. GCS 3-8 were 29%, GCS 9-12 were 48%, and GCS 13-15 of 23%. It was proved that the GCS score fluctuates depending on type of stroke.

In follow-up stroke cases, the Glasgow coma scale was used, with the verbal component as the major lead. A total of 70 stroke patients were included in the study, with dysphasia 10%, aphasia 33%, and dysarthria for 57%, suggesting that patients with dysphasia were least and those with dysarthria were more prevalent. In a prior study, 349 patients were found to be dysphasic out of a total of 1517 patients. It has been discovered that the verbal score has a significant impact on the GCS score in stroke patients who have made a good recovery.

CONCLUSION:

The prevalence and incidence of neurological disease and disorders were studied in this prospective study with a sample size of 161 individuals. On studying first at demographics of the patients, it was observed that males are more prone to neurological ailments, while their age range is between 13 and 85 years. In social history, 18% and 22% of subjects were categorized as smokers and alcoholics, respectively.

About 78% of the individuals in the study had co-morbid conditions, with the co-morbid range 3 comprising far more subjects. Hypertension (46%) has been identified as a key risk factor for neurological impairments, followed by diabetes (30%) and cardiac disorders (11%).

The far more prevalent neurological illnesses reported to the emergency department with in observational study are stroke (70), seizures (34), Guillian Barre syndrome (16), headaches (13) and traumatic brain injury (12).

An often similar clinical manifestation in stroke patients was hemiparesis (21%) followed by dysarthria (12%), aphasia (9%), and hemiplegia (7%), with Type II Diabetes mellitus as a concomitant disease.

In the study, migraine is seen to be more frequent among headache patients, and Guillian Barre syndrome accounting for 56% of 16 individuals.

The Glasgow coma scale was evaluated, with the score reflecting the degree of the patient's condition, with GCS 13-15 (33%) indicating mild severity and GCS 3-8 (25%) indicating high severity in case of traumatic brain injury. Dysarthria (57%) was noted in the majority of stroke patients, corresponding to the GCS verbal score.

The GCS score in stroke patients was analyzed, and it's been concluded that, dependent upon the stroke, the severity of the GCS score ranges from high to mild, were mortality of GCS 13-15 being 0.

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