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A Study on the Demographic Distribution of Epilepsy in a Tertiary Care Hospital

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Abstract

Introduction: The incidence of epilepsy in the continent has not been changed much for the past few decades and Asia contains more than half of the world's epileptic patients with an estimated 8 -10 million in India alone. Data also states that only half of them are under medical treatment. Despite innumerable studies presented over the years the acknowledgment and understanding of the overall prevalence is not entirely understood. Regional studies help us to understand the distribution in the specific population.

Aim: To study on the demographic distribution of epilepsy in a tertiary referral hospital.

Materials and Methods: With the institutional ethical committee authorization this study was done in a tertiary referral hospital to understand the demographic configurations for a period of a year based on preformed questionnaire in 100 patients consulting in the epilepsy clinic.

Observation and Results: 100 patients were interviewed based on the questionnaire and the data was studied. Men were more than women. Majority of the patients were between 11 and 30 yrs of age (51 out of 100). Etiology in most of the patients was unknown etiology (45 out of 100) which was followed by symptomatic epilepsy (41/100) including Hypoxic ischemic encephalopathy, CNS infection, Metabolic encephalopathy, Septic, vascular (CVT, acute hemorrhagic stroke), Alcoholic and Mesial Temporal Sclerosis etc. Idiopathic epileptic syndrome was present in 10 patients and cryptogenic being the least with four. Generalized tonic clonic seizure (GTCS) was seen in 43% followed by complex partial (34%), Myoclonic (10%), Absence (8%), Simple partial (5%) in that order. Treatment gap was seen in 19 out of 100 patients.Most of the patients 56/100 were unemployed and 80/100 had primary, secondary or university education.

Conclusion: Epilepsy is identifiable and can be controlled with regular treatment and follow up. Early identification, prompt diagnosis and treatment, reduction in treatment gap and social support can help the patients to progress in many ways such as education, employment and better living.

Keywords: Epilepsy in India; Idiopathic Epilepsy; Idiopathic Epileptic Syndrome; Symptomatic Epilepsy; Cryptogenic; Treatment Gap.

Introduction

Epilepsy is a condition that has been known since ancient times and the earliest available documentation is dated to 4000 BC. According to the WHO 2.4 million are diagnosed with epilepsy every year and also there are nearly 50 million people with epilepsy [1]. The increase in the incidence is attributed to endemic infectious conditions namely malaria, neurocysticercosis and an increased road traffic injuries and also birth injuries as many births in the rural areas are still home delivery. Though much of the research and studies are done in Asia, WHO estimates that 8-10 million live in India and among which more than 50% are undiagnosed and untreated [1,2] and hence the specified numbers are not known. This study is to determine the demographic distribution and prevalence among the regional population.

Prevalence of Epilepsy varies between regions from 2/1000 to 10/1000 population. Previous studies done

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in India too showed some variability in different regions 9/1000 insouth (Bengaluru), 4/1000 in north (Delhi), 3/1000 in east (Calcutta) and 5/1000 in west (Mumbai). Amongst the neurologic complaints consulted to, epilepsy ranks only second to headache [3,4].

The study was conducted in the neurology outpatient department in a tertiary referral center.

Aim

To study on the demographic distribution and clinical profile of epilepsy in the neurology outpatient department of a tertiary medical referral center.

Material and Method

After the formal approval of the institutional ethical committee this outpatient based prospective study was conducted to identify the demographic detail of consecutive 100 epilepsy patients attending the neurology OPD in our Medical College hospital for a period between June 2015 to June 2016. After a detailed explanation and written consent from the patients, a preformed questionnaire was used and the details were collected which included the demographic details, identification of etiology, semiological classification and treatment received in the past and present. Guidelines were followed as per the International League against epilepsy [5,8].

Results

Among the 100 patients studied there was a slight male preponderance as 53 out of 100 (53%) were men and the 43/100 (47%) were women respectively. (Table 1).

Table 1: Gender distribution

Gender	No	%
Male	53	53%
Female	47	47%

According to the data collected from 100 patients in our epilepsy clinic 11 (11%) patients belonged to age group less than 10,20 patients (20%) belonged to age of 11 -20 years, 31 patients (31%) were between 21 -30 years, 14 patients (14%) belonged to age group 31 – 40 years, 11 (11%) represented age of 41 to 50 and 13 patients (13%) in age group of 51 and above. Maximum no of patients were in the age group was adolescent and young adults 11 -20 and 21 -30. (Table 2).

Table 2: Distribution of Age

Age group	No of patients	% of patients
0 -10	11	11%
11 -20	20	20%
21 -30	31	31%
31 – 40	14	14%
41 – 50	11	11%
51 and above	13	13%

According to the semiology and the subsequent investigative evidences (EEG), we categorized that 43 out of 100 (43%) had Generalized Tonic Clonic Seizure (GTCS), while 34 (34%) patients had complex partial seizures, 8 (8%) had Absence seizures, 5 (5%) had Simple Partial respectively. However no atonic seizures were recordedin our patient population. (Table 3).

Table 3: Seizure type

Seizure type	N = 100
GTCS	43
CPS	34
Myoclonic	10
Absence	8
Simple Partial	5
Atonic	0

Etiological data collected showed that idiopathic patients were 45 out of 100. Idiopathic epileptic syndromes accounted for 10 patients which was further differentiated into Juvenile Myoclonic Epilepsy (4), Absence Epilepsy (2), Benign epilepsy with centrotemporal spikes (1), generalized Epilepsy on awakening (1), Benign Occipital Lobe epilepsy (1), Epilepsy on awakening Eyelid myoclonia (1).

Cryptogenic epilepsy was present in four patients as West syndrome (2), Lannout Gestaut Syndrome (1), Landau Kleffner syndrome (1).

Symptomatic epilepsy was identified in 41 patients that presented in various types as Hypoxic Ischemic Encephalopathy sequele (6), CNS congenital malformation- neuronal migration disorder (1), CNS infection (5), Tuberous Sclerosis (1), Metabolic encephalopathy including a case of porphyria (5), Septic (3), Vascular – CVT, acute hemorrhagic stroke (4), Post stroke seizure (2), Traumatic brain injury (3) HT encephalopathy (1), Hepatic encephalopathy (2), Cerebral Abscess (1), Tumor (1), Alcohol (2), Primary Mesial Temporal Sclerosis-Primary (1), secondary Mesial Temporal Sclerosis- (1), Wilson's disease (1) and CNS lupus (1).

Table 4: Etiology

Etiological differentiation	No of Patients
Unknown/idiopathic	45
Idiopathic epileptic syndrome	10
Cryptogenic	4
Symptomatic	41

Treatment gap [7] or delay in treatment can be defined as the number of patients who are not on medical treatment in spite of being diagnosed to have epilepsy and this treatment gap was seen in 19 out of 100 patients (19.0%). This is closer to the WHO reports of 22% in the urban Indian population [7].

73% was either unmarried or separated. Among 80 out of 100 patients, 33 had primary education, 43 had secondary education, only 4 attended college and the rest were not educated. Employment data collected showed that only a small number, 20/100 patients (20.0%) were regularly employed and as many as 24 patients had an irregular employment (24.0%). Majority (56/100) of the patients was unemployed (56%) and was dependent on their family for day-today living.

Discussion

Epilepsy is often seen as a disability in the society that considers it as physical or mental condition that limits a person movements, senses, or activities. This contributes to economic and social consequences and further burdens the society. The demographics help to understand the influence of epilepsy to the community and the region. There are very few incidence studies from India, and the most recent one suggests an age-standardized incidence rate of 27.3/100,000 per year [8,9].

As per the International League Against Epilepsy (ILAE) [18,19] epilepsy and seizure are different! Epilepsy is considered a disease but seizure as an event. Further the International League Against Epilepsy (ILAE) defines epileptic seizure as a transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in the brain more than 24 hours apart characterized by an enduring predisposition to generate epileptic seizures and by the neurobiological, cognitive, psychological, and social consequences of this condition.

Various studies reported the gender specific incidence of epilepsy to bemarginally more common in menthan in women by numbers and many of the Asian studies also shows that the sex specific prevalence is not greatly significant. Our study also showed a similar incidence where 53% were malesand 47% were females [3,8,9,10,11].

Epilepsy is present in all ages and most of the investigators claim that the peak incidence is at the second and third decade of life contrasting to economically developed countries where the distribution is bimodal. Our study also shows a similar trend where the peak incidence is between the second and the third decades of life [3,4,5,11,12]. It is worth to make a note that many of the epileptic children are treated by the pediatricians rather than the neurologist and thereforethis has to be taken into consideration.

Though the Asian region studies gives a mixed report a on the type of seizures, GTCS and partial seizures were present more in most of the studies which also correlate to our study where the percentage of generalized seizure was 43% and partial seizure was 34% comparable to the studies held elsewhere [3,11,12,13].

Though most of the studies disclose the major cause of epilepsy as head injury, birth injuries and CNS infections e.g. Viral, bacterial and parasitic, the trend seems different in the developed countries where head injury and stroke are the contributing factors. However idiopathic epilepsy (45%) seems to be the major cause in our study followed by symptomatic epilepsy (41%), Idiopathic epileptic syndrome (10%) and Cryptogenic (4%) respectively [3,11,12,13].

Among the infections in the Asian countries neurocysticercosisis is much more common than others which include tuberculosis, malaria, schistosomiasis and HIV which is comparable to our study, however Srilankan studies (Ranjanie Gamage et al)report cysticercosis but surprisingly neurocysticercosis is not reported in spite of the terrestrial propinquity with India [3,5,8,9,11-13].

Though tuberculosis and malaria is still widely present in Asia the prevalence has decreased post millennium compared to the previous century. This is because of the fact that both the infections are identified, diagnosed early and managed well because of the extensive preventative health programs available.

Perinatal injuries sustained contribute to another major etiology for epilepsy. Though the health care is far better than decades ago, home birth is still much prevalent in India and that could explain the number recorded in our study.

Seizure following head injury is quite common trauma in patients and the incidence is on the raise as the vehicle population and subsequent higher

accident rates and our data shows about 9% which was just higher than the global incidence and less than the Asian prevalence. Post traumatic seizures is responsible for 5% of the total epilepsy and also accounts for 20% of the convulsions in Asia. This could be because of the fact that many post traumatic seizures are managed and followed up in the neurosurgical clinic than the epilepsy clinic [3,5,8,9,11-13].

Employment data collected showed that only a small number, 20/100 patients (20.0%) were employed on a regular basis and many (24/100) were had an irregular employment (24.0%). Majority (56/100) of the patients was unemployed (56%) and was dependent on their family for day-today living [5,12].

Epilepsywas a cause of discrimination in the society in the past and unfortunately it is still being stigmatized in many regions which could explain the high rate of unemployment. Epileptics are denied employment, social, marital opportunities and they are more prone for depression and lack of self-esteem. Many of them also don't pursue education because of the social discrimination and poor self-confidence and ultimately their economic status also remains low. Education of the society towards the disease may help the patients for better prospects in the society [5,12-17].

Treatment gap or delay in treatment is dependent on many factors the most important is the lack of information in understanding epilepsy, cultural superstitions, social stigma and this treatment gap in India is thought to range between up to 22% in urban population and 90% in rural population [8,12-17].

Alternative treatments such as Ayurveda, Chinese medicine, holistic, reiki, and faith healing are also tried by the patients before seeking modern medical assistance. Our study reported 19.5 % which is closely resembles the urban statistics available which stands at 22%. Recognition of the epilepsy, improved rural health centers, community education will bring down the treatment gap [5,12,13,17].

Studies have shown that epileptic patients are anxious as well as depressed and they lack self-esteem. The society around offers only a few opportunities and therefore these patients have restricted social relationship. Many of them have a fabricated belief about the disease and therefore health education, self-help groups and counseling will be of a worthy assistance. Hence the treatment of both pharmacological as well as psychological approach with the community support will be beneficial to such patients.

Conclusion

The demographic data collected supports the Asian and regional trends and also illustrates that the etiological spectrum of acute symptomatic epilepsy in this part of the country. Epilepsy is identifiable and can be controlled with regular treatment and follow up. Early identification, prompt diagnosis (especially of the treatable and curable causes like CNS infections) and treatment, reduction in treatment gap, improvement in health education, gender equality, environment and social structural support can help the patients to progress in many ways such as education, employment opportunities and better living. Health care system also should be available, affordable and accessible.

This study characterizes an institutional data collected over a period of just a year and the figures may have a component of bias and therefore extensive epidemiological studies are required to evaluate further which can be done in the future. There is no conflict of interest declared and our study represents only the demographics of an institution.

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