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CLINICAL AND SOCIO-DEMOGRAPHIC PROFILE OF PATIENTS WITH EPILEPSY IN A TERTIARY CARE CENTRE OF EASTERN NEPAL: A CROSS-SECTIONAL STUDY

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ABSTRACT
Background: Epilepsy is a chronic neurological disorder, affecting millions of people worldwide, with significant morbidity and mortality irrespective of ethnicity, race or gender. Fear, misunderstanding, discrimination and social stigma have surrounded epilepsy for centuries. **Objectives**: This study was conducted to see the socio-demographic and clinical profile of epileptic patients. **Material & Methods**: It was a hospital-based, descriptive, cross-sectional study conducted in 42 epileptic patients coming for drug monitoring in pharmacology department. A semi-structured, pre-validated, goal-directed Proforma was used for data collection. Collected data were entered in Microsoft EXCEL and converted it into SPSS (Statistical Package for Social Sciences) version 11.5 for statistical analysis. Mean, standard deviation, percentages were calculated. **Results:** Majority were males 24 (57.14%). Most of the cases were of age group 11-20 years. The Generalized Tonic-clonic seizure was the most common diagnosis made 17(40.5%). Students (57%) were more affected. Noncompliance to treatment was seen in 15(35.71%) and 5(11.9%) said their seizure was due to some past-life consequences and had visited faith-healer in their village prior to medical treatment. 31% were using polytherapy for their seizure control, out of which 15(35.71%) were noncompliant to treatment. **Conclusion:** Misconception about epilepsy in Nepal is still present and treated as a social stigma. Enforcement of effective preventive and awareness program on epilepsy for the public can reduce the incidence of seizure and also help to improve subservience to treatment for the better patient outcome.

KEYWORDS: Epilepsy, seizure, socio-demographic.

INTRODUCTION
Epilepsy is a chronic neurological disorder, affecting millions of people worldwide, with significant morbidity and mortality.[1] It is characterized by episodes of recurrent seizures due to abnormal, excessive, repetitive and uncontrolled neuronal electrical discharges in a group of neurons affecting part or the whole of the brain. Episodes of seizures may be variable from brief attention deficit to severe form like prolonged convulsions, often accompanied by vomiting, loss of awareness or consciousness and control of bowel or bladder function followed by an impaired cognitive function like anxiety and depression.[2]

Epilepsy is one of the most prevalent non-communicable diseases of the Central Nervous System (CNS) that affects people of any nation irrespective of race, ethnicity or gender.[3] When we analyze data from developing countries out of 50 million affected people worldwide, almost 40 million are from developing countries with an incidence rate of 190 per 100,000 people in low and middle-income countries, causing significant health and socioeconomic burden.[4]

In Nepal only, the prevalence rate of epilepsy is 7.3 per 1,000 populations with the treatment gap of over 80%, even higher in rural areas. This treatment gap may be due to limited knowledge regarding epilepsy, cultural beliefs, stigma, social discrimination, poverty, lack of proper preventive health care programs and poor health delivery system due to limited infrastructure.[5,6]

Fear, misunderstanding, discrimination and social stigma have surrounded epilepsy for centuries. This stigma

continues in many countries even today and has a significant impact on the quality of life of the people with the disorder and their families.

Etiologies of epilepsy are almost same worldwide but in developing Asian countries, endemic and preventable causes like neurocysticercosis, malaria, meningitis, head trauma, stroke and birth injuries related to poor obstetric care are more important.[2,7]

This study was conducted to examine the socio-demographic and clinical profile of epileptic patients. Understanding of the clinical and socio-demographic profiles of them from the various epileptic populations is important to broaden *present* knowledge. It may also help to devise and upgrade different preventive as well as corrective measures for improving quality of life in those affected patients.

MATERIALS AND METHODS

This study was conducted in 42 epileptics who came for therapeutic drug monitoring of anti-epileptic drugs, in the Department of Pharmacology, B.P Koirala Institute of Health Sciences (BPKIHS) during August 2015 to July 2016, after obtaining ethical approval from Institutional Ethical Review Board (IERB) of the institute. This study included patients of age group 1-60 years of either sex under treatment with anti-epileptic medicines.

All the patients were explained about the study and were asked to sign the consent form beforehand. In case of minors, parents or accompanying local guardian signed the consent form. Once this essential step was completed, goal-directed, pre-validated questionnaire was administered and information regarding socio-demographic characteristics and the clinical profile was obtained. Details regarding diagnosis, treatment and drug compliance of patients were recorded from patients itself as well as from the patient's record book.

Collected information was entered in Microsoft EXCEL and converted it into SPSS (Statistical Package for Social Sciences) version 11.5 for statistical analysis. Mean, standard deviation, percentages were calculated for socio-demographic data and graphical and tabular presentations of the obtained data were made.

RESULTS

Out of 42 patients, who came for therapeutic drug monitoring of anti-epileptic drugs in the Department of Pharmacology, males were 24 (57.14%). Age of the patients ranged from 1 - 60 years. Majority of the cases of epilepsy 11(26.19%) belonged to age group 11-20 years (Table 1) with the median age (±SD) of 23.5(±14.4) years and the sufferers of seizure disorders were seen to decline with increasing years. Majorities were Hindu 40(95.23%) and rest 2(4.76%) were Muslims by religion.

Table -1: Age and gender wise distribution of study population.

Age in Years	Males n (%)	Females n (%)	Total n(%)
1-10	6(14.2%)	4(9.52%)	10(23.8%)
11-20	8(19.04%)	3(7.14%)	11(26.19%)
21- 30	3(7.14%)	4(9.52%)	7(16.4%)
31-40	4(9.52%)	4(9.52%)	8(19.04%)
41-50	3(7.14%)	2(4.76%)	5(11.9%)
51-60	0	1(2.38%)	1(2.38%)

Twenty-four cases were students (57%), nine housewives (21.4%) and eight were involved in agriculture (19.04%). Thirty (71.4%) patients had obtained formal education. Out of nine housewives, only 4(44.4%) had schooling beyond grade five and 2(25%) patients, involved in agriculture, had education up to class 10.

Age at onset of seizure was less than 15 years in more than half (54.74%) of epileptic patients out of which 23.81% was seen within 1 year of age. Only 2(5%) cases presented with a positive family history (Fig. 1) of epilepsy among first-degree relatives.

Diagnosis for seizure (Fig. 2) was Generalized Tonic-Clonic Seizure in 17(40.5%) and simple partial seizure in 10(23.80%).

Etiology of seizure in the majority of cases 24(57.14%) was unidentified. Among the known attributable causes of seizure (Table 2), birth asphyxia (BA) was seen in 10(23.8%). Intra Cranial Space Occupying Lesions (ICSOL) was present in 3(7.14%) cases, Infarct in 3(7.14%) and Neurocysticercosis (NCC) in 2(4.76%). When inquired about the knowledge regarding causative factors for convulsion in patients, 5(11.9%) said their seizure attacks were due to some past-life consequences and had visited faith-healer in their village prior to medical treatment.

Table – 2: Gender wise distribution of etiologies of seizure.

Etiology	Male n (%)	Female n (%)	Total n (%)
Idiopathic	14(33.33%)	10(23.8%)	24(57.14%)
Birth Asphyxia	5(11.9%)	5(11.9%)	10(23.8%)
Neurocysticercosis	1(2.38%)	1(2.38%)	2(4.76%)
ICSOL	3(7.14%)	0	3(7.14%)
Infarct	1(2.38%)	2(4.76%)	3(7.14%)

ICSOL-Intracranial space occupying lesion

Out of 42 epileptics, only 5 cases mentioned that their seizure attacks were precipitated by some triggering factors. Fever and mental stress were the most common provoking factors for seizures along with blinking lights and deafening noise. Most of the cases had no idea what was the triggering factor for their convulsions. Post-ictal confusion (76.19%), loss of consciousness (14.29%) and retrograde amnesia (9.52%) were reported by the patients following the seizure.

In our study subjects, 29(69.04%) cases had successfully controlled seizures with monotherapy with a single anti-epileptic drug and *the* remaining 31% were using polytherapy for their seizure control. Out of which noncompliance to treatment was seen in 15(35.71%) cases. When inquired about the cause for it, many said that they were 'seizure-free' for a long time and had left medication by themselves as they assumed cure. For some of the cases cost of the medicine remained the leading cause of noncompliance. Two cases said they were suffering from past life consequences and will not be cured by medication but were receiving medicines for the sake of their family members only.

Most important investigations done for diagnosing epilepsy were EEG (electroencephalogram) and CT scan (computed tomography). When inquired about the investigation report, it was found that only 43% of the total study population had kept their investigations reports safely. Rest of the patients had lost their reports during the long span of the treatment course. This point towards the need for digitalization of investigation reports in our hospital.

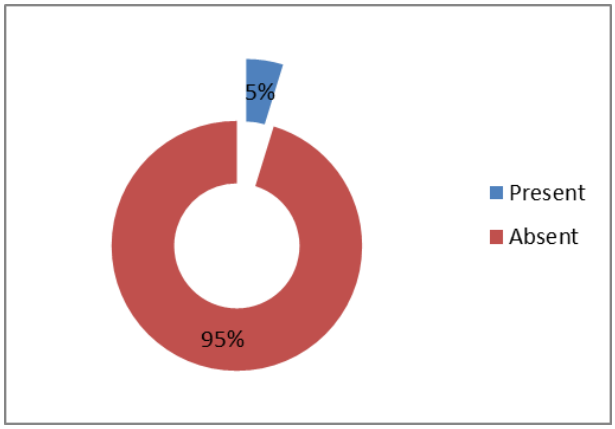

Figure 1: Family history of seizure.

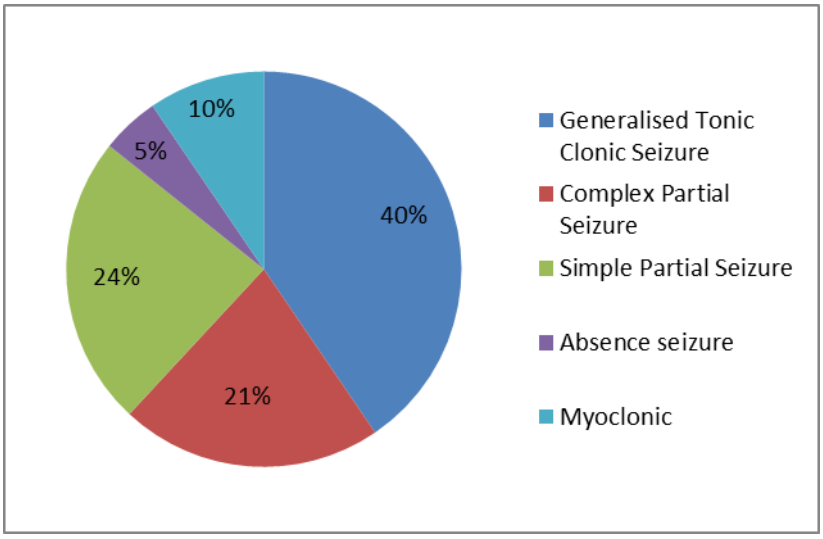

Figure 2: Diagnosis of seizure.

DISCUSSION

In our study, there was a preponderance of males (57.14%) vs females (42.86%) with M:F -1.9:1, which was also seen in various studies conducted in our neighboring countries, India and Pakistan. It may be because it was a hospital-based study and females of developing country like Nepal, in comparison to males, have less access to healthcare facilities and also maybe because epilepsy is considered as social stigma and most females and their families prefer to stay mum about the disease.[8] This should be changed by raising awareness in *the* public about the disease and implementing an effective plan for easy access to preventive as well as curative methods.

Contrary to the bimodal distribution of the age-specific incidence of epilepsy in a developed country, developing countries with low economic status have a higher prevalence rate of epilepsy in the first two decades of life.[3,9] In our study also, majority belonged to age group 11-20 and declined with increasing age. This is consistent with findings from our neighboring countries, India, Pakistan and China. Studies from India and China showed prevalence and incidence rates higher in the first 3 decades of life and lower in elderly. Whereas Study from Pakistan showed the highest prevalence rate of 1.25% in *the* age group 20-29 years and declined with increasing age.[1,10,11] These findings suggest that there is the need to produce more competent treatment options

for the effective management of seizure in these productive age groups.

In our study, most of the patients were students (57%). It is of significance because students with epilepsy may have to face various challenges in areas of attention, concentration, memory impairment and other psychosocial factors. It may lead to academic underachievement due to missed school due to the disease, adverse effects of medication and possible social isolation. Furthermore, it also points towards the need of implementation of epilepsy educational program along with proper first aid training to teachers for management of seizure during the school period. It may also help to change attitude towards epilepsy and may help to boost up child's confidence and self-esteem.[12-14]

In our study, 5(11.9%) did not go to school, and 4(9.52%) had left to go to school at very early stages due to disease. Their family did not send them to school due to the threat of danger of seizure in unknown surroundings and preferred to keep at home. This indicates the necessity of raising awareness among the population about the disease and its curability with medications.

The Etiology for the seizure was documented in 43% cases with 24% cases having the history of Birth Asphyxia, 7% cases each with Infarction and Intracranial Space-occupying lesions (ICSOL) respectively. Birth Asphyxia related neuronal damages due to perinatal and postnatal complications have a long-term effect of the development on seizure and epilepsy, which was evident in our study too.[15] It suggests a need for proper care during the delivery period. Neurocysticercosis was found as etiology in 5% cases which were 12% in study by Adhikari et al and 6.2% in study by Gogoi et al.[16,17] NCC is one of the most common parasitic infection of the brain and a leading cause of epilepsy in most part of the developing world and the result in our study is also consistent with it, most probably due to pork eating, non-vegetarian vicinity.

The family history of seizure disorder was found in about 5% of cases in our study. The finding by Kafle et al reported an incidence of 9.3% positive family history.[18] It shows the genetic basis of many convulsive disorders. It also allows parents *a* chance to be cautious about possible seizure disorder in their children and early institution of the treatment.

The most common type of seizure was Generalized tonic-clonic seizure (GTC) (40.47%) which was consistent with the findings of Shaireen Usman et al and Avaaru et al, who found subjects to be suffering from GTC in 43% and 53% cases respectively in their study.[1,13]

The precipitating factors for seizure attacks were noted in 12% cases with fever & stress as the common factors compared to 58% cases in study by Avvaru et al and 20% in study by Kafle et al. Balamurugan et al also found missing medication, sleep deprivation, fatigue and emotional stress to be important triggers for seizure onset.[1,18,19] It highlights the importance of the identification of the precipitating factors and their avoidance in seizure management process in addition to pharmacotherapy.

The use of more than one drug for control of seizure was found in 31% cases compared to 12.7% in the study by Kafle et al.[18] Patients with symptomatic or cryptogenic epilepsy are more likely to exhibit uncontrolled seizures, despite medication. Combination therapy or epilepsy surgeries can be considered for these patients.[20] However in our study, few had noncompliance with treatment due to the need of a long-term intake of drugs, cost of medication and sometimes patient stopped taking medicine by themselves as they assumed cure after some period of treatment. For the patients with epilepsy, subservience to treatment with the prescribed drug is absolutely crucial for seizure control and its cumulative impact in daily life as nonadherence to treatment may result *to* a breakthrough seizure at any stage of life leading to impact in patient's quality of life.

Limitations of study

It was a hospital-based, cross-sectional study conducted in a limited group of patients, which may not be representative of actually affected population hence; the result could not be generalized. However, it provides a scenario of socio-demographic features, psychological factors and common etiologies of epilepsy in our set-up and provides a platform for future large-scale similar studies.

CONCLUSION

Misconceptions regarding epilepsy in Nepal is still prevalent and treated as a social stigma. The seizure disorder is seen more in school going, younger age group males. Apart from neonatal neuronal complications as a causative factor for the later-stage convulsive disorder, neuro-infection by neurocysticercosis is also one of the etiologies in developing countries. Therefore, *the* enforcement of effective preventive and awareness *programs* on epilepsy for the public can reduce the incidence of seizure and also help to improve subservience to treatment for a more satisfactory outcome.

REFERENCES

1. Avvaru KV, Seepana M, Kotamarthy HB. (Clinico Demographic Profile and Treatment Seeking Behavior of Epilepsy Patients in a Tertiary Care Hospital). Int J Biol Med Res, 2012; 3(4): 2523-2526.
2. World Health Organization. Epilepsy fact sheet. Available at: http://www.who.int/news-room/fact-sheets/detail/epilepsy. Accessed june 1, 2018.

3. Thapa L, Shrestha A, Dalton LP, Paudel R , Pokharel BR, Ghimire A, Shilpakar R, Dewan KR, Rana PVS. (Clinical and socio-economic factors among epileptic patients in Nepal: A big challenge). Journal of College of Medical Sciences-Nepal, 2011; 7(2): 29-33.
4. Hong Z, Qu B, Wu XT, Yang TH, Zhang Q, Zhou D. (Economic burden of epilepsy in a developing country: a retrospective cost analysis in China). Epilepsia, 2009; 50(10): 2192-8. doi: 10.1111/j.1528-1167.2009.02185.x. Epub 2009 Jul 2.
5. Rajbhandari KC. (Epilepsy in Nepal). Can J Neurol Sci, 2004; 31(2): 257-60.
6. Kheng-Seang Lim, Chong-Tin Tan (Epilepsy stigma in Asia: the meaning and impact of stigma). Neurology Asia, 2014; 19(1): 1–10.
7. Chong-Tin TAN. (Differences in epilepsy and seizures between Asia and the West). Neurology Asia, 2007; 12: 59–60.
8. Corrigan PW, Watson AC. (Understanding the impact of stigma on people with mental illness). World Psychiatry, 2002; 1(1): 16-20.
9. Banerjee PN, Filippi D, Hauser WA. (The descriptive epidemiology of epilepsy-a review). Epilepsy research, 2009; 85(1): 31-45. doi:10.1016/j.eplepsyres.2009.03.003.
10. Shaireen Usman, Haroon Rashid Chaudhry, Aftab Asif et al. (Demographic profile of patients with epilepsy in a community clinic). Pak J Med Sci, 2007; 23 part II (6): 873-6.
11. Gu L, Liang B, Chen Q, Long J, Xie J, Wu G, Yan Y, Tan J, Dou W, Chen W, Wu P, Wang J, Su L. (Prevalence of epilepsy in the People's Republic of China: a systematic review). Epilepsy Res, 2013; 105(1-2): 195-205. doi: 10.1016/j.eplepsyres.2013.02.002.
12. Alkhamra H, Tannous A, Hadidi M, Alkhateeb J. (Knowledge and attitudes toward epilepsy among school teachers and counselors in Jordan). Epilepsy and Behavior, 2012; 24(4): 430–434.
13. Hashemi AE, Ashkanani A, Qattan AH, Mahmoud A, Kabbani AM, Juhaidli AA, Al-Hashemi AZ.(Knowledge about Epilepsy and Attitudes toward Students with Epilepsy among Middle and High School Teachers in Kuwait). International Journal of Pediatrics, 2016; 5138952. http://doi.org/10.1155/2016/5138952.
14. Dakwa FE, Mudyahoto T. (Impact of Epilepsy on Children's Academic Performance. International Journal of Academic Research in Progressive Education and Development), 2013; 2(1): ISSN: 2226-6348.
15. Editorial team. Long-Term Effects of Birth Asphyxia and Hypoxic-Ischemic Encephalopathy. [Blog Post]. 2015. Retrieved from https://www.abclawcenters.com/blog/2015/02/16/birth-asphyxia-long-term-effects-hypoxic-ischemic-encephalopathy/. Accessed 20 Jan 2016.
16. Adhikari S, Sathian B, Koirala DP, Rao KS. (Profile of children admitted with seizures in a tertiary care hospital of Western Nepal). BMC Pediatrics, 2013; doi: 10.1186/1471-2431-13-43.
17. Gogoi A, Islam A, Panyang R, Dowerah P, Ramasamy S, Boruah M. (A Prospective Hospital-Based Study on the Clinico-Etiological Profile of First Episode Seizures in Children). Int J Med Res Prof, 2016; doi:10.21276/ijmrp.2016.2.3.025.
18. Kafle DR, Oli KK. (Clinical Profile of Patients with Epilepsy). Journal of Nobel Medical College, 2014; doi: http://dx.doi.org/10.3126/jonmc.v3i1.12234.
19. Balamurugan E, Aggarwal M, Lamba A, Dang N, Tripathi M. (Perceived trigger factors of seizures in persons with Epilepsy). Seizure, 2013; 22(9): 743–747.
20. Lee SK. (Old versus New: Why Do We Need New Antiepileptic Drugs?). Journal of Epilepsy Research, 2014; 4(2): 39-44.