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Research Article

Demographic Factors Associated With Idiopathic Epilepsy

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Abstract: To study various demographic factors associated with idiopathic epilepsy. This cross - sectional observational study was conducted in a tertiary care hospital in central India from September 2013 to August 2014. 125 children with idiopathic epilepsy between 5 to 15 years were included. Ethical clearance was taken from institution Ethical Committee. All relevant data like socio economic status, family history, consanguity etc and the detailed examination were filled in predesigned proforma. Data was analysed by observed frequency and percentages [SPSS version 20]**.** The results are 54.4% cases were in the age group of 5-9 years. Sex ratio was1.9:1(M: F). 56.8% cases belonged to urban area while 43.2% to rural area. As regards educational level of parents, 12.8% mothers were high school passed and only 4% mothers were post Graduate. Among fathers of CWE, 26.4% were illiterate. 61.6% belonged to upper middle class. Positive family history of seizures was found in 53 cases (42.4%). Consanguinity was found only in 4 cases (3.2%) cases. In conclusion Epilepsy can affect quality of life of an individual and lead to development of co-morbidities most of which are preventable. Hence, a detailed history and thorough clinical examination should be done in all CWE so that these factors can be addressed early so as to improve the overall outcome and quality of life in CWE.
Keywords: child with epilepsy (CWE), idiopathic epilepsy.

INTRODUCTION

Prevalence of epilepsy is high in developing countries due to poor peri-natal care, higher incidence of neuro-infection, injury and poor nutrition and lack of awareness. The prevalence of epilepsy globally is 4-5/1000 where as in India it is 2.5-13 % [1]. It is affected by various demographic factors e.g. age, sex, race and religion. It is more common in young children. Other factors which affect occurrence of epilepsy are nutrition, education and socio economic status [2].

Epilepsy can affect the child's quality of life in many ways, cognitive impairment being a common co morbidity [3]. Epilepsy was defined conceptually in 2005 as a disorder of the brain characterized by an enduring predisposition to generate epileptic seizures [4]. In the vast majority of children, the long-term prognosis of idiopathic epilepsy is favorable [5]. This study was conducted in view of understanding various demographic factors associated with idiopathic childhood epilepsy and to screen these children to identify the co –morbidities and counsel the caregivers about them.

AIMS & OBJECTIVES

To study various demographic factors associated with idiopathic epilepsy in children visiting a tertiary hospital in Central India

MATERIAL AND METHOD:

This cross- sectional observational study was conducted in the Department of Paediatric Medicine, Kamla Nehru Hospital, Gandhi Medical College Bhopal (M.P.) in which 125 children with epilepsy either admitted or attending outpatient department were included. Ethical clearance was taken from the institution Ethical Committee. Study duration was of one year, from September 2013 to August 2014. Children with diagnosis of epilepsy defined as two or more than two unprovoked

Seizures (EEG and clinically proven) 24 hours apart, between 5-15 years, and taking treatment for at least 6 months were included in the study. Cases having primary neurological and medical conditions like mental retardation, cerebral palsy, hypothyroidism, developmental delay, inflammatory granulomas , stroke etc were excluded.

Sample size calculation was done by the formula $N=4pq/L^2$, where N is sample size, P is

prevalence (8.5) and L is allowable error (5). A sample size of 125 was obtained by applying the above formula. All relevant data like age of children with epilepsy, sex, socio economic status, literacy level, family history, consanguity etc were noted and along with detailed examination findings were filled in a predesigned proforma. data were noted by observed frequency and percentages [SPSS version 20].

RESULTS

In the present study, prevalence of epilepsy was found to be 8.5%. Majority of epileptic children were male with M: F ratio of 1.9:1. 71(56.8%) cases belonged to urban area while rest 54(43.2%) cases belonged to rural area. According to modified Kuppu swamy classification, we found that most children i.e. 77(61.6%) belonged to middle class. Out of 125 CWE, 103(82.4%) cases had BMI <22, thus having under nutrition (Table-1).

Table-1: Demographic profile of Cases

S. No.	Characteristics	Observed frequency		Total
1.	Age	5-9 yrs 68(54.4%)	10-14yrs 57(45.6%)	125 (100%)
2.	Sex	Male 82(65.5%)	Females 43(34.4%)	125 (100%)
3.	Habitat	Urban 71(56.8%)	Rural 54(43.2%)	125 (100%)
4.	Socioeconomic status	Middle class 77(61.6%)	Lower class 48(38.4%)	125 (100%)
5.	BMI	<22 103(82.4%)	>22 22(17.6%)	125 (100%)

Education wise, we found that only 7 (5.6%) cases were school dropouts and the rest were still pursuing education. As regards the parental literacy status, 35(28%) mothers were illiterate, 16(12.8%) mothers were high school passed and only 5(4%) mothers were post Graduate. Similarly, when we observed educational level of fathers of CWE, 33(26.4%) fathers were illiterate, 22(17.6%) fathers were high school passed, and only 1(0.8%) father were post Graduate (Table 2). Regarding family history of epilepsy, 53 cases (42.4%) had a positive family history of seizures. In the study, 60 cases (48%) were diagnosed at the age of 5-10 years and rest 65 cases (52%) were diagnosed at the age of 10 to 15 years. H/o consanguinity was noted in only 4 (3.5%) of the case.

Table-2: Analysis of educational status of mothers, fathers and cases

S. No.	**Education of mothers**	**Observed No**	**Percentage**
1.	Illiterate	35	28%
2.	Primary	31	24.8%
3.	Middle	38	30.4%
4.	High School	16	12.8%
5.	Graduate	00	00%
6.	Post Graduate	05	4%
	Total	125	100%
S. No.	**Education of fathers**		
1.	Illiterate	33	26.4%
2.	Primary	18	14.4%
3.	Middle	32	25.6%
4.	High School	22	17.6%
5.	Graduate	19	15.2%
6.	Post Graduate	01	0.8%
	Total	125	100%
S. No.	**Education of CWE**		
1.	Dropouts	07	5.6%
2.	K.G.	07	5.6%
3.	Primary	66	52.8%
4	Middle	45	36%
	Total	125	100%

DISCUSSION

Prevalence of epilepsy in our study was found to be 8.5% which was comparable to national prevalence standards [6]. Male preponderance for epilepsy was more with an overall male female ratio of 1.9:1 which is similar to a study done by Chen CC 2012 [7] Higher incidence in females was found in another study Huseyinoglu *et al.;* [8] Radhakrishnan found that sex specific prevalence did not differ significantly [9].

In our study 56.8% cases belonged to urban area while 43.2% cases belonged to rural area. On the other hand, Shah *et al.;* in their study found that the prevalence of epilepsy was more in rural area (3.49/1000 vs. 2.96/1000) [10].Pal *et al.;* in 2010 found that no difference was seen for place of residence (urban vs. rural) of the epileptic families [11].

Radhakrishnan *et al.;* [9] in their study found that individuals with epilepsy had a history of being school dropouts and could not be properly educated, but in our study only 5.6% cases were school dropouts.

While going through literacy profile of parents, it was found that only 4% of mothers and 0.8% of fathers were post graduates with most mothers (28%) and father (26.4%) being illiterate . Nidhi Vaid *et.al;* [12] also found that epilepsy is strongly associated with poor education.

In our study we found that most cases (61.6%) belonged to middle class. Similar results were shown in study done by N E Bharucha *et al.;* [13] But Shah *et al.;* [14] found that out of 49 cases the prevalence of epilepsy was highest in upper lower class (prevalence 3.89/1000) and lowest in lower middle class (prevalence 2.78/1000) and Nidhi Vaid *et al.;* [12] in their study in Ethiopia found that epilepsy is strongly associated with markers of poverty. Hereditary factors play a major role in the etiology of idiopathic generalized epilepsies. Many studies have also strongly proposed that genetic factor have a role in epilepsy [15]. In our study we found that 53 cases (42.4%) had a positive family of epilepsy. H/o Consanguinity was found in only 4 (3.2%) cases. Kumar *et al.;* [16] found that consanguinity is a important risk factor for epilepsy.

In our study we found that most children with epilepsy (82.4%) were having BMI < 22 showing under nutrition, thus reflecting the health status. Nadkarni *et al.;* found compromised QOL in Indian children with epilepsy, associated both with non-modifiable factors (demographic factors like socioeconomic status, maternal education, residence) as well as modifiable factors (seizure related variables like seizure frequency, number of antiepileptic drugs, etc.). Psychosocial and behavioral functioning was found to be highly affected suggesting that QOL should be an important outcome measure in management of CWE, rather than only seizure control [17].

CONCLUSION

Epilepsy can affect quality of life of an individual and lead to development of co-morbidity. Comprehensive epilepsy care must include screening and treatment for associated medical and psychological conditions, even if seizures remit. Literacy of parents has a great significance for understanding the patho physiology and triggering factors of the disease by the caregivers, and making the child with epilepsy more compliant. Also, CWE can be educated at par with other children if they are identified early, get proper intervention and appropriate therapy. Consanguinity is an important risk factor for epilepsy and it can be avoided in future generations if parents are properly counseled. The goal of management of children with epilepsy should be to enable the child and the family to lead a life as free as possible from the medical and psychosocial complications of epilepsy. Thus, comprehensive care needs to go beyond simply trying to control seizures with minimal adverse drug reactions. Seizure frequency and severity is only one important outcome variable. As occurrence of idiopathic epilepsy is affected by various factors, a detailed history and through clinical examination should be done in CWE so that modifiable factors can be addressed early so as to improve the overall outcome in these children.

Other factors such as social, psychological, behavioral, educational, and cultural dimensions of their lives affect children with epilepsy, their families and their close social networks.

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