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Prevalence of psychosocial problems in children with and without epilepsy: A comparative cross-section study.

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ABSTRACT… Objectives: To compare the prevalence of psychosocial problems in children with and without epilepsy. **Study Design:** Comparative Cross Sectional study. **Settings:** The Children's Hospital and The Institute of Child Health Multan (CH & ICH). **Period:** July 2019 to December 2019. **Material & Methods:** Fifty-nine patients of either gender, 5 -12 years of age, diagnosed as Epilepsy were included in group A. For the group B the patient of same number, age and gender without epilepsy visiting the general outpatient department of the hospital with acute illness were included. The children having known psychiatric disorder, and intellectual disability were excluded. Educational level of parents, socioeconomic status, Time of onset, type, outcome of epilepsy, number of antiepileptic medicines used and EEG findings were noted. Intelligence Quotient of each patient was calculated. A Pediatric Symptom Checklist was used for psychosocial problems in all children. Data was analyzed by using SPSS version 20. **Result:** Out of 118 patients (59 in group A and 59 in group B), 68% (n=73) were male. Mean age of the participants was 10.2years (st dev.±11.1). Patients age ranging between 5-9 years constituted 32% (n=38) while 68% (n=80) were more than 9 to 12 years. Most of the children belonged to low socioeconomic status 66% (n=78). Educational level of parents was below matric in 67.8% (n=80) and 32.2% (n=38) were above matric. In Group A 64.41% (n=38) patients had generalized tonic clonic type of epilepsy, 28.81% (n=17) partial/ focal type and 3.39% (n= 2) myoclonic type. In 42% (n=52) of patient's epilepsy was controlled while in 58% (n=7) patients it was uncontrolled. Psychosocial problems were detected in 59.3% (n=35) patients in epileptic group A while in 23.7% (n=14) in non-epileptic group B. Single use of antiepileptic was important factor causing psychosocial problems in epileptic children. **Conclusion:** Psychosocial problems are more common in Epileptic children, so psychological evaluation and management must be integral part of their therapy.

Key words: Epilepsy, Intellectual Disability, Psychosocial Problems.

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INTRODUCTION

Epilepsy is the most common neurological disorder in children. Its estimated worldwide prevalence is 0.5-2.2%.[1,2] Epilepsy is defined as "two or more seizures occurring at least 24 hours apart unprovoked by any immediate identifiable cause, regardless of antiepileptic management".[3] The international Classification of Epileptic seizures divide the epileptic seizures into FOCAL (partial) and GENERALIZED seizures. Focal (partial) seizures are further divided into Focal sensory seizures and Focal motor seizures, while generalized seizures are further classified into Tonic clonic seizures, Clonic seizures, Tonic seizures, Myoclonic seizures, Atonic seizures, and epilepsy syndromes.[4]

Children with epilepsy are at higher risk for psychosocial problems like cognitive, emotional and behavioral. Family members especially parents are badly affected by the stress caused by the disease.[5] Although psychiatric disorders are very frequent in children with epilepsy, these disorders remain undiagnosed and untreated.[6,7] The reason for these behavioral problems in epileptic patient is may be due to dysfunction of central nervous system, as demonstrated in study.[8]

The" Pediatric Symptom Checklist "is a 35-item parent-report scale that has been demonstrated for detection of psychosocial problems (cognitive, emotional and behavioral).[9] It is established by Jellinek, et al as screening tool for psychological and behavioral problems in children with fair validity and reliability.[10]

Epilepsy has been remained the socially noticeable stigma since the ages, because it is not easy to understand, in spite of improved education and increasing awareness.[11] It is the one of the conditions which not only affect the person having epilepsy but whole family, this is not only due to physical burden of epilepsy but also because of cognitive and psychiatric problems which an epileptic person suffers.[12]

Psychosocial problems in children may lead to a vicious cycle of poor medication compliance leading to uncontrolled epilepsy and further enhancing psychosocial problems. The aim of this study is to identify the psychosocial problems in children with epilepsy and to compare psychosocial problems in children with and without epilepsy.

MATERIAL & METHODS

This comparative cross-sectional study was carried out in outpatient department of CH&ICH Multan from July 2019 to December 2019. In this study we made 2 groups A & B. Group A included 59 epileptic patients of 5 to 12 years of age, of both gender and presented to Rehabilitation services unit. For the group B we enrolled the patients of same number, age and gender without epilepsy visiting with acute illness (upper respiratory tract infection, gastroenteritis, urinary tr act infection), to the general outpatient department of the hospital. The children of both groups were matched as closely as possible. The children having known psychiatric disorder, refractory epilepsy, and intellectual disability, were excluded.

Parents/guardian were detailed about the study and prior written consent was taken. The study was approved by institutional ethical committee. No conflict of interest was involved in this study. No financial support was provided by the institution or pharmaceutical company. A detailed history was taken from parents/guardian and patients. Complete neurological examination was done in all patients.

Patient was labelled as epileptic when he or she had two or more afebrile seizures occurred at least 24 hours apart unprovoked by any immediate unidentifiable cause regardless of antiepileptic management. Detail of seizures was taken from eye witness of the seizures. EEG of all enrolled cases was carried out from Neurology department. Type of epilepsy was determined by clinical presentation on history and EEG findings.

Cognitions of the patients was also assessed by using Slossen intelligence scale by our psychologist. Patient having intelligence quotient less than 70 were not included in the study. Socio economic status was also assessed by monthly income. Family having monthly income less than 20,000 was labelled as low status, family with monthly income between 20,000 to 50,000 labelled as middle status while the family with monthly income more than 50,000 labelled as high status. Educational level of parents was noted, whether above or below matric. Time of onset of epilepsy was also noted whether onset below 3 years of age or above. Epilepsy control was determined by the fit free time period more than twice of time period with fits. Number of medicines used by patient to control the fits were noted.

For psychosocial problems a" Pediatric Symptom Checklist "was used. This checklist facilitates the recognition of cognitive, emotional and behavioral problems. The checklist contains 35 items that are rated as "Never" "Sometimes" or "Often" scored "0" "1" and "2" respectively. We labelled "Never" if symptom not present ever. We labelled "sometimes" or "often "if symptoms occurred less than or more than 3 times in a weak respectively. The total score is calculated by adding together the score for each of 35 items. The children ages 6 through 16, a cutoff score of 28 or higher indicates psychological impairment. For children ages 4 and 5, cutoff score is 24 or

higher.

All information was recorded on already designed Performa for final analysis. Data was analyzed by using SPSS version 20. Result was calculated in mean and standard deviation for quantitative data, frequencies and percent for qualitative data. Chi square test was used. A probability value of less than or equal to 0.05 was considered statistically significant. Prevalence ratio (ODDS ratio) with 95%confidence interval of all variables were calculated.

RESULTS

Out of 118 patients 59 were in group A and 59 group B.32%(n=45) were females and 68%(n=73) were male.32%(n=38) patients were age ranges between 5 to 9 years while 68%(n=80) more than 9 to 12 years, with mean age of 10.2years (st dev.±11.1) There was no significance between both groups regarding age (p-value<0.29).

Educational level of parents of 67.8% (n=80) patients was below matric while 32.2% (n=38) above matric. 66% (n=78), 32.3% (n-38) and 1.7%(n=2) patients belonged to low, middle and high socioeconomical status respectively(Table-I). Other characteristics are shown in Table-I.

Amongst the group A 64.41% (n=38) patients had generalized tonic clonic type of epilepsy, 28.81%(n=17) partial/focal type, 3.39%(n= 2) myoclonic type, while 3.39%(n=2) were others (Absence, Atonic). Data regarding outcome, Onset of epilepsy, number of medicine used and EEG findings of children of group A are shown in Table-II.

The determinants of psychosocial problems in children with and without epilepsy are shown in Table-III.

The determinants of psychosocial problems in children with epilepsy are shown in Table-IV.

Characteristics	Overall (N=118)	Group A – Children with Epilepsy (n=59)	Group B – Children Without Epilepsy (n=59)
Age (in years)	**10.2±11.1**	**N %**	**N %**
Age groups			
5-9 year	38 (32)	19 (32.20)	19 (32.20)
> 9 – 12 years	80 (68)	40 (67.80)	40 (67.80)
Gender			
Male	73 (68)	22 (37.29)	23 (38.98)
Female	45 (32)	37 (62.71)	36 (61.02)
Socioeconomic status			
Low	78 (66)	42 (71.19)	36 (61.02)
Middle	38 (32.3)	16 (27.12)	22 (37.29)
Upper	2 (1.7)	01 (1.69)	01 (1.69)
Education level of Parents			
Below matric	80 (67.8)	46 (77.97)	34 (57.63)
Above matric	38 (32.2)	13 (22.03)	25 (42.37)
Psychosocial problems			
Yes	49 (41.53)	35 (59.32)	14 (23.73)
No	69 (58.47)	24 (40.68)	45 (76.27)

Table-I. Baseline characteristics of children with and without Epilepsy (N=118)

	n, %
Type	
G.Tonic clonic	38 (64.41)
Focal	17 (28.81)
Myoclonic	2 (3.39)
Others	2 (3.39)
Outcome	
controlled	52 (88.14)
uncontrolled	7 (11.86)
Onset	
Before 3yrs of age	17 (28.81)
After 3 yrs of age	42 (71.19)
No. of medicine used	
Single drug	41 (69.5)
Multiple drugs	18 (30.5)
EEG finding	
Positive	30 (50.85)
Negative	29 (49.15)

Table-II. Characteristics about Epilepsy (N = 59)

Variables	Prevalence Ratio	95% Confidence Interval	P-Value
Epilepsy			
No (Ref)	1	2.12 – 10.36	< 0.001
Yes	4.69		
Age group			
5 – 9 year (Ref)	1	0.71 – 3.51	0.29
>9 – 12 year	1.57		
Gender			
Male (Ref)	1	0.36 – 1.66	0.52
Female	0.78		
Education level of parents			
Above matric (Ref)	1	0.71 – 3.51	0.27
Below matric	1.57		
Socioeconomic status			
Middle (Ref)	1	0.80 – 3.95	0.16
Low	1.78		

Table-III. Logistic regression analysis for the determinants of psychosocial problems in children with and without epilepsy (N=118)

DISSCUSSION

In the present study we assessed the psychosocial problems in children with epilepsy by using pediatric symptom questionnaire of 35 items. We found that Psychosocial problems were detected in 59.3% patients in epileptic group while in 23.7% in non-epileptic children. Epileptic group has 4.96 higher prevalence ratio of psychosocial problems including Cognitive, emotional and behavioral problems as compared to non-epileptic group, which is also statistically significant. These findings are similar to another study conducted by Abdullah Ayidh Almutairi et al at king Abdul Aziz Medical city in Riyadh Saudi Arabia.[13] Rutter et al also reported the psychiatric problems in children with epilepsy.[14] Studies done by Davies et al[15], Sillanpaa et al[16], B Hoie et al[17] and Lin JJ, Mula M & Hermann BP18 RoosRodenburg[19] reported the same findings.

Variables	Prevalence Ratio	95% Confidence Interval	P-Value
Age group			
5 – 9 year	1	0.36 – 3.31	0.88
>9 – 12 year	1.09		
Gender			
Male	1	0.45 – 3.95	0.60
Female	1.33		
Education level of parents			
Above matric	1	0.84 – 10.70	0.90
Below matric	3.0		
Socioeconomic status			
Middle	1	0.23 – 2.34	2.33
Low	0.73		
EEG result			
Normal	1	0.49 – 3.98	0.52
Positive	1.40		
Type of Epilepsy			
Others	1		
Generalized Tonic clonic	2.17	0.27 – 17.27	0.46
Partial	0.7	0.08 – 6.22	0.75
Age of onset			
> 3 years of age	1	0.23 – 2.34	0.59
< 3 years of age	0.73		
No of anti-epileptic drugs			
Single	1	0.09 – 0.94	0.04
Multiple	0.30		
Epilepsy control			
Controlled	1	0.53 – 42.37	0.16
Uncontrolled	4.75		

Table-IV. Logistic regression analysis for the determinants of psychosocial problems in children with epilepsy (N=59)

This study reported that the children using multiple antiepileptic drugs showed 70% protection against psychosocial problems in epileptic children and it is statistically significant. While age of children, gender, socioeconomical status, educational level of parents, age of onset, type of epilepsy, Positive EEG findings and good control of seizures had no significant effect for developing psychosocial problems in epileptic children. A study done by Matti Sillanpää also showed no statistical difference of both sexes to have behavior problems.[20] Sabaz et al also found no significant relation of psychosocial problems with age at the onset of epilepsy.[21] While Funda Gökgöz-Durmaz[22] and B Hoie et al[17] reported more psychiatric problems in children having generalized type epilepsy. These differences may be due to variations in selection of patients studied in different studies.

The limitation of this study was that we could not compare our findings with more previous ones as there were limited number of previous studies on this topic, study design of our study is different from others previously done, and we selected only uncomplicated epileptics with normal IQ level. Further studies must be carried out on this problem.

CONCLUSION

Psychosocial problems like cognitive, emotional and behavioral are more common in Epileptic children as compared to non-epileptics. Use of single antiepileptic drug was important factor causing psychosocial problems in epileptic children. So these patients must be referred for

psychological management along with medical treatment.

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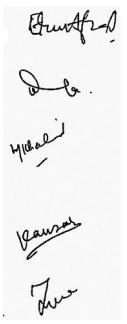
1	Erum Afzal	Literature Search, Study design, Resutls, Discussion, Final approval.	
2	Waqas Imran Khan	Data acquisition, Analysis of interpretation & final approval.	
3	M. Khalid Iqbal	Data acquisistion of interpretationof final approval.	
4	Kausar Aftab	Introduction, Results, Discussion & Final approval.	
5	Tanveer Ahmad	Introduction, Results, Discussion, Final approval.	