School enrollment and school performance of epileptic children, Fath Alrahman Neuropediatric Refer Clinic, December-January 2017-2018

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Abstract

Introduction: Epilepsy in children is a great management challenges as it is accompanied with many learning and behavioral problems, which make them more susceptible to educational under achievement. Children with epilepsy are well known of having academic difficulties even when having normal intelligence

Objective: To assess the school enrollment and performance of epileptic children and to identify the associated factors.

Methodology: An analytic cross-sectional study design was used , structured questionnaire was used to interview parents of 85 epileptic children aged 6 – 18 , it was a total coverage including all who came in the period from 17th of December 2017 to the 17th of January 2018 recruiting them while they were in the waiting room, data were presented as number and percentage and different charts and tables were used , and the results were analyzed using chi-square test taking P<0.05 as the limit of significance, using SPSS version 25.

Results: the 85 epileptic children were 51(60%) males and 34 females (40%), there are 28 children who were not attending the school, 10 children have never been enrolled in school mainly due to parental anxiety mainly. Two children were enrolled in schools for special needs. 26 children had repeated an academic year before mostly due to their disease symptoms and this tend to occur in younger children. All children were absent from school for at least one day in each month constantly due to medical follow up . One third of children who were attending ordinary school had good as their grade for the previous year.

Conclusion and Recommendation: epileptic children are facing many academic difficulties that can be eliminated by educational programmes and campaigns targeting the epileptic children, their families, the schools and the community so as to enable them to achieve the maximum of their potentials

Keywords: Epilepsy • School • Children

Introduction

In Africa epilepsy is till now considered as highly infectious disease that cannot be cured, these false fixed beliefs lead to discrimination of children and adolescents with epilepsy in schools by their fellows and their teachers. Many studies that were done in the past or more recent studies have reported problems in academic performance of children and adolescents with epilepsy when matched up to their healthy peers or others with various chronic conditions. (1)Many studies talked about school performance of epileptic children while a lot of them in a country like Sudan might not be enrolled in school or might drop out of school for their disease or many other causes. it was found that In Nigeria, more than 36% of children and 6% of adolescents with epilepsy have never went

to school whereas about half of adolescents with epilepsy who were in school abandoned school prematurely because of seizures [1,2] epilepsy has a strong effect and associated stigma in the academic environment. Improved parental and teacher education about epilepsy and the seizure safety is required to enhance school attendance of children with epilepsy [3]. The great number of children with epilepsy who had repeated a grade or had been transferred for special schools strengthens conclusions that epilepsy should be conceptualized as a medical disorder and an educational matter [4]. Several factors predisposes epileptic children to this academic underachievement including seizure related and non-seizure related variables [5].

Methodology

Study design: The study utilized an out-patient clinic based analytic cross-sectional study design.

Study area: Fath AL Rahman complex of clinics at Khartoum locality. Approximately 70-110 epileptic children come to the neuropediatric clinic each month.

Study population

Inclusion criteria: Parents of children and adolescents aged 6-18, attending Fath AL Rahman neuropediatric refer clinic each Sunday in the period from 17th of December 2017 to the 17th of January 2018.

Exclusion criteria: Parents of epileptic children and adolescents with mental retardation and cerebral palsy.

Sampling: It was a total coverage involving the parents of the all epileptic children attending the refer clinic in Fath AL Rahman neuropediatric refer clinic each Sunday in the period from 17th of December 2017 to the 17th of January 2018.

Instruments of investigation: Structured questionnaire that was approved by the department of Community medicine- university of Khartoum and the Khartoum state ministry of health. It was implemented in form of interview with the parents while they were waiting their turn to meet the doctor.

Plans for data management and analysis: The results were analyzed using chi-square test taking P<0.05 as the limit of significance, using SPSS version 25.

Ethical consideration: verbal consent was taken for the participation in the study, also a consent was obtained from the department of community medicine- university of Khartoum and the Khartoum state ministry of health.

Results

85 parents of the epileptic children were interviewed and asked about their children who were 85 , 51(60%) males and 34 females (40%) the mean value of age was found to be 10.95 years , minimum age was 6 years and the maximum age was 17 years. Age was divided into four categories (6-9), (9-12), (12-15) and (15-18). It was found that in the (6-9) category there were 27 (31.8%) children, in the (9-12) category there were 31 (36.5%) children, in (12-15) category there were 22(25.9%) children and in the (15-18) category there were only five (5.9%) children. 78.8% of the fathers didn't reach university compared to 82.2% of the mothers. Illiteracy was higher in the mothers (11 subjects (17.6%) compared to the fathers 8 subjects (9.4%). The average monthly income of the families was estimated and it was found that 52.9% have average monthly income of (1000 SP – less than 3000 SP).

Of the 85 children there are 28 (32.9%) children who were not attending the school. Among those 28 child who were not attending school there is 10(35.7%) children who have never been enrolled in school , the most common cause of those children not attending school either previously enrolled or no is the parental anxiety that it was reported with 11 child (39.3%) followed by high frequency of seizures reported in 9 (32.1%) children , child refusal for fear of stigma is reported in 4 children (14.3%) , financial causes are reported in 3 children (10.7%), school disapproval and absence of close school in the area are each reported in 2 children (7.1%) , teacher decision is reported in only child and there are also other causes that were reported by 6 (21.4%) children Table 1.

School enrollment of healthy siblings was assessed as a clue whether epilepsy was a major cause of not attending school or there were other factors. Of the 28 children not attending the school only 2 children had healthy siblings who are not attending school also, while the rest of the children (92.9%) had healthy siblings who were enrolled in the school. Almost all of the children who were attending school (the 57 (67.1%) children) were in ordinary schools that is 55(96.5%) children, while only two (3.5%) children were enrolled in schools for children with special needs.

Of the 55 children attending normal schools 26 (47.3%) children had repeated an academic year before. The most common cause of grade repetition that was reported that it is due to their disease symptoms as it is reported in 16 of the 26 (61.5%) children, followed by poor academic performance in 8 (30.8%) children. Parental recommendation and high absence rate each were reported in 3 children. School management recommendation and financial causes were not reported at all and other causes were reported in 2(7.7%) children Table 2.

All children were absent from school for at least one day in each month and absence due to medical follow up was reported in all children. Other causes include child's demand in 11(12.9%) children , seizure in the day before in 8 children , parental anxiety of having seizures at school was reported in 7 children , seizures occurring hours before going to school was reported in 5 children and teacher advice reported only in one child. The grades of the 55 children who were attending ordinary school for the previous year were excellent in 9 (16.4%) children, very good in 10 (18.2%) children, good in 19 (34.6%) children, satisfactory in 7(12.7%) children and poor in 10 (18.2%) children. 18(31.6%) children had seizure before at school and 39 (68.4%) had never have seizure at school. Association was studied between occurrence of seizures at school and grade repetition, absence from school and child's grade for the previous year. No association was found all giving p-value more than .05.

The parents of children who were attending the school were asked whether any teacher had previously recommend that the child should discontinue the school and In the 57 children attending school this was reported in only 4 (7%) children Association was studied between

Teacher recommendation for the child to discontinue school year and grade repetition, absence from school and child's grade for the previous year. The only association found was with grade repetition giving p-value of .028.

Association was assessed between age of the child and school enrollment , type of the school , repetition of a grade , absence from school , grade of the child for the previous year and previous enrollment if the child is not attending school using chi-square test and significant level of (0.05). Association was found with repetition of a grade (P-value =.044) and previous enrollment (p-value=.006), the remaining variables that were studied gave no association , all giving a p-value of more than 0.05. This higher male percentage distribution resulted in that the boys had higher frequency in each variable. association was assessed between the gender of the child and school enrollment, type of the school, repetition of a grade, absence from school, grade of the child for the previous year and previous enrollment if the child is not attending school using chi-square test and significant level of (0.05) trying to compare between boys and girl, and no association was found all giving a p-value more than (0.05) Association was assessed between the educational level of the father and the mother of the child and school enrollment , type of the school , repetition of a grade , absence from school , grade of the child for the previous year and previous enrollment if the child is not attending school using chi-square test and significant level of (0.05). No association was found at all, the p-values for all the tested association was more than .05.

The average monthly income of the family was studied as a factor that may affect school enrollment and school performance of epileptic children. Association was assessed between the educational level of the father and the mother of the child and school enrollment, type of the school , repetition of a grade , absence from school , grade of the child for the previous year and previous enrollment if the child is not attending school using chi-square test and significant level of (0.05). No association was found all giving p-value more than .05.

The mean age at the onset of the disease in those children was found to be 64.9 months. The age at onset was categorized into five categories (0-3), (3-6), (6-9), (9-12) and (12-15). It was found that 38 (44.7%) children are in the (0-3) category. The age at the onset of epilepsy was studied as a factor that may affect school enrollment and school performance of epileptic children, and association was assessed between The age at the onset of epilepsy and school enrollment, type of the school, repetition of a grade, absence from school, grade of the child for the previous year and previous enrollment if the child is not attending school using chi-square test and significant level of (0.05). No association was found all giving p-value more than 0.05. Seizure is controlled if the child had no seizure in the previous twelve months. Seizure control was assessed as it may affect school enrollment and performance. 30 children (35.5%) of those did not have seizure in the last 12 months as an indicator for their seizure control.

Table 1: Causes of not attending school either previously enrolled or not.

The cause	Frequencies	Percentage
Parental anxiety	11	39.3
High frequency of seizures	9	32.1
Other causes	6	21.4
Child refusal for fear of stigma	4	14.3
Financial causes	3	10.7
School disapproval	2	7.1
No available close school	2	7.1
Teacher recommendation	1	3.6

Table 2: Causes of Grade Repetition.

The cause	Frequencies	Percentage
Disease symptoms	16	61.5
Poor academic performance	8	30.8
Parental recommendation	3	11.5
High absence rate	3	11.5
Others	2	7.7

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Association was assessed between seizure control and school enrollment , type of the school , repetition of a grade , absence from school , grade of the child for the previous year and previous enrollment if the child is not attending school using chi-square test and significant level of (0.05) , no association was found all giving p-value more than .05.

Discussion

Those 85 children were 51(60%) males and 34 females (40%) those percentage are almost the same as in other studies where the male percentage was higher than that of female as in a study conducted by Zahia in Sudan where (61%) of children were males , a study in Nigeria in by Adewuya et al that males were (63%) , a study conducted in brazil by Aguiar that males were (68%) , and this may indicate that epilepsy is more common in males and this need more research. .

No association was found between gender of the child and the school enrollment and performance , no association found between academic performance and the gender of the child in four studies one in Brazil by Miziara and three in USA by Seidenberg, Williams and Williams while two studies in USA by Austin et al showed that boys had significantly poorer academic achievement than girls , but he attributed that the boys in the sample had more severe epilepsy than girls [6-12].

The educational level of the parents was assessed and 78.8% of the fathers didn't reach university compared to 82.2% of the mothers this compared to 78% in the study in Sudan conducted by Zahia. Illiteracy was higher in the mothers (17.6%) compared to the fathers (9.4%) as men are more educated than women in Sudan, no association was found between the educational level of the father and the mother of the child and school enrollment and performance while It was found in two studies in Brazil by Miziara and in USA by Mitchell et al [13] that when parents of epileptic children had higher educational level, the epileptic children had better academic achievement No association was found between the average monthly income of the family and school enrollment and performance similar results were found in two studies in Jamaica by Chambers [14] and in USA by Williams.

In this study Of the 85 epileptic children recruited there are 28 (32.9%) children who were not attending the school and there is 10 (35.7%) child who have never been enrolled in school. The only study concerning about whether epileptic children are enrolled in school or no that was found when reviewing the literature was also conducted in Sudan by Zahia that there were fifty four were off school of whom 41(77.4%) were not attending school due to their illness

In the 57 children attending the school only two were placed in schools for children with special needs and as their parents were asked directly they didn't have any mental or physical handicap but the parents said that they wanted them to have special care as their seizures are frequent, ,this is corresponding to what was found in the study by Zahia in Sudan , where 2 of the 44 children enrolled were placed at School for special needs, while in a study by Sandra [15] in France where more than 58% of the involved children were in specialized medical and educational institutions specialized for epileptic children. All children recruited in this study were absent from for at least one day in each month compared to 85% of patients in a study in Brazil by Aguiar.

No association was found between the age at the onset of epilepsy and school enrollment and performance , similarly no association was found between age of seizure onset and academic achievement in four studies , three studies were in USA by Bailet and Turk, Jones and Williams and one in brazil by Miziara. On the contrary an earlier age of seizure onset was associated with poorer academic achievement in two studies in USA by Schoenfeld and Seidenberg. No association was found between seizure control and school enrollment and performance likewise no association was found between seizure control and academic achievement in one study USA by Jones while one study in USA by Williams showed that epileptic children with good seizure control have significant higher score [16-18].

Conclusion

One third of the children involved were not attending school and third of them have never been enrolled while almost all of them had healthy siblings who were attending school normally. The two most common causes were parental anxiety and high frequency of seizures. Only two children were placed in schools for special needs. Almost half of children attending school had repeated a year before mostly to their disease symptoms and younger children were more likely to repeat a year. All children were absent from school for at least one day in each month frequently due to medical follow up and child's demand The majority of the children attending school scored good as their grade for the previous year. Teachers and the school administration has very minimal role in causing the epileptic child to not attend the school, repeat a year or to be absent from school while the parents were the predominant role.

Conflict of Interest

The authors declare no conflict of interest.

References

1. Adewuya, AO., et al. School performance of Nigerian adolescents with epilepsy. Epilepsia. 47. 2 (2006): 415-420.

2. Almane, D., et al. Brief clinical screening for academic underachievement in new-onset childhood epilepsy: utility and longitudinal results. Epilepsy Behav. 43 (2015): 117-1121.

3. Aguiar, BV., et al. Seizure impact on the school attendance in children with epilepsy. Seizure 16. 8 (2007): 698-702.

4. Austin, JK., et al. Does academic achievement in children with epilepsy change over time? Dev Med Child Neurol 41. 7 (1999): 473-479.

5. Sturniolo, MG., & Galletti, F. Idiopathic epilepsy and school achievement. Arch Dis Child 70. 5 (1994): 424-428.

6. Abbas, Z., et al. The quality of life among Sudanese children with epilepsy and their care givers. Sudan J Paediatr 14(2014): 51-58.

7. Miziara, C.S., et al. Impact of benign childhood epilepsy with centrotemporal spikes (BECTS) on school performance. Seizure 21. 2 (2012): 87−91.

8. Seidenberg, M., et al. Academic achievement of children with epilepsy. Epilepsia 27. 6 (1986): 753−759.

9. Williams, J., et al. Factors associated with academic achievement in children with controlled epilepsy. Epilepsy Behav. 2. 3 (2001): 217−223.

10. Williams, J., et al. Academic achievement and behavioral ratings in children with absence and complex partial epilepsy. Educ. Treat. Child. 19. 2 (1996): 143−152.

11. Austin, J.K., et al. Academic achievement in children with epilepsy or asthma. Dev. Med. Child Neurol. 40. 4 (1998): 248−255.

12. Austin, J.K., et al. Does academic achievement in children with epilepsy change over time? Dev. Med. Child Neurol. 41. 7 (1999): 473−479.

13. Mitchell, W.G., et al. Academic underachievement in children with epilepsy. J. Child Neurol. 6 (1991): 65−72.

14. Chambers, R.M., et al. Cognition, academic achievement, and epilepsy in school-age children: a case control study in a developing country. Epilepsy Behav. 33 (2014): 39−44.

15. El Sabbagh, S., et al. Impact of epilepsy characteristics and behavioral problems on school placement in children. Epilepsy Behav. 9 (2006): 573-578.

16. Bailet, L.L., et al. The impact of childhood epilepsy on neurocognitive and behavioral performance: a prospective longitudinal study. Epilepsia 41 (2000): 426−431.

17. Jones, J.E., et al. Cognition, academic achievement, language, and psychopathology in pediatric chronic epilepsy: shortterm outcomes. Epilepsy Behav. 18 (2010): 211−217.

18. Schoenfeld, J., et al. Neuropsychological and behavioral status of children with complex partial seizures. Dev. Med. Child Neurol. 41 (1999): 724−731.