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Original Article

Quality of life, anxiety and depression levels in patients with childhood epilepsy

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Abstract

Aim: Epilepsy is one of the most often neurological diseases in childhood. Children with epilepsy carry a risk of anxiety/depression. This situation has negative effects on the quality of life. This study is aimed to the evaluating of the quality of life in adolescents with epilepsy, to be determined how depression and anxiety affect the quality of life.

Materials and Methods: This study was made 48 children with epilepsy, 48 healthy controls at 12-18 ages. This is descriptive epidemiological research. Data were added with a questionnaire composed of questions about socio-demographic characteristics, Pediatrics Quality of Life, Beck Anxiety, and Beck Depression Scales. Descriptive variables were shown noun (n) and percentage (%). Categorical variables were analyzed chi-square test. The normality of continuous variables was decided with Shapiro–Wilk test. Independent T-test and Mann-Whitney U Test were used in continuous variables.

Results: The patient group's 37.5%; the control group's 54.2% are girls (p>0.05). The mean of ages (±SD) is 14.69(±1.84) in the group with epilepsy; 14.69(±1.72) in the control group. In children with epilepsy, 63.3% made monotherapy. The most used therapeutic agent is valproate. The group with epilepsy has a lower quality of life than the control (p=0.001). The group with epilepsy mean of Beck Anxiety Score is higher than the control (p=0.02). The mean of the Beck Depression Score of patients is higher than the control, but this was not significant (p=0.13).

Conclusion: The quality of life score was lower in the patient-group that conforms to a lot of studies in the literature. Therefore child with epilepsy is at risk in terms of anxiety and depression.

Keywords: Anxiety; depression; epilepsy; quality of life

INTRODUCTION

Epilepsy is one of the most often neurological diseases in childhood that comprises recurrent, unpredictable episodes named attacks. These diseases affect that not only physical function but also cognitive, behavioral, and emotional functionality. In children with epilepsy, various psychiatric problems are seen as approximately 28.6% prevalence. This prevalence increases by 58.3% in circumstances associated with epilepsy (1).

A lot of studies demonstrate that the prevalence of psychopathology in the pediatric epilepsy area, it is claimed that children with epilepsy carry a risk to 21-60% for childhood psychopathology (2, 3). Especially, anxiety and depression are seen quite prevalent; it has been shown that anxiety prevalence of 20% and depression prevalence of 23-26% come along epilepsy but unfortunately, these pathologies cannot be recognized in children with epilepsy and be treated. This circumstance causes negative effects on the quality of life (4).

Besides the attacks, psychological and psychosocial comorbidities cause lower quality of life in epilepsy patients compared to the general population (5). According to the results of the one of studies, it is claimed that 70% of patients who have not had attacks in the last year have a similar quality of life score with the healthy group (6).

One of the most important factors that determine the quality of life is the length of time passed without attacks; however, at the recent studies, it is also reported that psychological problems such as anxiety and depression associated with epilepsy, are risk factors for less quality of life (7, 8).

In the study conducted by Canuet et al. (9), it is reported that the best of determinants of the quality of life is the count of attacks and depressive symptoms; therefore, depressive symptoms affect more than three times to count of attacks on the quality of life. The severity of attacks, low socio-economic status, limited social associations, and neurocognitive problems reduced quality of life (10).

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Childhood epilepsy is one of the most common and important neurologic statuses for children. Previous studies are shown that epilepsy causes stigmatization and damages on patients' freedoms, social status, peer associations, self-esteem, psychological status, and cognitive functions in adolescents (10). İmprovement of the quality of life in children with epilepsy is one of the most important clinical management goals (11).

In newly diagnosed adolescents with epilepsy, it is claimed that the quality of life can be improved with psychological interventions to increase self-esteem (12). Therefore, it is stated that behavioral problems, depression, and the risk of developing low self-esteem decrease in the children that have a more positive attitude and response toward the disease and a greater sense of control over epilepsy episodes (13). The study made by Balkan et al. (14) is reported that children's quality of life increased after the training offered to children with epilepsy and their parents. Moreover, it is concluded that the quality of life of children with resistant and uncontrolled epilepsy is lower than the other ones.

For these reasons, this study, it is aimed to indicate the quality of life of an adolescent diagnosed with epilepsy, to determine the factors that affect the quality of life, and to determine the strongest identifiers that affect the quality of life.

MATERIALS and METHODS

This study was conducted in the Department of Pediatrics of Harran University Medical School in Sanliurfa, Turkey. At 12-18 ages, 48 children diagnosed with epilepsy and a control group with 48 healthy children was included in this study.

The study is descriptive epidemiological research. Data were gathered through a questionnaire regarding some socio-demographic characteristics, Pediatrics Quality of Life Scale, Beck Anxiety Scale and Beck Depression Scale.

Pediatrics Quality of Life Scale: This scale is a quality of life scale developed by Varni et al. (15) to measure the quality of life of 2 to 18 ages' healthy children in 1999. The scale consists of seven forms, of which four forms are parent forms for 2 to 4, 5 to 7, 8 to 12, and 13 to 18 years old children's parents, and three forms are selfreport for 5 to 7, 8 to 12, and 13 to 18 ages children. The scale examines the last mouth of the participant child and adolescent. It is a total of 23 questions examining physical health, emotional functions, social functions, and school functions. Scoring is done under three areas; total score, physical health score, and psychosocial health score formed school, emotional, and social functions. It is perceived that a higher total score is a better quality of life with health. Validity and reliability of the scale were done by Memik et al. (16).

Beck anxiety scale: This scale is a quadruple Likert-type scale ıncludes 21 items and developed to measure anxiety of persons by Beck et al. in 1998. This is applied to people over 12 years old. 'Not at all' is 0, 'mildly' is 1, 'moderately' is 2, and 'severely' is 3 points. Turkish validity and reliability of the scale were tested by Ulusoy (17).

Beck depression scale: The scale is developed by Beck et al. (18) in 1961 to measure depression violence, monitor treatment response, and describe the disease. This Likert-type scale consisting of 23 items was applied not only to psychiatric patients but also to the general population. Turkish validity and reliability of the scale were made by Hisli (19).

Statistical Analysis

IBM SPSS v.21 program was used in the analysis. In the descriptive analysis, categorical variables were shown number (n) and percentage (%); continuous variables were shown with mean, median, min., and max. The normality of continuous variables was indicated with the Shapiro –Wilk test. Categorical variables were analyzed chi-square test. To compare normally distributed continuous variables of independent two groups, Independent T-test to compare non-normally distributed continuous variables of independent two groups Mann-Whitney U Test were conducted. Statistical significance limit value was accepted $p<0.05$.

Ethical Consent

Ethical consent for this study was obtained on May 6, 2019, at the Harran University Faculty of Medicine. Participation in the research was voluntary. Informed consent was obtained from all of the participants. The data of the research was not used beyond scientific purposes.

RESULTS

In this study, 12 to 18 years old 48 children diagnosed with epilepsy, and 48 healthy controls were included. The mean of ages is 14.69 (±1.84) among the children with epilepsy and 14.69 (±1.72) in the control group. A statistically significant difference was not found among the groups about mean ages ($p>0.05$). In the diseases group's 37.5% were girls and 62.5% were boys; in the control group's 54.2% were girls and 45.8% were boys. According to the results, there is no statistically significant difference among the group's sex ($p>0.05$). Socio-demographical variables about illness and control groups were given in Table 1.

Table 2 shows based on the diagnoses, the duration of illness is a minimum of 6 and a maximum of 204 months among the children with epilepsy. İllness group's 63.3% were threatened with monotherapy. The most commonly used therapeutic agent is valproate.

In this study, As seen in Table 3, it was also found that the illness group has a significantly lower quality of life score than the control group ($p<0.05$). Also, the illness group's mean according to the Beck Depression Score, is higher than the control group's but this difference was not statistically significant ($p>0.05$).

Table 4 shows that the İllness group's mean of Beck Anxiety Score is indicated significantly higher than the control group's ($p<0.05$).

As seen in Table 5, anxiety and depression scores have negative correlations with the quality of life (p<0.05, p<0.05). Also, between anxiety score and the depression score is a positive correlation. (p<0.05).

Table 1. Patient and control groups' socio-demographic data

Socio-demographic characteristics	Patient		Control		P value
	n	%	n	%	
Sex					
Girl	18	37.5	26	54.2	>0.05
Boy	30	62.5	22	45.8	
Age					
12	3	6.3	6	12.5	
13	17	35.4	9	18.8	
14	3	6.3	5	10.4	
15	8	16.7	12	25.0	>0.05
16	6	12.5	7	14.6	
17	8	16.7	8	16.7	
18	3	6.3	1	2.1	
Age of mother					
25-34	6	12.5	2	4.2	
35-44	27	56.3	27	56.3	>0.05
45-54	13	27.1	14	29.2	
≥ 55	2	4.2	5	10.4	
Mother' education					
İlliterate	31	64.6	29	60.4	>0.05
≥ Primary education	17	35.4	19	39.6	
Father' education					
İlliterate	7	14.6	5	10.4	
Primary education	35	72.9	35	72.9	>0.05
≥ Secondary education	6	12.5	8	16.7	
Family structure					
Elementary family	37	77.1	37	77.1	
Extended family	11	22.9	11	22.9	>0.05
Monthly income of the family					
Good/average	11	22.9	15	31.3	
Poor	37	77.1	33	68.8	>0.05
Primary caregiver of the child					
Mother	26	54.2	29	60.4	
Mother and Father	17	35.4	10	20.8	>0.05
Others	5	10.4	9	18.8	
Total	**48**	**100.0**	**48**	**100.0**	

Table 2. Patient and control groups' health variables data

Characteristics of the heath	Patient		Control		P value
	n	%	n	%	
Healthy of the child					
Good	27	56.3	28	58.3	
Average/Poor	21	43.8	20	41.7	>0.05
The family's epilepsy history					
Yes	20	41.7	6	12.5	
No	28	58.3	42	87.5	**<0.05**
The family's another disease history					
Yes	14	0.29	5	10.5	
No	34	0.71	43	89.5	**<0.05**
Age at which epilepsy was diagnosed					
0-1	7	14.6	-	-	
2-5	3	6.3	-	-	-
6-11	16	33.3	-	-	
≥ 11	22	45.8	-	-	
Frequency of attack					
No attack	10	20.8	-	-	
Least once a week	6	12.5	-	-	
Once a mouth	6	12.5	-	-	
Once of six mouth	7	14.6	-	-	-
Once a year	7	14.6	-	-	
Lower than once a year	5	10.4	-	-	
Unknown	7	14.6	-	-	
Taking numbers of the antiepileptic drugs					
Not take a drug	5	10.4	-	-	
One drug	31	64.6	-	-	-
Two drug	11	22.9	-	-	
≥ Three drug	1	2.1	-	-	
Taking the antiepileptic drugs					
Not take a drug	5	10.4	-	-	
Valproate	21	43.8	-	-	
Carbamazepine	16	33.3	-	-	
Levatiracetam	10	20.8	-	-	
Topiramate	5	10.4	-	-	
Oxcarbazepine	4	8.3	-	-	
Lamotrigine	1	2.1	-	-	-
Phenobarbital	-	-	-	-	
Phenytoin	-	-	-	-	
Gabapentin	-	-	-	-	
Pyrimidine	-	-	-	-	
Vigabatrin	-	-	-	-	
Ethosuximide	-	-	-	-	

Table 3. Patient and control groups' depression and quality of life scale scores

Scale	Group	n	Mean	SD	SE	T test df	T test t	P value
Beck depression scale score	Patient	48	15.13	5.693	0.822	94	1.520	>0.05
	Control	48	13.42	5.315	0.767			
Quality of life scale score	Patient	48	64.1757	18.68720	2.69727	94	-3.560	**<0.05**
	Control	48	76.2002	14.09078	2.03383			

SD: Std. deviation; SE: Std. error; df: Degree of freedom; t: Independent Sample T – Test

Table 4. Patient and control groups' anxiety scale score

Group	n	MR	SoR	U	Z	P value
Patient	48	54.91	2635.50			
Control	48	42.09	2020.50	844.50	-2.26	**<0.05**
Total	96					

SD: Std. deviation; SE: Std. error; df: Degree of freedom; t: Independent Sample T – Test

Table 5. Correlations between quality of life, anxiety and depression

Correlations	r	P value
Quality of life – Depression	-0.59	**<0.01**
Quality of life – Anxiety	-0.52	**<0.01**
Depression - Anxiety	0.57	**<0.01**

r: correlation r value
(Correlation is significant at the 0.01 level (2-tailed)

DISCUSSION

The importance of the quality of life of patients with epilepsy is emphasized in the study. Such studies were focused usually on adults. Children and adolescents are accepted as a vulnerable group in terms of their emotional and mental functions; also, epilepsy is emphasized as an important factor affecting the emotional well-being of a person (7). Therefore, adolescents with epilepsy have a higher frequency of behavioral and psychological problems than healthy peers and persons with chronic disease (20). In some research, it was shown that the quality of life of children with epilepsy is low, but psychological risk factors remained uncertain (12,21).

The mean quality of life score was found statistically lower among the patient group than the healthy group ($p<0.05$). This result of the study conforms to a lot of studies in the literature. In a study concluded by Ekinci et al. (22) among 53 children with epilepsy and adolescents, 7-18 years old, the quality of life was indicated as certainly lower in groups with epilepsy. Moreover, it is shown that attention deficit hyperactivity disorder and insomnia accompanying epilepsy significantly decrease the quality of life of these children. The quality of life total score demonstrated similarities with the results of another study carried in England; the quality of life scores of the children diagnosed with new-onset epilepsy measured as lower than the healthy or children with asthma (12).

In this study, it was not found a correlation between the quality of life with frequencies of attack or taking the drug. In the literature is different information comes across about this subject. Fong et al. (23) also stated that the quality of life of children with epilepsy in Malaysia is low and they stated that the most effective factors for this situation are focal attacks and the frequency of these attacks.

Abbas et al. (24) specified that the quality of life of children in the study made children who have a long time of attacks and who have a long time of treatment and who received multiple treatments is lower. In another study conducted in a lot of countries in Europe, the self-report of children with or without epilepsy at 12-18 years old shows that there is no difference in quality of life; however, the report of their parent's demonstrated that the quality of life of children with epilepsy is lower in terms of emotional and bullying aspects (25).

The second important case of this study is that anxiety scores of the group with epilepsy are significantly higher; however, the depression score of the epilepsy group was higher than the control group, but not significantly. The studies of the literature highlight that children and adolescents with epilepsy are at risk in terms of psychiatric comorbidities such as anxiety and depression (20,26). It is claimed that the majority of health resources (89%) are used non-attack situations of the children and adolescents with epilepsy. Additionally, anxiety and depression increase significantly the number of emergency applications and hospitalizations (27,28). This situation indicates that comorbidities can be much more demanding and can affect the quality of life significantly.

To examine the relationship between attacks, anxiety, and depression possible mechanism behind this relation, much more studies are considered. A lot of effects lied behind, such as brain function disorders, taking multiple antiepileptic agents, especially taking phenobarbital, not getting a driver license, fear of having an attack in

the social environment, stigmatization, the family of the burden of epilepsy, and problems between adolescent and their family, as the risk factors triggered anxiety and depression of these adolescents (7,29). In this study is epilepsy correlates significantly with the anxiety score; however, is associate also depression score but not significantly. Therefore, the member of drugs used and the frequencies of the attack are correlated with anxiety and depression scores but these results are not significant. In the literature are a lot of different results about these associations.

Among the studies conducted in Turkey; a study carried with 35 patients by Oguz et al. (30), state anxiety, trait anxiety, and depression points of children with epilepsy at 12-16 years old and trait anxiety point of children with epilepsy at 9-11 years olds were found as higher than the healthy ones. In this study, the relationship between the attack time taking multiple drugs, depression, and anxiety. Bak et al. (31) indicated that the depression level of 35 children with epilepsy is higher than the healthy group; however, there is no significant difference between the two groups in terms of state and trait anxiety points. There is also a significant association between epilepsy, anxiety and depression, sex, and age. Furthermore, in the study Bilgic et al. (32) conducted with 30 children with epilepsy at 8-16 years old, it is determined that mean of state anxiety score is significantly higher among the patients with epilepsy than the control group; however, a significant difference in state anxiety and depression is not determined in the comparison of two groups. Additionally, it is obtained that male patients have higher points than female patients in all three scales they used. However, in the study, another association cannot be determined between illness-violence scale and epilepsy duration, disease starting age, and anxiety and depression levels.

In this study is it claimed that anxiety and depression score are negative correlates with the quality of life ($p<0.05$, $p<0.05$). Thus, the depression score is correlated with the anxiety score also ($p<0.05$). In the literature are different opinions associated with this subject. In the study made by Sano et al. (7), it is noted that depressive symptoms affect the quality of life much more than anxiety. Also, it is demonstrated that there exists a significantly negative correlation between the quality of life and depression and anxiety. Eddy et al. (21) highlighted a negative correlation between anxiety and the quality of life; however, they did not find a significant association between depressive symptoms and the quality of life.

CONCLUSION

Epilepsy among children not only affects the quality of life but also is associated with depression and anxiety. In the literature, most studies investigated the relationship between the quality of life, anxiety, and depression. Considering the different results obtained by those studies, the relationship between the quality of life, anxiety, and depression ought to be examined with a larger sample. The literature should be reviewed frequently to conduct an effective intervention.

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