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RESEARCH ARTICLE

A Prospective Observational Study on Depression in Epileptic Patients

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ABSTRACT:

Objective: To assess the incidence of depression in patients with epilepsy and also to assess their health related quality of life (HRQOL). **Method:** A prospective observational study was conducted in a multi-specialty hospital, from October 1st 2016- march 1st 2017. Adults diagnosed with epilepsy who were on AED's for at least 3 months were included in the study with informed consent. Rate of depression was determined using the Hamilton Rating Scale for Depression (HAM-D). Quality Of Life in epilepsy patient was evaluated using patient weighted quality of life-10 (QOLIE-10 P) questionnaire. **Results:** A total of 59 patients were included in the study where 54% were male (n=32) and 46% were female (n=27). Mean age of the patients was obtained as 42.6 ± 3.25 (Mean±SD). Moderate depression was found to be prevailing more among the study population (n=20, 33.89%) and it was found mostly in males (n=12, 20.33%) than compared to females. There is no significant difference (P<0.05) based on analysis of seizure type in patients with or without depression. QOLIE-10 P scores were low with a mean of 23.41± 12.47. Most of the epileptic patients presented with a low QOL score (n=26, 44%) which implies lower quality of life. **Conclusion:** This study demonstrates that depression has a significant impact on the quality of life in epileptic patients. Therefore, proper management for depression should be provided in order to improve the health related quality of life (HRQOL) in epileptic patients.

KEYWORDS: Epilepsy, Health Related quality of life, depression, seizure, anti-epileptic drugs.

INTRODUCTION:

Epilepsy is due to recurrent episodes of seizures which is a result of abnormal firing of cortical neurons. It is a common neurological disorder which has deep physical, social and economic repercussions for both the patient and environment. Mortality rates among epilepsy patients have been shown to be high as 90.9 per 1000 persons in a year[1]. It is also a chronic condition which also has liaison with several other neurological disorders such as stroke, migraine and psychiatric disorders which are considered to be the most prevalent comorbid disorder in patients with epilepsy (PWE)[2]. Clinical evidences have shown that depression tends to exert an influence in the health status in patients with epilepsy (PWE). In patients who presents with recurrent seizures, depressions tends to have a stronger association with the quality of life. Patients with epilepsy have a higher concordance to develop depressive symptoms and disorders when compared to a normal population[3]. Chronologically it ranks fourth among other common neurological disorder and is seen globally. It is considered as a public health problem by World Health Organization (WHO). It affects about 50 million people worldwide and India is home to about 10 million people with epilepsy (prevalence of about 1 %), higher in rural as compared with urban area. QOL was defined by WHO as "individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns"[4]. QOL is a concept based on the subject's perspectives and experiences, and involves physical, psychological, social and cultural components, which contributes to patient's adjustment to his condition

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and impacts the perceptions in his life[4, 5]. Several studies have reported that people with epilepsy have a QOL compared to general population[6]. The frequency and seizure severity, adverse effects of AEDs, seizure worry, mood status, physical, cognitive and psychosocial limitations including dependence of caregivers are the determinant aspects which are frequently assessed by QOL inventories[7].

Epilepsy has a crucial role on the health of a patient. Self-reported physical and mental health-related quality of life (HRQOL) measures are useful in viewing and safe-guarding the impact of epilepsy on patients with epilepsy. Depression is the frequent comorbid disorder found in epileptic patients. Depression in epilepsy has temporal links with seizures, but inter-ictal depression is found to be more predominant[8]. It is considered as a common comorbidity, yet it is often unrecognized[9]. A world health organization (WHO) report suggested that 10% of global burden of brain and mental disordersis mainly caused by epilepsy[10].

MATERIALS AND METHODS:

The study was conducted as a prospective observational study in a multi-speciality hospital for a period of 6 months. Ethical clearance was obtained from the institutional ethics committee of Vels University before starting the study. The study was conducted in the in-patient and out-patient department of a 180 bedded hospital. A total of 59 patients were included in the study. The inclusion criteria were patients of both genders with epilepsy of age 18 and above, who were on anti-epileptic medications for at-least 3 months. Newly diagnosed epilepsy and patients of age below 15 were excluded from the study. The data sources for the study was collected from case reports, treatment chart and lab reports in a specially designed proforma containing relevant details such as demographics (age, sex and outcomes of the patient), clinical data such as clinical diagnosis, length of stay, duration of illness, modality of treatment and presence of comorbidities due to epilepsy. Permission to do this study in the hospital was obtained from the respective medical superintendent of the hospital. Later, all confirmed patients with epilepsy visiting both the outpatient clinic and those admitted in wards were evaluated. The nature and purpose of the study was explained and full confidentiality was assured. Written informed consent was subsequently obtained from patients who consented to participate. The study protocol was approved by the institute's ethics committee.

Instruments used:

Depression was assessed by adopting the English and Tamil (local language) version of Hamilton rating scale for depression (HAM-D)[11] and quality of life in epileptic patients-10 patient weighted questionnaire (QOLIE-10P) was used for assessing the quality of life in epileptic patients.

Statistical analysis:

Data were entered into Microsoft excel (windows 10; version 2013) and Graph pad prism ® 5.0 and was subjected to descriptive analysis. Mean, percentage, standard deviation and CHI-test were computed from continuous variables. Graphical representations were used for visual interpretation of the analyzed data.

RESULT:

Demographic study of the population:

Out of the total 59 patients, 54% were male (n=32) and 46% were female (n=27). Majority of the study population were within the age of 25-54(n=29, 49%). Mean age of the patients was obtained as 42.6 ± 3.25 (Mean±SD). With respect to marital status, there was 35 married patients (59%) and 24 unmarried patients (41%). With regard to the type of seizure presented by each patient, 21 patients (36%) presented with generalised epilepsy, 14 patients (24%) presented with complex partial epilepsy, 11 patients (19%) presented with simple partial epilepsy and 13 patients (22%) presented other types of epilepsy as given in (Table 1).

Therapy related details of the study population:

With respect to the type of therapy, 25 patients (42.37%) receive mono-therapy, 19 patients (32.2%) receive poly-therapy with 2 drugs, 12 patients (20.3%) receive poly-therapy with 3 drugs and 3 patients (5.08%) receive poly-therapy with 4 drugs thus showing poly-therapy with 4 drugs were given to the least number of patients as depicted in (Table 1).

Severity of depression among the study population:

Based on HAM-D scale, 7 patients (11.86%) were normal, 16 patients (27.11%) have shown mild depression, 20 patients (33.89%) have shown moderate depression, 12 patients (20.33%) have shown severe depression and 4 patients (6.77%) have shown very severe depression as given in table 1. With regard to the gender and severity of depression, the male population (n=32), moderate depression tends to be common and is found in 12 patients (20.33%) and among the female population (n=27), mild depression tends to exist more and is found in about 11 patients (18.64%) as shown in figure 1. Based on the analysis of epilepsy type in patient with or without depression there is no significant difference identified ($P<0.05$) as in (Table 2). This shows that type of seizure is a predictor for depression in epilepsy patients.

QOLIE-10 P scores among the study population:

The quality of life in epileptic patients was assessed using QOLIE 10-P. The overall QOLIE 10-P score was 3.08-55.37 on a scale of 100 with a mean of 23.41±

12.47 (Mean±SD). Most of the patients in the study had a low QOL score (n=26, 44%) which implies lower quality of life. Optimal QOL score was shown as equal to low QOL SCORE (n=25, 42%). High QOL score was shown in the least number of patients (n=8, 14%) as shown in (Table 3), which indicates that patients with epilepsy had a comparatively lower quality of life when compared to general population.

DISCUSSION:

In this study, the HRQOL score for people with epilepsy (PWE) who had been on AED's and the rate of depression prevailing among the study population was determined. Epilepsy is considered as a disorder that is seen in equal proportions among all age groups. Ruth et al in his study indicated that the most prevalent comorbidity in the EPIC (Epilepsy comorbidity and health) Survey was depression, reported by 32.5% of cases[12]. The objective of the study is to identify the epileptic patients undergoing depression and to assess their health related quality of life. During a 6 month study period, 59 epileptic patients were analysed. Data was collected and summarized accordingly. The study population consisted of 32 males (54%) and 27 females (46%). Majority of the study population were within the age of 25-54(n=29, 49%). Mono-therapy has been considered as the gold standard for managing epilepsy with an average of 30% of patients undergoing the same and becoming seizure free with its administration[13].

However the patients who are not responding to mono-therapy were prescribed with 2 or more drugs resulting in poly-therapy with an aim of controlling seizures. Often poly-therapy is associated with complex treatment regimens and it also can affect the quality of life in patients with epilepsy. Secondly, patients on poly-therapy have lower seizure frequency but was associated with lower mental functioning[14]. In this study mono-therapy was given more when compared to poly-therapy. Samart N et al in his study also have shown that patients with mono-therapy with AED's are more when compared to those with poly-therapy[15]. Identifying the severity of depression as a factor affecting the quality of life is important in patients with epilepsy. Depression tends to exist among patients with epilepsy (PWE). Depression even tends to vary among the gender. Hamilton depression rating scale was used to study the depression prevailing among the study population[11]. Among the study population, males (n=32) showed a higher incidence of depression (n=28, 4-normal) when compared to females (n=27) with lower incidence of depression (n=24, 3-normal). When the depression was compared with the type of seizure present among the study population, it showed no significant difference among the population ($p<0.05$) suggesting that seizure type was not an evident predictor for depression. When compared to the study of Ting et al, it is evident that seizure type was a strong predictor for depression in epileptic patients contrary to the above study[16].

QOLIE- 10P scores allowed the assessment of quality of life in patients with epilepsy. In this study we also estimated the HRQOL score in patients with epilepsy (PWE) who had been on anti-epileptic drugs (AED's) for at least three months and also determined the severity of depression undergone by the patients. HRQOL mean score for patients with epilepsy on AED's was 23.41± 12.47on a scale of 0-100. This score was found to be very low thus indicating a lower quality of life for those suffering from epilepsy. Physical, social, mental functioning plays a major role in the health related quality of life in patients with epilepsy. Lower the scores in these domains also significantly depress the overall quality of life[14]. Thus the results of this study indicate that epilepsy along with depression highly affects the quality of life in the patients. The quality of life of epileptic patients can be considerably increased by appropriate management by controlling the severity of depression associated with seizures.

CONCLUSION:

This study was performed to assess the impact of depression as well as the health related quality of life in patients with epilepsy (PWE). Results showed that patients with epilepsy had poor QOL and most of the patients undergo moderate to severe depression. This study further proves that patients with epilepsy also undergo periods of depression during their stages of treatment and some are went unnoticed and left untreated. The epileptic patient needs to be closely monitored to identify the level of depression caused by the epileptic seizures during the treatment period. Proper management for depression should be provided in order to improve the health related quality of life in epileptic patients.

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CONFLICT OF INTEREST:

The authors declare no conflict no interest.

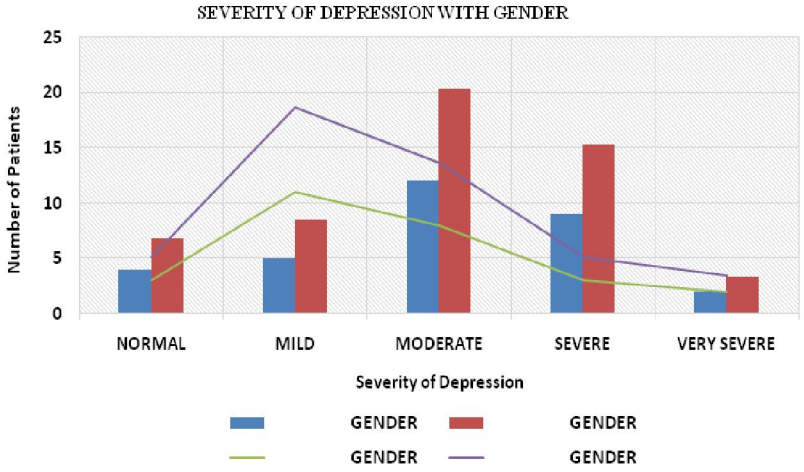

Figure 1: Distribution of severity of depression with gender

Table 1: Demographic study of patients with epilepsy

Demographics data and characteristics		Number	%
Gender	Male	32	54.23
	Female	27	45.76
Age distribution	18-24	17	28.81
	25-54	29	49.15
	55-64	9	15.25
	65 and above	4	6.77
	Mean± SD	42.6 ± 3.25	
Marital status	Married	35	59.3
	Unmarried	24	40.6
Type of seizure	Generalized	21	35.59
	Complex partial	14	23.72
	Simple partial	11	18.64
	Others	13	22.03
Type of therapy	Mono-therapy	25	42.37%
	Poly-therapy(2 drugs)	19	32.2%
	Poly-therapy(3 drugs)	12	20.3%
	Poly-therapy (4 drugs)	03	5.08%
	Mono-therapy	25	42.37%
Severity of depression	Normal	07	11.86
	Mild	16	27.11
	Moderate	20	33.89
	Severe	12	20.33
	Very severe	04	6.77

Table 2: Analysis of seizure type with depression

Type of seizure	depression		P-value
	With depression	Without epression	
Simple partial	8	3	0.28
Complex partial	12	2	
Generalized	20	1	
Others	12	1	

Table 3: Score of Quality of life in epileptic patients QOLIE 10-P

QOLIE SCORE	NO: OF PATIENTS (n=59)	PERCENTAGE (%)
HIGH QOL	8	14%
OPTIMAL QOL	24	42%
LOW QOL	26	44%

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