A Prospective Study on Prescription Pattern and Quality Of Life in Epilepsy Patients at a Private Corporate Hospital

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Abstract: *A Prospective Study was conducted in Neurology Department on Prescription Pattern and Quality of Life in Epilepsy Patients at a Private Corporate Hospital in Coimbatore, India. A total of 214 cases were found, of which 83 patients were interviewed. The analysis of the results of the study conducted for a period of nine months revealed that there were 127 (59%) male patients and 87 (41%) female patients, where more number of maleswas aged between 50 and 59 years.The drug most prescribed is injection Fosolin (Fosphenytoin) given to 82 patients (38.3%), followed by tablet Frisium (Clobazam) given to 68 patients (31.7%). The quality of life of 83 patients was assessed using epilepsy specific questionnaire QOLIE-31-P. Higher score indicate better quality and lower score reflect poor quality of life.The difference in the mean values of each subscale with gender and age was observed. The results of the mean of the subscales were observed based on gender using Student's t-test; there was not much difference in males and females. But in the case of age, it is observed using ANOVA that in the age group of above 60 years the values are the least. Thus, in this age group patients are the most distressed in case of epilepsy. Thus, this leads to poor quality of life in this age group.*

I. Introduction

[1]Epilepsy is a common medical and social disorder or group of disorders with unique characteristics. Epilepsy is defined as the repeated occurrence of sudden, excessive and/or synchronous discharges in cerebral cortical neurons resulting in disruption of consciousness, disturbance of sensation, movements, impairment of mental function, or some combination of these signs. The terms epilepsy, seizure and convulsion are not synonymous. A seizure always is a symptom of abnormal function in the CNS rather than a disease in itself. Seizures are to be distinguished from epilepsy, which is a chronic condition in which seizures occur repeatedly due to an underlying brain abnormality. A convulsion is a forceful involuntary contraction of skeletal muscles. Epilepsy may develop after a particular identifiable event (e.g., asphyxia, head injury, meningitis), in which case it is called symptomatic epilepsy, or it may develop without any identifiable cause, and then it is called idiopathic epilepsy. Sometimes the term "secondary epilepsy" was used for symptomatic epilepsy and "primary epilepsy" for idiopathic epilepsy. The terms primary and secondary are only used in relation to seizures and not in relation to epilepsy. A secondary generalized seizure is a seizure which starts in one place and then becomes generalized, while a primary generalized seizure is one generalized from its onset. [2]Epilepsy is also remarkably uniformly distributed around the world. There are no racial, geographical or social class boundaries. It occurs in both sexes, at all ages, especially in childhood, adolescence and increasingly in ageing populations.

[3,4]More than 60 million people around the world are living with epilepsy, i.e., 1% of the world's population. The number grows dramatically each year. Epilepsy affects 1 in 100 adults and 1 in 20 children. According to the Epilepsy Foundation, approximately 1 in 26 people of all ages will develop epilepsy at some point.

It is estimated that there are 55, 00,000 persons with epilepsy in India. [5]People diagnosed with epilepsy naturally wonder what impact epilepsy may have on their lifestyle. Epilepsy is not the same for everyone and it is important to start by understanding the epilepsy. The cause of epilepsy and the type of seizures will also depend on each individual. For some people, epilepsy may have little effect on their lifestyle. For other people, even a few seizures may mean that risks have to be considered and changes made. Epilepsy affects memory, thinking, social activities, relationships and emotional well-being. It even leads to depression. [6,7]Prior to 1993, the choice of anti-seizure drugs was limited to phenobarbital, primidone, phenytoin, carbamazepine, valproate, and ethosuximide. Although these first-generation anti-seizure drugs are familiar and often effective, many patients treated with them experience refractory seizures and intolerable adverse events. Since 1993, many second-generation anti-seizure drugs have been introduced, each differing in efficacy spectrum, mechanism of action, pharmacokinetics, and safety and tolerability profiles. These include: eslicarbazepine, ezogabine/retigabine, felbamate, fosphenytoin, gabapentin, lacosamide, lamotrigine, levetiracetam, oxcarbazepine, perampanel, rufinamide, stiripentol, tiagabine, topiramate, vigabatrin, and zonisamide. [11]Many of the newer agents have proven safer, better tolerated, and easier to use, with broader spectrums and reduced drug interactions than the first-generation drugs. However, despite these advances, overall efficacy of these

agents has not improved. Therefore, novel approaches to epilepsy treatment are still greatly needed. [8,9]Quality of life (QOL) is worse in epileptic patients than in the general population. QOL of patients with epilepsy depends upon effectiveness of antiepileptic therapy and disease duration. Frequency of seizures seems to be one of the most relevant determinants of poor quality-of-life scores. [16]Overall, quality of life is worse in patients with epilepsy than in the general population; it is comparable or worse in patients with epilepsy than that in patients with other chronic conditions; and it is similar to that of healthy persons when patients with epilepsy are well-controlled. [22,23,24]The management of epilepsy has traditionally focused on seizure control as the main goal for successful treatment. [26,27]The importance of assessing psychological well-being and quality of life of individuals with epilepsy, especially in developing countries has traditionally been ignored. In recent years, assessing quality of life with chronic illnesses has become an important concern. [10,12]Quality of life can be assessed by generic or disease specific measures. Generic measures assess function, disability, and distress resulting from general ill health and their main advantage is that these measures permit comparisons across illnesses, disease severity and with healthy population. However, generic measures are insensitive to the specific problems associated with each disease. Recently, a number of disease specific measures have been developed for epilepsy. Studies examining quality of life of patients with epilepsy generally reveal that they have impaired quality of life.

[17]Patients with epilepsy have relatively more compromised quality of life in the psychological, social and school domains compared to those with asthma, suggesting that these problems are specific to epilepsy and not simply the result of living with a chronic condition. It has been proved that patients with epilepsy experience significant restriction of activities leading to lower quality of life.

[18,19]Quality of life is an especially important health outcome to assess in patients with epilepsy. Despite its importance, there is relative lack of research on quality of life among patients with epilepsy. The present study assessed the quality of life of patients with epilepsy using an epilepsy specific instrument in order to provide a comprehensive treatment program for patients with epilepsy and their families

II. Methods

The study was conducted at a 700 bedded multi-specialty tertiary care teaching Hospital, Coimbatore. A Prospective cross sectional study was carried out in the Department of Neurology to find the total number of patients prescribed with anti-epileptics and to assess the Quality of life of the patients with Epilepsy. The study was conducted with expert guidance of the Clinical Pharmacy Professionals and Senior Neurologists of the study hospital. Prior permission was also obtained from Chief of concerned department. The study was conducted for a period of nine months.Patients who have been diagnosed with epilepsy were selected as per the inclusion criteria. After case identification and verification, demographic data including age, gender and medical records will be obtained from patients using structured Data Entry Form.   The WHOQOL Questionnaire was selected for the studying the Quality of life of Epilepsy Patients. It consists of seven multi-item scales that tap the following health concepts: emotional well-being, social functioning, energy/fatigue, cognitive functioning, seizure worry, medication effects and overall quality of life. There are a total of 39 questions to be answered. The total score reflects the weight of the degree of distress felt by the individual. The scoring procedure converts the answers of items to 0-100 point scores. Higher score indicate better quality and lower score reflect poor quality of life. The difference in quality of life according to gender is analyzed using student's t-test. The difference in quality of life in different age groups is assessed using one way ANOVA.

III. Results

A total of 214 cases with epilepsy were collected using Data Entry Form, of which 83 patients were interviewed. The analysis of the results of the study conducted for a period of eight months revealed that of the 214 cases collected there were 127 (59%) male patients and 87 (41%) female patients. [10]Male population was affected more with epilepsy which is in accordance with the literatures which documented that males are more prone for epilepsy.Quality of life assessment using epilepsy specific questionnaire (QOLIE-31-P) was done for 83 patients who took part in the interview.

Gender Distribution

The gender distribution revealed that more male patients were there than female patients. In this study the numbers of male patients were 127 (59%) and female patients were 87 (41%). More than half of the patients are male. This point is supported by a study conducted by [15]Pushparaja H Shetty. Several other literatures also state that the numbers of male patients are more when compared to the female patients.The representation is shown in Figure 1.
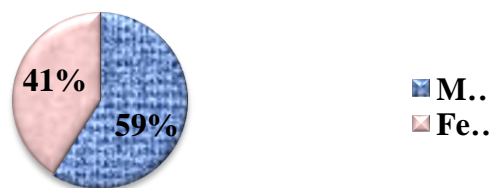
Gender

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Figure 1

Age Distribution

The age distribution of the study population revealed that maximum number of patients are between the age group of 50-59 (38.8%) followed by age group of 40-49 (26.2%). The mean age was found to be 50.53±9.815. The minimum age is 32 and the maximum age is 69 in the present study. A study conducted by [14]Sachchidanand Pathak et al in the year 2013 revealed that majority of the patients was in the age group of 40-50 years. The age distribution is shown in Figure 2. The mean, maximum and minimum age in both genders is also depicted in Figure 3.
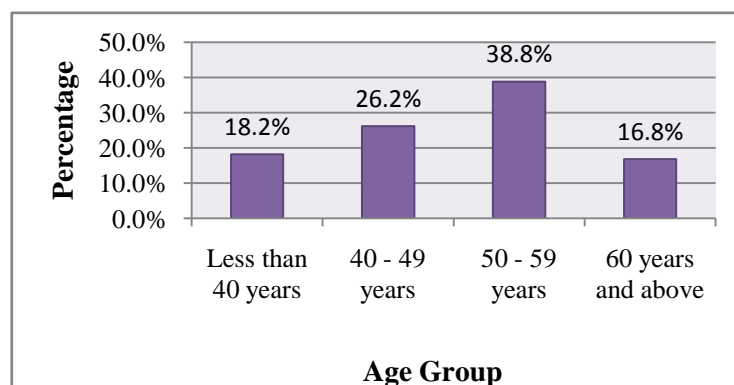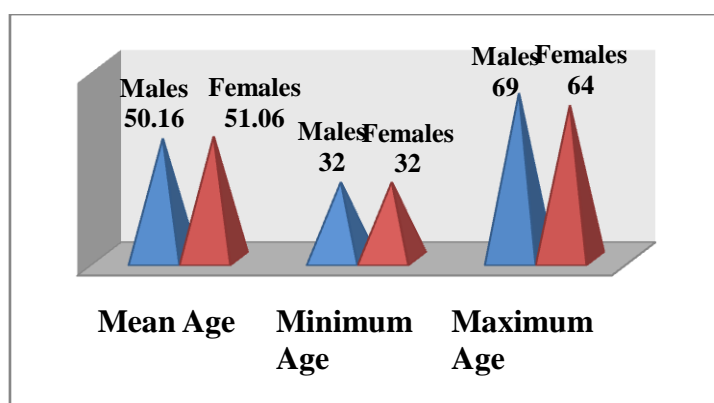

Figure 2

Figure 3

Prescription Pattern

There are many drugs used in the treatment of epilepsy. Of these, the drug most prescribed in the study site is Fosolin (Fosphenytoin), followed by Frisium (Clobazam). Fosolin in the injection form was given to 82 patients (38.3%) and Frisium was given in tablet form to 68 patients (31.7%). Thus the category of drugs most prescribed in the study site is the hydantoin derivatives followed by benzodiazepines. In other studies conducted in 2014 by [13]Ashli Raj Vettikkadan et al., phenytoin was the most common drug prescribed (92.10%) for the treatment, followed by diazepam (36.84%) and sodium valproate (7.89%). In the present study, most of the cases were generalized tonic clonic seizure, followed by simple partial and complex partial seizures. The diagrammatic representation of prescription pattern is shown in Figure 4.
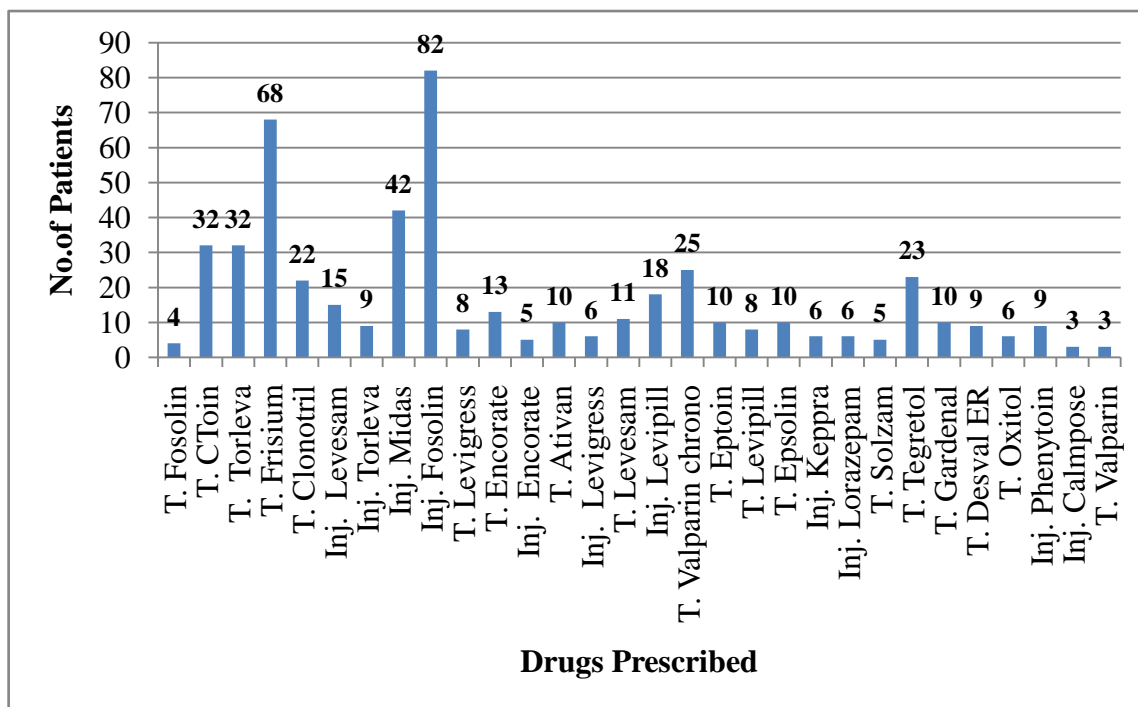
Figure 4

Quality of Life Assessment

The quality of life of 83 patients who participated in the interview was assessed using epilepsy specific questionnaire QOLIE-31-P. The questionnaire was used after obtaining permission from the QOLIE department. The quality of life of both gender and different age groups was compared. In the questionnaire used there are 7 subscales which are energy, mood, daily activities, cognition, medication effects, seizure worry and overall quality of life. The last subscale is the total score which reflects the distress of the patient. The scoring procedure converts the answers of items to 0-100 point scores. Higher score indicate better quality and lower score reflect poor quality of life. It is observed that in the age group of above 60 years the quality of life values are the least.

Table 1

Sl. No.	Subscales	t Values	Significance*
1	Energy	0.141	0.889
2	Mood	0.483	0.631
3	Daily Activities	-0.364	0.717
4	Cognition	-0.197	0.844
5	Medication Effects	0.834	0.407
6	Seizure Worry	-0.401	0.690
7	Overall QOL	0.661	0.832
8	Final Score	0.094	0.925

Thus, this indicates that in this age group patients are the most distressed in case of epilepsy. Thus, this leads to poor quality of life in this age group. The results of quality of life studies in males and females were analyzed using t-Test. This was done to find out if there is any significant difference in quality of life in both genders. If the value of p is less than 0.05 then it means that there is significant difference among both genders. Thus, the values obtained after t-Test (Table 1) proves that there is no significant difference in quality when both genders are compared.

Sl. No.	Subscales	F	Significance*
1	Energy	17.435	.000
2	Mood	20.071	.000
3	Daily Activities	17.807	.000
4	Cognition	12.421	.000
5	Medication Effects	21.616	.000
6	Seizure Worry	1.578	.201
7	Overall QOL	4.252	.008
8	Final Score	83.239	.000

Table 1

Using one way ANOVA the result of different age groups was analyzed. This is done to find out if there is any difference in the quality of life in different age groups. Except for seizure worry, the values of significance were less than 0.05 (Table 2) this reveals that there is significant difference in the quality of life when different age groups are considered. Previous studies state that the quality of life is affected to a considerable level when it comes to epileptic patients.

IV. Discussion

[25,28]Epilepsy is a neurologic disorder that negatively affects the quality of life for millions of patients. Recently there has been an increased interest in incorporating health-related quality of life measures into clinical practice. [29,30]Depending on the severity and type, epilepsy can leave an individual with impairment of physical, psychological, social and cognitive functions.

[20,21]Health-related quality of life (HRQOL) covering physical, cognitive and social functions have been emphasized as an important index of quality of life in epileptic patients; therefore, its assessment is important. The present study indicates a diminished quality of life score for physical domains of the patient such as energy and activities of daily living. These domains determine the physical well-being of the patient which affects their health related quality of life. It was evident from the study that the quality of life is greatly affected in patients above the age of 60 when compared to other age groups.

Middle aged patients (50-59 years) were the more in number and probability was more with males (59%) than females. On assessment of prescription pattern in the study site, Injection Fosolin (Fosphenytoin) was the most prescribed followed by Tablet Frisium (Clobazam). Generalized tonic clonic seizures were more prevalent than other types of seizure in the study site. Statistical analysis of results was done to find the significant variation among study groups. To analyze the quality of life with respect to gender, t-test was done and it was found that there was no significant difference in quality of life. Significant difference in quality of life was there in different age groups when one way ANOVA was done.   Hence, it is pointed out that the quality of life of epileptic patients is decreased as age advances, whereas there is not much difference when males and females are compared. To conclude, this study proves that there is significant decrease in quality of life as age increases in epileptic patients.

Acknowledgement

References

[1]. WHO. Epilepsy; 2015. Factsheet No: 999
[2]. Patricia O Shafer and Joseph I Sirven. Epilepsy Statistics. Epilepsy Foundation 2013. 523-527
[3]. Sridharan R. Epidemiology of Epilepsy. Current Science 2012; 82 (6). 664-70.
[4]. JEC. Epilepsy prevalence, incidence and other statistics 2011. 2-12.
[5]. Epilepsy Foundation of Michigan. Impact on Wellness 2011. 361-363
[6]. Lee Ventola C. Epilepsy Management: Newer Agents, Unmet Needs, and Future Treatment Strategies. Pharmacy and Therapeutics 2014; 39(11); 776-784, 792.
[7]. Dieter Schmidt. Efficacy of New Antiepileptic Drugs; American Epilepsy Society 2011; 11(1). 876-878
[8]. PrahbhjotMalhi and PratibhaSinghi, Correlates of Quality of Life with Epilepsy; Indian Journal of Pediatrics 2005; Volume 72. 131-135
[9]. HelgeMalmgren and Kristina Malmgren. Illness, experienced health and quality of life in severe epilepsy.275-279
[10]. Shanmukhi S, SitaJayalakshmi S and Anand B. Factors Associated with Quality of Life in Adult Epilepsy Patients: a Hospital Based Study from South India. Research in Neurology 2015; Volume 2015, 1-9
[11]. TaoufikAlsaadi, HaythamTaha, and Fatema Al Hammadi. Choice of Antiepileptic Drugs in Idiopathic Generalized Epilepsy: UAE Experience. Epilepsy Research and Treatment 2015; Volume 2015,956-960
[12]. Nathalia F. Siqueira , Fernando L. B. B. Oliveira, Jorge A. Siqueira and ElisabeteAbibPedroso de Souza; Quality of Life in Epilepsy: A Study of Brazilian Adolescents 2014, Volume 9 (9). 665-671
[13]. Ashli Raj Vettikkadan, AthiraJith, Krishnaveni K and Sambath Kumar R. Study of Utilization Pattern and Drug Interactions of Anti-Epileptic Drugs in a Private Hospital. Asian Journal of Pharmaceutical and Clinical Research 2014; 7(4). 164-166
[14]. SachchidanandPathak, Lalit Singh, Tanuja Singh et al. Patterns of Anti-Epileptic Drug in Different Age Group in India. Journal of Drug Discovery and Therapeutics 2013; Volume 1 (7). 69-75
[15]. Pushparaja H Shetty, Ravishankar K Naik, Saroja A O et al. Quality of life in patients with epilepsy in India. Journal of Neurosciences in Rural Practice 2011; Volume 2(1). 33-38
[16]. RomyMahrer-Imhof , Sabina Jaggi, Armanda Bonomo et al. Quality of life in adult patients with epilepsy and their family members; Seizure 2012, Volume 22 (2); 128-135
[17]. Alla B Guekht, Tatiana V Mitrokhina, Anna V Lebedeva et al. Factors influencing on quality of life in people with epilepsy; Seizure 2007. Volume 16 (2); 128-133
[18]. Sanjeev V Thomas, Samuel Koshy, CR Sudhakaran Nair et al. Frequent seizures and polytherapy can impair quality of life in persons with epilepsy. Neurology India 2005. Volume 53 (1); 46-50

[19]. Gloria Maria de Almeida Souza Tedrus, LineuCorrêa Fonseca and Rachel Marin Carvalho. Epilepsy and quality of life: socio-demographic and clinical aspects, and psychiatric co-morbidity 2013. 385-391
[20]. Valeria Edefonti, Francesca Bravi, Katherine Turner et al. Health-related quality of life in adults with epilepsy: the effect of age, age at onset and duration of epilepsy in a multicentre Italian study. BMC Neurology 2011.1-13
[21]. Gus A Baker, Ann Jacoby, Deborah Buck et al. Quality of the life in people with epilepsy: aneuropean study. Epilepsia 1997; 38: 3533-3562
[22]. Moran N F, Poole K and Bell G et al. Epilepsy in the United Kingdom: seizure frequency and severity, anti-epileptic drug utilization and impact on life in 1652 people with epilepsy. Seizure 2004. Volume 13 (6); 425-433
[23]. Roland D. Thijs and Michael P. Kerr. The outcome of prescribing novel anticonvulsants in an outpatient setting: factors affecting response to medication. Seizure 1998. Volume 7 (5); 379-383
[24]. Shih-Hui, Eng-King and Christopher et al. Pattern of antiepileptic drug usage in a tertiary referral hospital in Singapore. Neurology Journal Southeast Asia 1997, 2, 77-85
[25]. Carla Maria Maluf Ferrari, Regina Marcia Cardoso de Sousa and Luiz H.M. Castro. Factors associated with treatment non-adherence in patients with epilepsy in Brazil. Seizure 2013; Volume 22 (5). 384-389
[26]. Berto P. Quality of the life in patients with epilepsy and impact of treatment. Pharmacoeconomics 2002; 20: 1039-1059
[27]. Salgado P C B and Cendes F. The effects of epileptic seizures upon quality of life. Journal of Epilepsy and Clinical Neurophysiology 2009; 15: 110-113
[28]. Emma J. Frew, Josie Sandercock, William P. Whitehouse et al. The cost-effectiveness of newer drugs as add-on therapy for children with focal epilepsies. Seizure 2007.Volume 16 (2); 99-112
[29]. Najam-us Sahar. Assessment of Psychological Distress in Epilepsy: Perspective from Pakistan. Epilepsy Research and Treatment 2012; Volume 2012. 725-732
[30]. Venkateswara Murthy N, Anusha B and Perumal P. A Study on Trends in Prescribing Pattern of Anti-Epileptic Drugs in Teritiary Care Teaching Hospital. International Journal of Chemical and Pharmaceutical Sciences 2012, Volume 3 (2). 25-32