Assessment of quality of life in epilepsy patients receiving anti-epileptic drugs in a tertiary care teaching hospital

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ABSTRACT

Objectives: Health-related quality of life (QOL) is an important outcome in epilepsy treatment. Very few studies have been carried out on the quality of life in epilepsy (QOLIE-31) in India. The present study aimed to determine the level of health-related QOLIE-31 in patients of epilepsy.

Materials and Methods: This was a cross-sectional, questionnaire-based study conducted in a tertiary care teaching hospital. Respondents were adults aged at least 18-year-old with a diagnosis of epilepsy. QOLIE-31 was used for collecting data on health-related QOL. The unpaired t-test or one-way analysis of variance was used to compare means of QOL scores between groups.

Results: Totally, 60 patients of epilepsy were included in the study. The mean (standard deviation) total score of QOLIE-31 was 64.61. A score of cognitive and medication effect were significantly better in carbamazepine group as compared to valproate group.

Conclusions: Patients on monotherapy had a better QOL as compared to patients receiving polytherapy.

KEY WORDS: Antiepileptic drugs, carbamazepine, phenytoin, QOL, seizure, valproate

Introduction

Epilepsy is one of the common neurological disorders, which require immediate medical attention and long-term therapy. The incidence is approximately 0.3–0.5% in different world populations with a prevalence rate of five to 10 per thousand people.

The overall aim of treating epilepsy should be complete control of seizures, without causing any untoward reaction due to the medication. Patients' perceptions often take account of other parameters such as effects of epilepsy on daily activities and functions.

Epilepsy can be associated with profound physical, psychological, and social consequences; and its impact on a person's quality of life (QOL) can be greater than that of chronic conditions. People with epilepsy have been shown to report a poorer QOL because they are more likely to have poor self-esteem and a high level of anxiety and depression. In some patients, the social stigma and impact on QOL can pose a greater challenge than the clinical severity.

Health-related quality of life (HRQOL) is recognized as an important outcome in epilepsy treatment. Research assessing the QOL associated with successful treatment of epilepsy is far behind that of other chronic conditions such as cancer, diabetes, and cardiovascular disease.

Very few studies have been carried out on QOLIE-31 in India and research in this area will identify factors affecting QOL and may lead to strategies that improve the management of patients with epilepsy. This study was therefore conducted to determine the level of health-related QOL of patients of epilepsy in a tertiary care teaching hospital.

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Materials and Methods

This was a cross-sectional, questionnaire-based study conducted in a tertiary care teaching hospital from March to October 2013 after approval from the Institutional Ethics Committee. Respondents were adults aged at least 18-year-old with a diagnosis of epilepsy for at least a year. They were explained the nature and purpose of the study and necessary consent were obtained. Patients with associated psychiatric disorders, severe mental retardation, strokes, head injuries, brain tumors, and patients who had had recent brain surgery were excluded. Questionnaires were developed to collect sociodemographic data (age, sex, employment status, educational level) and clinical aspects of epilepsy (seizure frequency, duration of epilepsy, and medication). Seizures frequency was defined as the number of seizures occurring in the last year prior to the interview.

The quality of life in epilepsy (QOLIE-31) was used for collecting data on health-related QOL with the permission of the Research and Development (RAND) Corporation. It consists of seven subscales, which are seizure worry, emotional well-being, energy/fatigue, cognitive functioning, medication effects, social functioning, overall QOL, and one item of overall health.

The responses were used Likert rating scales, which were later transformed into linear scales that ranged between 0 and 100. A higher score indicates better QOL.[7]

Statistical Analysis

Data were analyzed using the graph pad prism version 5.1. Descriptive statistics were expressed as mean ± standard deviation (SD) and percentage as appropriate.

The unpaired t-test or one-way analysis of variance (ANOVA) was used to compare means of QOL scores between groups. The correlation coefficient was used to measure the relationship between seizure frequency and subscale and overall score. The level of significance was set at P < 0.05.

Results

Totally, 60 patients of epilepsy (irrespective of the type of epilepsy) were included in the study consisting of 35 men and 25 women. The mean age of respondents was 30.17 years. The range of seizures frequency in the past 1-year was 1–4 with a mean of 2.367, and mean duration of epilepsy was 6.9 years [Table 1].

The mean total score of QOLIE-31 was 64.61 [Table 2]. The highest mean score was the emotional well-being effects, 70.53 and the lowest was seizure worry subscale, 57.55. One-way ANOVA showed significant differences in the mean score of sub-scales of QOLIE-31 (P < 0.001). There were significant differences between subscales scores in post-hoc tests. The total score of seizure worry were significantly lower as compared to all other subscales in QOLIE-31 (P < 0.001). There was no significant difference in a total score among all other subscales when compared to each other in a post-hoc analysis.

There were no significant differences in the mean of total QOL scores between groups for sociodemographic and clinical characteristics except for drug therapy [Table 3]. There was a significant difference in the total score of QOLIE-31 within the monotherapy and polytherapy group. Total score of QOLIE-31 was better in monotherapy group as compared to polytherapy group.

Comparison of various subscale score and overall score between different monotherapy groups was done using one-way ANOVA [Table 4]. There was the statistical significant difference in score of cognitive effect and medication effect between the three monotherapy groups. A post-hoc analysis showed that statistical significant difference was seen between phenytoin and carbamazepine group and valproate and carbamazepine group in case of cognitive effect. Similarly, for a medication effect score was significantly better in carbamazepine group as compared to valproate group.

Table 1:
Demographic characteristics of patients with epilepsy

| Demographic parameter       | Mean±SD      |
|-----------------------------|-------------|
| Age (years)                 | 30.17±10.08 |
| Gender (male:female)        | 35:25       |
| Qualification                |             |
| <12th                       | 63.32±9.69  |
| >12th                       | 65.73±8.29  |
| Employed                    | 65.01±8.89  |
| Unemployed                  | 64.30±9.15  |
| Duration of illness (years) | 6.9±4.40    |
| Frequency of seizure/year   | 2.367±0.71  |

n=60. SD=Standard deviation

Table 2:
Total score of QOLIE-31 sub scales in epilepsy patients

| Subscales of QOLIE-31         | Mean (SD)  |
|-------------------------------|------------|
| Seizure worry                 | 57.55 (16.06) |
| QOL                           | 64.61 (13.13) |
| Emotional well being          | 70.53 (11.12) |
| Energy/fatigue                | 65.73 (12.40) |
| Cognitive                     | 64.91 (14.92) |
| Medication effect             | 67 (12.34)  |
| Social function               | 66.74 (12.46) |
| Total score                   | 64.61 (8.97) |

QOLIE=Quality of life in epilepsy, SD=Standard deviation

Table 3:
Differences of QOL score for sociodemographic characteristics and drug therapy in epilepsy patients

| Parameter                      | n (%)     | Total QOL score (mean (SD)) | P    |
|--------------------------------|-----------|----------------------------|------|
| Education                      |           |                           |      |
| <12th                          | 28 (46.66)| 63.32 (9.69)              | 0.30 |
| >12th                          | 32 (53.33)| 65.73 (8.29)              |      |
| Employment status              |           |                           |      |
| Unemployed                     | 34 (56.6) | 64.30 (9.15)              | 0.76 |
| Employed                       | 26 (43.3) | 65.01 (8.89)              |      |
| Drug therapy                   |           |                           |      |
| Monotherapy                    | 35 (58.33)| 69.10 (3.12)              | 0.0071* |
| Polytherapy                    | 25 (41.66)| 64.12 (8.65)              |      |

Unpaired t-test. Significance considered as *P<0.01. QOL=Quality of life, n=Number of patients, SD=Standard deviation
Discussion

Epilepsy has a considerable impact on QOL with extensive and life-long consequences. Improving the QOL in a person with a seizure disorder is an essential component of the management of such patients.\cite{1}

The mean total score of QOLIE-31 in our study, was almost similar to a study conducted in India\cite{2} but higher than studies conducted in Australia (52.9),\cite{3} Africa (52.1),\cite{4} and Malaysia (68.9).\cite{5}

A study in Malaysia\cite{6} has reported a higher mean total score of QOLIE-31 (68.9). Even though the majority of the studies had used QOLIE-31 questionnaire (different translations), different study methodologies with different inclusion and exclusion criteria would have accounted for the different scores. Higher score as reported in our study reflects a better standard of medical care.

The pattern of scores of QOLIE-31 subscales of our study was partially similar to the studies conducted in Africa\cite{7} and Malaysia.\cite{8} In our study, the emotional well-being subscale was highest, and seizure worry the lowest. The difference in pattern may be due to the reason that different countries have dissimilarities of beliefs, culture, and socioeconomic factors which in turn can affect QOL measures, thus findings from other countries, may not be relevant to the local situation.

There was no significant difference in the QOL scores and sociodemographic characteristics such as education and employment status. In our study, unemployment did not have any impact on QOL score because most of them fit independent category that is either students or housewives. However, other studies have reported that unemployment are often related to the state of seizure control, the age of onset and duration of illness, the type of medication, severity and frequency of seizures.\cite{9}

In our study, there was no correlation between scores of subscales and seizures frequency. This was probably because seizure frequency was almost similar in all the respondents. In general, the literature says that people with frequent seizures had significantly poorer HRQOL than those with infrequent or no seizures.\cite{10} Baker et al., reported that seizures frequency was the most important clinical predictor of psycho-social dysfunction and emotional maladjustment.\cite{11}

Longer duration of epilepsy has been reported as a predictor for poor QOL\cite{12} due to greater complications and disabilities.

Our study found no significant association between duration of epilepsy and QOL. The probable reason may be small sample size in the present study.

In our study, patients on monotherapy had a better QOL as compared to patients receiving polytherapy. Similar finding was reported in a study by Thomas et al.,\cite{13} This may be due to the fact that patients on polytherapy have more severe and complicated disease. However, in contrast to this finding, other studies have reported that there was no association between QOLIE-31 and type of drug therapy.\cite{14}

Among patients receiving monotherapy, cognitive function was least impaired in carbamazepine group. Some studies have supported that cognitive effect profile of carbamazepine is better than Phenytoin.\cite{15,16} Furthermore, scores for medication effect were better in carbamazepine group as compared to valproate group indicating that the patients in the valproate group were more worried about the side effects of the drug. This may be due to better adverse effect profile of carbamazepine as compared to other drugs.\cite{17}

Conclusions

It is evident from our study that there are many factors that influence QOL of people with epilepsy. Among them, type of drug therapy plays an important role. Patients who were on monotherapy had a better QOL mainly because of the lesser side effects. Adding clinical counseling and other interventions to address the physical, mental, psychological, social, and emotional aspects of health well-being is likely to achieve better health outcomes for epilepsy patients. Raising awareness in society regarding the existence of effective therapy through public educational campaigns might help in eliminating the stigma of epilepsy and may improve QOL of epilepsy patients.

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Conflict of Interest

There are no conflict of interest.

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