MEDICATION ADHERENCE OF EPILEPSY PATIENTS- A HOSPITAL BASED CROSS SECTIONAL STUDY IN NEW DELHI, INDIA

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ABSTRACT

BACKGROUND

In adult epilepsy patients, nonadherence to treatment regimes has been found to be associated with high morbidity, raised mortality and higher health care costs. The present study was undertaken with an aim to evaluate the medication compliance among patients undergoing treatment for epilepsy and study the factors affecting medication compliance.

MATERIALS AND METHODS

The present study was carried out as a cross sectional study among 100 patients diagnosed with seizure disorders who are already on treatment for a period of at least six months. Drug noncompliance was studied with the help a self-reported questionnaire which was derived from the Brief Medication Questionnaire. The items in the questionnaire recorded information regarding: awareness of drug therapy in terms of dose, timings and name of the drugs, missed medication, factors affecting compliance, aids to compliance, frequency of drug default and relapse. All data was entered in Epidata and statistical analysis was done using the software SPSS version 22.0. Chi square test was applied to test for statistical significance in difference between proportions. A p value <0.05 was considered statistically significant.

RESULTS

The study included 55 male patients and 45 female patients and their mean age was 31.3±17.27 years. Nearly 83% of respondents claimed that compliance would be better if number of pills is less. Off all patients 74% reported that they never missed a dose during the past seven days. No significant association was observed between age, gender, duration of illness and treatment adherence.

CONCLUSION

The gap between noncompliance and ideal drug therapy schedule needs to be addressed for adequate management of epilepsy patients. There is considerable noncompliance to drug therapy among epilepsy patients.

KEYWORDS

Adherence, Compliance, Epilepsy, Treatment.

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BACKGROUND

Worldwide epilepsy is noted to affect 70 million individuals.[1] In India, the prevalence rate of epilepsy among adults and elderly varied from 1.2 to 11.9 per 1,000 population. Also, there is an increasing burden of epilepsy in India due to socio-demographic transitions.[2] The treatment of patients with epilepsy is usually concerned towards controlling seizures, avoiding treatment side effects, and restoring quality of life. The ultimate goal of treatment in epilepsy is to empower patients with epilepsy to lead lifestyles expected from their capabilities. In adult epilepsy patients, nonadherence to treatment regime has been found to be associated with high morbidity,[3] raised mortality,[3,4] and higher health care costs.[5] Epilepsy treatment plan is patient tailored and derived from an accurate diagnosis of the patient's seizure type, measure of the intensity and frequency of the seizures and medication adverse effects. It is routinely followed that the physician impress upon the patient to follow the medications regularly, explaining the dosing and adverse effects if any. Also, a warning is given to the patient to not to stop taking medications. Non-compliance to medication for epilepsy is associated with increased risk of mortality, as well as hospitalization and injury.[4] The present study was undertaken with an aim to

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evaluate the medication compliance among patients undergoing treatment for epilepsy and study the factors affecting medication compliance.

MATERIALS AND METHODS

The present study was carried out as a cross section study among the patients attending the Department of General medicine, in Base Hospital, Delhi Cantonment. The hospital caters to all personnel serving in the armed forces and their dependents belonging to different parts of the country. The study was undertaken during the period starting from February 2018 to July 2018. The study population comprised of the patients more than 10 years of age of both gender, attending Neurology Outpatient Department (OPD) of Base Hospital Delhi Cantonment who were a diagnosed case of seizure disorder and already on treatment for a period of atleast six months. Patients who on preliminary examination when found to have cognitive impairment were excluded from the study. From all the eligible study participants attending the OPD on a given day, study participants were selected systematic random sampling technique (Every third patient registered for consultation). When a selected patient did not give consent for participation in the study, or when such a patient was already selected for the study and on follow up visit to the OPD, the next patient on the registration list was included. Drug noncompliance was studied with the help a self-reported questionnaire which was derived from the Brief Medication questionnaire.[6] Compliance to drugs was evaluated on the basis of patients' knowledge of the drug therapy through the questionnaire. The items in the questionnaire recorded information regarding: awareness of drug therapy in terms of dose, timings and name of the drugs, missed medication, factors affecting compliance, aids to compliance, frequency of drug default and relapse. All the data were collected by an interview in patients' own language by a medical graduate student, who was earlier trained on interview techniques for valid data collection. All data were entered in Epidata and statistical analysis was done using the software SPSS version 22.0. Means and proportions were calculated for all categorical and continuous variables respectively. Chi square test was applied to test for statistical significance in difference between proportions. A p value <0.05 was considered statistically significant. Institute ethical committee clearance was sought and obtained before the study was begun. Informed written consent was obtained from all patients before including them in the study.

RESULTS

A total of 100 patients with epilepsy on medication for more than 6 months duration were included in the study. The study included 55 male patients and 45 female patients and male to female ratio was 1.22:1. The age of patients ranged between 13 to 99 years. The mean age was 31.3±17.27 years. The duration of illness of the patients ranged from 0.5 years to 40 years, maximum patients had epilepsy for about a year. (Table 1)

Characteristic	Frequency	Percentage
Age (in Years)		
< 30	63	63.0
31-45	21	21.0
46-60	9	9.0
>60	7	7.0
Gender		
Male	55	55.0
Female	45	45.0
Duration of Illness (in Years)		
< 5	62	62.0
6-10	14	14.0
> 10	24	24.0
Total	100	100.0

Table 1. Distribution of Study Participants based on Demographic Characteristics (n=100)

In this study 62% of the patients knew the name of the drugs they were taking and 63% knew the dose of the individual medicines, 96% knew the time of taking the medicines. In the study 26% of patients accepted default in the last one week out of which 14% missed taking medicines once in a week and only a 6% missed it twice. We found 68% of patients who reported symptoms they attributed as side effects of the anti-epilepsy drugs, 56% have moderate, 12% have severe and 32**%** have no side effects at all. In the study 68% patients face a little and 10% a lot of difficulties in getting supply of drugs. The number of patients reporting breakthrough seizure was 59%, of which 45**%** accepted default was the cause of breakthrough. Half of respondents (55%) reported that a family member help them take medicines on time and 46% reported that consuming drugs after meals was an aid to compliance. Nearly 83% of respondents claimed that compliance would be better if number of pills to be taken were reduced and 74% reported that number of doses affected their compliance. (Table 2.)

Characteristic		Frequency	Percentage
Knows drug names	Yes	62	62.0
	No	38	38.0
Remembers the timing of dose	Yes	96	96.0
	No	4	4.0
Missed doses in last seven days	Nil	74	74.0
	< 3	20	20.0
	≥ 3	6	6.0
Hard to remember the doses	None	64	64.0
	A little	30	30.0
	A lot	6	6.0
Hard to get refill on time	None	30	30.0
	A little	67	67.0
	A lot	3	3.0

I still get unwanted side effects	None	32	32.0
	A little	56	56.0
	A lot	12	12.0
Family members help in taking medications on time	Yes	55	55.0
	No	45	45.0
Patient Perceptions			
Lesser pills would help	Yes	83	83.0
	No	17	17.0
Lesser doses would help	Yes	74	74.0
	No	26	26.0
Setting an alarm would help	Yes	12	12.0
	No	88	88.0
Total		100	100.0

Table 2. Distribution of Study Participants based on Knowledge of Therapy (n=100)

One tenth (11%) used a pill box, while 7% replied that carrying medicines along helped then and other used keeping drugs at frequently visited places (5%), cutting dates on calendar (1%), taking medicines with flavored beverages (1%) and a phone call from relatives (1%) as an aid to compliance.

No significant association was observed between age, gender, duration of illness and treatment adherence in the present study. (Table 3)

Sociodemographic Feature	**Missed a Dose in the Last One Week**		**Total**	**p Value***
	Yes N (%)	**No** N (%)		
Age (in years)				
< 30	16 (25.4)	47 (74.6)	63 (100.0)	0.541
31-45	6 (28.6)	15 (71.4)	21 (100.0)	
46-60	1 (11.1)	8 (88.9)	9 (100.0)	
>60	3 (42.9)	4 (57.1)	7 (100.0)	
Gender				
Male	17 (30.9)	38 (69.1)	55 (100.0)	0.216
Female	9 (20.0)	36 (80.0)	45 (100.0)	
Duration of illness (in years)				
<5	17 (27.4)	45 (72.6)	62 (100.0)	0.399
6-10	5 (35.7)	9 (64.3)	14 (100.0)	
>10	4 (14.7)	20 (83.3)	24 (100.0)	
Total	**74 (74.0)**	**26 (26.0)**	**100 (100.0)**	

Table 3. Association between Sociodemographic Features and Treatment Adherence (n=100)

* Chi square test was applied.

DISCUSSION

Epilepsy is one of the commonest neurological disorder in the individuals of all age group and the mainstay of treatment is taking medication. For some the duration of taking anti-epileptic drugs can be life long and hence the patient needs to be compliant enough to the drug therapy for best results. This study aims to reveal the degree of compliance among epilepsy patients at Neurology OPD of a tertiary care hospital in Northern India.

In our study the number of male (55%) and female (45%) patients participating was almost equal with patients in the age range of 13-99 years. Maximum suffering from epilepsy were in the age group of 20-30 years and the mean age was 31.34 0. Majority of patients were on therapy for at least one year.

Studies on drug compliance have been done earlier for various diseases like epilepsy, hypercholesterolemia, hypertension, bipolar disorder, renal disorders, thalassemia major etc. Study done by Joyce et al on 661 epilepsy patients using a 10 item self-reported questionnaire who have been taking seizure medication for more than 10 years shows that half of the respondents reported having a seizure as a consequence of a missed dose since starting treatment.[7] Jones RM et al conducted a cross sectional study on 54 patients using a self-reported questionnaire to investigate non adherence to antiepileptic drug treatment amongst epilepsy patients in secondary care.[8] The Morisky scale[9] was used to evaluate non adherence, it showed that seizure frequency, increased dosing and number of medications affected adherence. Study done by Kalyani P et al in South India on 60 epilepsy patients to measure drug compliance showed that factors like education, duration of illness, frequency of medication, expenditure affect compliance though 63% of the respondents were compliant and counseling was done for the same.[10] There are also variations reported in Anti-Epileptic Drugs (AED) adherence

among different countries,[11] incidentally, a study by Doughty J et al stated that 18%–53% stated that they never missed their AED medication at entry to the study.[12]

In our study 48% of patients didn't know the name of the anti-epileptics they were taking every day and 47% weren't aware of the dose as they're being treated in a government set up they accept whatever is dispensed from the hospital whereas 96% knew the time of taking medicines as it is an integral part of their day to day activities. As many as 26% reported default in a week. Although 83% said decreasing the number of pills and 74% said decreasing the dose would enhance their compliance. One sixth of patients in our study reported that they would agree to increase doses or the number of pills if a cure was possible. Furthermore, a nationwide study done on patients of schizophrenia showed majority of patients experiencing side effects and was associated with significantly reduced likelihood of adherence.[13]

Our study shows that 51% of the patients haven't missed taking medicines in the entire course of their disease till date, though 68% had symptoms which they attributed as side effects and 70% were unable to get the refill of drugs on time. Sillapaa M et al studied relapse in a longitudinal population based study in 148 patients after a planned discontinuation of antiepileptics and reported seizure relapse in 37%.[14] In our study default in 49% of the patients was identified as the major cause of breakthrough (59%) making it important for epilepsy patients to adhere to the medication schedule.

To aid their compliance, patients have devised various methods of which majority(59%) use taking medicines with meals as linking their medication schedule to their day to day activities is highly feasible .Studies done by Ridgeway K et al to investigate about better methodologies to increase adherence to antiretroviral therapy which showed collective public measures aided compliance whereas it is more personal means of aiding in our study.[14] Using a pill box (11%), carrying the pills along whenever out of the house (6%), keeping the medicines at frequently visited places in the house were the other aids reported in our study. Some reported peculiar aids such as striking dates on calendar (1%), Taking medicines with flavored beverages (1%) and relying on a phone call from family members to remind of medicines (1%).

Gurumurthy R et al[15] in their cross sectional study observed that no significant difference was observed between adherence and age, gender, and epilepsy duration. Also it was found in their study that the prime reason for nonadherence was forgetfulness. Chapman SC et al study also found no association between age, duration of epilepsy and treatment adherence.[16] Comparable results were noted in the present study also, where no significant association was observed between age, gender, duration of illness and treatment adherence

This study shows the prevalence, causes of non-compliance and factors affecting medication adherence. Some of the possible limitations of the study are that the study population is relatively small and the study has used a specific self-reported questionnaire which solely depends on the memory of the patients about the events that occurred in the course of disease, which may not be accurate enough. The study includes collection of data based on subjective interaction and hence there are chances of human error affecting the authenticity of the data.

CONCLUSION

The gap between noncompliance and ideal drug therapy schedule needs to be addressed for adequate management of epilepsy patients. There is considerable noncompliance to drug therapy among epilepsy patients. Further, research with a large population sample to explore all the possible factors contributing to noncompliance and measures for prevention of the same is the need of the hour.

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