Original Article

Factors for Noncompliance of Antiepileptic Drugs

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Abstract :

This observational cross-sectional study was conducted to understand factors for compliance of epilepsy patients. This study was done in epilepsy clinic of Department Neurology, Dhaka Medical College &Hospital, from February to June 2010. A total of 100 patients were included in the study. Epileptic patients who had been prescribed medication for more than three months were included for this study. Data collected on variables of interest were analyzed using different approaches including Chi-squared (^{2}) statistical analysis.

56% of the patients has found non-compliant at some or multiple stages of prescribed medication. 55% of noncompliant is due to monetary reason. Location, Family size and monthly income of patient's family were socioeconomic factors that had statistical significance when it comes to compliance (p < 0.05). Gender and age did not have statistical significance. It was also observed that counseling was a statistically significant factor when it observed amongst study population. Similarly patient who sought alternative treatment was found to be more non compliant. It was observed that patients on phenobarbital was found to be mostly (88%) compliant and patients on sodium valproate or phenytoin were least compliant (20%).

Introduction :

Epilepsy is more common in poor and rural area.[1]A WHO report stipulates that in South-East Asia region 50%–80% of people with epilepsy either do not receive systematic treatment or do not contact any health care institutions. Among those who are on treatment, nearly 40%–70% drop out at various stages of treatment, resulting in the recurrence of seizures.[1] Main reasons for such observation are lack of education, knowledge about epilepsy, lack of drug availability, lack of understanding importance of continuation treatment of medication, social barriers and others. The reason of non compliant varies from country to country. So it is reasonable to study the pattern of compliance. Therefore, the objectives of this study are as follows:

1. Assess the level ofpatient's noncompliance totherapeutic regimen

2. To identify causes of noncompliance

Materials and Methods :

This is an observational cross sectional study conducted at the Epilepsy Clinic in Dhaka Medical College Hospital (DMCH) to see factors responsible for the noncompliance of anti-epileptic drug (AED) regimens. Data was collected between February and June 2010 based on an interview to fill out a structuredquestionnaire. A sample of 100 patients was taken.All patient included in the studyhave beenconfirmedto have epilepsy by an expert physician and/or EEG and/or imaging. Additionally patient must have been prescribed an AED regiment for 3 months or more at the time of interview and provided consent to be part of the survey.

Operational Definition

Compliance: Those who followed prescribed treatment as provided by their physician.

Noncompliance : Includes

1. Stopped taking medication

2. Reduced or increased dose or used different medication without consent of physician

3. Followed prescribed medication but infrequently

The patient or relevant family member was asked to rate compliance based on these criteria. In this study, the patient or patient family were free to report more than one reason for non-compliance.

Results :

Total 100 patients were surveyed for this study. 56 patients were found noncompliant. Table-I shows the demographic characteristics of the patients.

Table-I: Shows demographic characteristics of patients.

Variables	N (100)
Gender	
Male	54
Female	46
Location	
Urban	59
Rural	41
Family Size	
4 or less	56
5 or less	44
Age (Years)	
14 and below	33
15 – 35	52
Above	36
Income Groups (Tk.)	
10000 or less	60
More than 10000	40

Table-II shows the comparison of compliant versus noncompliant group broken down based on socio-economic demographic factors. There was statistical significant difference in the compliance when the factors like location, family size and income when taken into consideration. No statistical significant difference was observed for factors such as gender and age (p>0.05).

Table-III shows the comparison of compliance versus noncompliance when patient counseling taken into account. Counseling includes counseling for disease and treatment regimen duration. There was a statistically significant difference between the two groups with $p < 0.05$.

Table-IV shows the comparison of compliance versus noncompliance when alternative treatment taken into account. Alternative treatment includes herbal, superstitious or any other form of non-medical treatment. A statistically significant difference between the two groups with $p < 0.05$ was observed. Amongst the noncompliant patient 55% reported it to be for monetary reason, 34% reported forgetfulness as factor, 20% reported non-availability of drug and 17% reported non improvement (Figure 1). The reason for noncompliance was self-reported by patient or patient family and they could report more than one reason for noncompliance. However, majority listed monetary as main reason with some other factors as secondary reason for noncompliance.

Figure- 2 shows a compliance pattern on the prescribed treatment. It was observed that patients receiving Phenobarbital was mostly compliant. On the other hand Phenytoin and Carbamazephine were mostly non compliant.

Table-II: Effect of socio-economic factor in compliance.

Demographic Factors	Compliant	Noncompliant (NC)	Chi Squared ($\chi2$)	p-value
Gender				
Male	23	21		0.49
Female	21	25	0.46	
Location				
Urban	32	27		0.005*
Rural	12	29	8.5	
Family Size				
4 or less	30	26		0.01*
5 or more	14	30	7.06	
Age				
14 or less	16	17		
15-34	22	30		0.8
35 or more	6	9	0.45	
Income				
10000 or less	17	43		0.0003*
10001 or more	27	13	18.68	

Statistical analysis: Chi-square ($\chi2$) test. p< 0.05 highlighted by *

Table-III : Effect of counseling in compliance

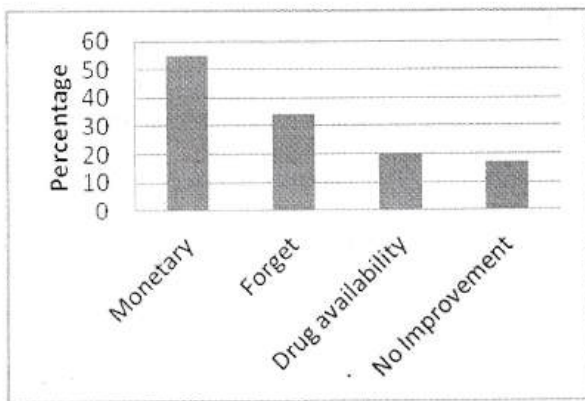| Counselled	Compliant	Noncompliant (NC)
Yes	44	19
No	0	37
Chi squared($\chi2$)	49.19	
P value	0.00003*	

Statistical analysis: Chi-square ($\chi2$) test. p< 0.05 highligted by

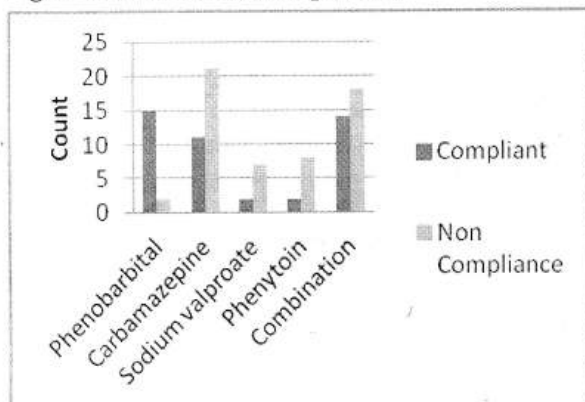**Table-IV : Effect of alternative treatment in compliance**

Alternative Treatment	Compliant	Noncompliant (NC)
Yes	11	36
No	33	20
Chi squared($\chi2$)	19.07	
P value	0.0003*	

Statistical analysis: Chi-square ($\chi2$) test. p< 0.05 highligted by *

Fig-1: Reasons for noncompliance.

Fig-2: Compliance pattern based on drugs prescribed

Discussion :

In Bangladesh it is estimated around 1.5-2 million people suffer from epilepsy.[1] The common age of epileptic patients in Bangladesh and worldwide are between 16-31 years.[2, 3] In this study, it was found that 52% of the patients where between the age of 15 and 34, which is consistent with what is reported to be observed for South Asian Countries.[1,2] With regards to gender the current study found nearly half of the patients were female. This is consistent with other epilepsy studies.[3-5] Similarly this study The 56% observed rate of noncompliance is also consistent with the 40%-70% drop out at various stage of treatment as found by WHO for SEAR (South East Asia Region) member countries.[1]

In this study, statistically significant observations have been made with socioeconomic factors such as location (urban/rural), family size and monthly income. Monthly income and family size both support the fact that poor financial condition is a barrier to proper compliance as observed in other studies and WHO reports.[1,3,5-6] The effect of financial condition as a barrier to compliance is also highlighted in this study by the observation the phenobarbital as a drug of treatment had the highest compliance (88%) while all other drugs have less than 50% compliance rate. Given that phenobarbital is the cheapest of the all the medication in current market it make sense that compliance is higher for such medication.This significant difference in cost of treatment based on choice of drug is also well noted in other studies like Radhakrishnanet al[7] and Krishnan et al[8].

Patients or patient family who claimed not adequately counseled about disease and treatment have been found to be more non-compliant. This observation is similar to that observed in other studies and have been cited by WHO as the causes of treatment gap.[1,3,9-11]

Conclusion :

Epilepsy is a health problem which carries with it a variety of medical, social, psychological and economic burdens. Bringing patients under medical treatment and ensuring compliance will be the way to tackle the problem of epilepsy in Bangladesh. In this study, it was found that compliance to AED treatment is a serious issue in Bangladesh especially in rural population. The primary factor in compliance is monetary constraints but other important issues affecting are forgetfulness, drug availability (rural), side effect and non-improvement. Effective counseling is a good way to overcome the poor rate of compliance rate. Increased compliance can be obtained by providing easy access of medical service, better counseling and regular follow-up. Providing free or low cost medication through proper channels to the poor people will help increase compliance significantly

Limitation of the Study :

This was a single center study conducted over a short period with a limited number of samples. A more extensive study is needed in the future.

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