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Psychiatric Morbidity in Epilepsy; A Cross Sectional Hospital Based Study

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Abstract:
Background:*Previous work has identified prevalence rate for psychiatric disorders in individual with epilepsy and its correlation. However studies from this part of country are quite a few, and no systematic attempt has earlier been made to study prevalence, nature of psychopathology ,and any correlation of duration of psychiatric illness with duration of epilepsy.*
Aims: *i)To find out the nature of psychiatric illness presenting with epilepsy ,presenting to psychiatry department with history of epilepsy.*
ii)To find out the correlation of the psychiatric illness with the duration, treatment and family history of epilepsy.
Method:*43 cases of psychiatric illness were selected by using a serial sampling method, from the patients attending both in-patient and out-patient services of the Department of Psychiatry A.M.C.H, Dibrugarh, during the period from January 2006 to February 2007.*
Results: *There was a significant association between psychiatric illness and epilepsy and its durations. 99% linear and mutual relationship exist between type of seizure and psychiatric illness, so far their rank is concerned. Connecting this if we go far the correlation test related to their respective duration then it is found to be 0.9746 which is significant .Prevalence of schizophrenia is 44.18%, and depression 9.3%.*
Conclusion:*Study shows significant association between epilepsy and psychiatric illness, study also shows significant association between duration of onset psychiatric illness and duration of onset of epilepsy. Prevalence of schizophrenia in epileptic patients to be much higher, However prevalence of depression is less than prevalence of studies in the past.*

I. Introduction

Globally, epilepsy is an alarming, widespread neurological disease affecting more than 50 million people with 0.2- 4.1% of patients are at the active epilepsy stage [(1,2)]. The epilepsy affected patients portray alteration in the physical, mental and behavioural functions. Further, it is linked with elevated risk of premature death in the event of traumatic brain injury, status epilepticus, suicide, pneumonia and it accounts for 1.4% of all years of life lost [(3, 4,5,6)] . Earlier studies indicate that, a suicide rate of 4.8% was observed among the idiopathic generalized epilepsy (IGE) patients, which is quite when compared to the general population [(7,8,9)] . Meanwhile, suicidal patients were reported to be affected with array of psychiatric disorders [(7)] . Clinically, around 32-42 % of epileptic patients were frequently found to have psychiatric illness [(10,11,12)] . The psychiatric co-morbidities like depression, neuroses and psychoses are highly prevalent among the epilepsy patients. These psychiatric conditions may lead to poorer prognosis for epileptic patients than that of the non- psychiatric epileptic patients [(12, 13)] . In this scenario, epilepsy patients with depression should be monitored carefully since there is an elevated suicide risk [(14)] . The psychiatric illness may occur before, at the time, or after the diagnosis of epilepsy [(11)] . Thus, psychiatric co-morbidity in epilepsy patient's may obscure the diagnosis and therapeutic care, impair the prognosis, increase treatment cost and impart hefty socioeconomic encumbrance due to long standing disability, dependency and fatality [(16)] . This close relationship between epilepsy and psychiatric disorders highlights the importance of exploring risk factors of psychiatric disorders and their temporal relationships in patients with epilepsy. Though we often get to see cases of epilepsy presenting at our OPD with various psychiatric problems during their post ictal and iterictal periods, no systematic attempt had earlier been made to study the prevalence, nature of the psychopathology and any correlation with duration and treatment of epilepsy. In this context, the present study was undertaken to study the nature of psychiatric illness presenting with epilepsy, presenting to psychiatry department with history of epilepsy. Furthermore, the correlation of the psychiatric illness with the duration, treatment and family history of epilepsy was also evaluated.

II. Methods

The study was conducted in the department of psychiatry, Assam Medical College, Dibrugarh, for a period of 1 year from January 2006 to February 2007. This was a cross sectional study and study sample were selected from the patients of psychiatric illness with seizure disorder attending both inpatient and outpatient services of the Department of Psychiatry by using a serial sampling method.43 patients were examined by consultant and diagnosed as per ICD-10 of their presentation in psychiatry department. Information regarding individuals' demographic data, neuropsychiatric diagnoses, epilepsy classification was collected. Informed consent was taken. Epilepsy was diagnosed clinically from history, past record, EEG, CT scan. In case of doubt, opinion of another psychiatrist was taken and in case of further doubt a neurological consultation was taken. Mainly the diagnosis was determined clinically.

However in case history or diagnosis was in doubt after detail evaluation the cases were dropped out. That is only clear cut cases of epilepsy with psychiatric presentation were included in our study.
Type of epilepsy was determined clinically as per the classification of International League against Epilepsy

Selection Criteria
Inclusion Criteria

Only patients fulfilling following criteria were selected for the study:
Patients of both the sexes and of any age group meeting ICD-10 criteria for psychiatric illness along with seizure disorder were included.

Exclusion criteria

Patients with altered levels of consciousness, conversion disorder , Co-morbid substance use disorder, Patients who had seizure following history of treatment with clozapine & Bupropion.

Interview Procedure

Patients attending the Psychiatric outpatient and In-Patient Services of Assam Medical College and Hospital, Dibrugarh were assessed and diagnosed as per ICD-10 diagnostic guidelines and meeting the inclusion criteria were recruited for the study. The confirmation of the diagnosis was made after discussing the cases with consultant psychiatrists. However no rigid interview pattern was set and the sequences of the interview was made flexible to elicit maximum data. The time required for interviewing each patient ranged between sixty (60) to ninety (90) minutes. Whenever possible speech samples were recorded in patients own verbatim either in the form of written speech or by process recording. Seizure disorder was diagnosed by history, CT-scan and EEG wherever possible.

Statistical analysis

The relationship between psychiatric diagnoses and type of epilepsy groups was assessed by Student't' test for between the psychiatric illness and type of seizure and duration of psychiatric illness and duration of epilepsy.

III. Results

General Characteristics Of The Subjects:

Total 43 patients participated in the study out of which 33(76.7%) were male and 10 (23.3%) were female. The general characteristics of the study sample are depicted in table I.

Table - I: General Characteristics of the study sample

Participant characteristics	Male (n =33)	Female (n=10)
Age, years		
10 -19	**4**	**0**
20 - 29	**13**	**3**
30 – 39	**10**	**3**
40 – 49	**6**	**2**
50 – 59	**0**	**1**
60 & above	**0**	**1**
Education (years of formal education)		
0	**6**	**2**
1 - 4	**2**	**2**
5 - 7	**3**	**1**
8 - 10	**9**	**4**
11 - 12	**10**	**0**
12+	**3**	**1**
Locality		
Rural	**14**	**6**

Urban	**14**	**2**
Semi-urban	**5**	**2**
Employment		
Employed	**8**	**2**
Self-employed	**13**	**0**
Household duties	**5**	**8**
Students	**3**	**0**
unemployed	**4**	**0**
Marital Status		
Married	**14**	**7**
Unmarried	**19**	**1**
Divorced	**0**	**1**
Widow	**0**	**1**
Religion		
Hindu	**29**	**9**
Muslim	**0**	**1**
Christian	**4**	**0**
Family Type		
Nuclear	**27**	**8**
Joint	**6**	**2**

Characteristics Of Seizure:

Among 43 subjects, 38(88.3%) had GTCS, 3 (6.9%) complex partial seizure and 2(4.65%) had partial seizure (Table – II). In that, 7 subjects showed duration of onset less than 1 month, 3 subjects showed duration 1 to 6 months, 2 subjects showed duration 6 months to 1 year, 13 subjects showed duration of 1 to 5 years, 4 subjects showed duration of 6 to 10 years, 14 subjects showed duration of onset of more than 10 years respectively.

Table- II: Distribution of study group according to type of seizure.

Type of seizure	**Male**	**Female**	**Total**
GTCS	30	8	38
Complex partial	2	1	3
Partial seizure	1	1	2
Total	33	10	43

Following diagram (Fig I) shows the distribution of study sample according to duration of seizure disorder since onset of the first attack of seizure. Out of 43 subjects ,7 (5 GTCS, 2 partial seizure) had duration of seizure disorder since onset less than 1 month,3 had duration 1 to 6 months, 2 had duration 6 months to 1 year,13 had duration of 1 to 5 years,4 had duration of 6 to 10 years,14 (12 GTCS & 2 complex partial seizure) had duration since onset of more than 10 years

Table – III: Distribution of study group according to type of seizure and psychiatric illness

Symptoms	**GTCS**	**Complex partial**	**Partial seizure**
Schizophrenia	18	1	
Acute and Transient Psychosis	5	0	1
Depression	3	1	
Post- ictal psychosis	3	1	1
Catatonia	1	0	0
Paranoid Disorder	1	0	0
Psychosis NOS	3	0	0
OCD	1	0	0
GAD with claustrophobia	1	0	0
Hypochondriasis	1	0	0
Mania	1	0	0

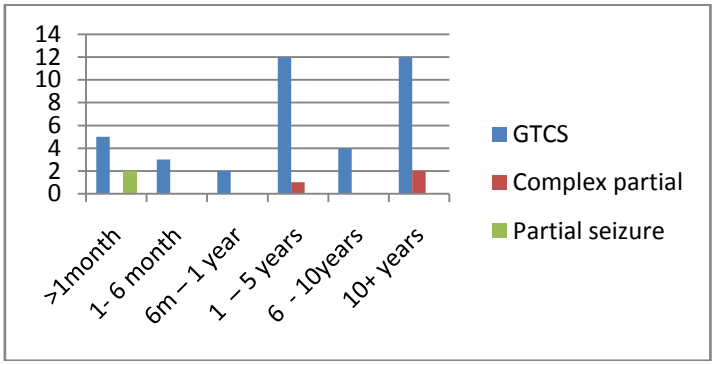

Figure - I: Bar Diagram of Distribution of Study Subjects According to duration of seizure disorder since onset

GTCS type showed more symptoms of psychiatric illness namely schizophrenia, acute and transient depression, postictal psychosis, catatonia, paranoid disorder, psychosis NOS, OCD,GAD with claustrophobia, hypochondriasis and mania than the complex parital and partial seizures and it is showed in table – III
Among 43 subjects, 6 patients of GTCS had a family history (table IV).

Table - IV: Distribution of study group according to family history

Family History of epilepsy	GTCS	Complex partial	Partial seizure
1st degree relative	6	0	0
2nd degree relative	0	0	0

Among the total sample size of 43, 19 subjects showed poor compliance, 9 subjects have taken the medication for the first time, 15 subjects showed good compliance for the antiepileptic medication (Table V).

Table - V: Distribution of study group according to compliance of antiepileptic medication

Therapy	**GTCS**	**Complex partial**	**Partial seizure**
Started for 1st time	8	0	1
regular	12	3	0
irregular	18	0	1
Total	38	3	2

There was a significant association between psychiatric illness and epilepsy and its durations. 99% linear and mutual relationship exist between type of seizure and psychiatric illness, so far their rank is concerned. Connecting this if we go far the correlation test related to their respective duration then it is found to be 0.9746 which is significant .Prevalence of schizophrenia is 44.18%, and depression 9.3%

IV. Discussion

The co-existence of pathological symptoms like psychosis, depression and anxiety in a chronic condition is elsewhere reported. Whilst, psychiatric co-morbidities such as schizophrenia, depression are highly prevalent in neurological disorder like epilepsy, which may overture to affect the socio-economic status of the subject, causes fluctuations in the mental functions due to epileptic attacks and anti-epileptic drugs. Co-morbidity of epilepsy may be due to the shared pathophysiological mechanisms, genetic, iatrogenic or psychosocial factors. The mechanism of wide array of psychiatric disorders in epileptic patients is still obscure. The chronic nature of epilepsy may affect the quality of life (QOL) of the patients and also contemplated as a possible mechanism for the spectrum mental disorders [(20)]. Albeit, epilepsy and psychiatric disorders may share common mechanism, vindication of some psychological symptoms is not highly substantial, for instance epileptic lesions in the left hemisphere are concurrently associated with the schizophrenia like psychotic disorders. Further, alteration in the excitatory and inhibitory neurotransmitters can be a cardinal factor in the progression of psychiatric disorders during epilepsy [(21)]. Disturbances in the physiological process like hypo-metabolism in inter ictal phase might be a possible factor for the development of depression and other behavioral alterations. Reduced cerebral blood flow during the episode of seizures, turbulence in neuroendocrine functions like, decreased secretion of prolactin or rampant release dopamine and testosterone or endogenous opioids, may also provoke psychiatric changes [(20, 21)]. Furthermore, fear of attacks in community, unconsciousness during attacks, urinary incontinence, and discomfort after attacks, hospitalization, and drugs may also impose some psychiatric disorders. [(22)]

In this study male epilepsy patients (76.7%) were more than the female (23.3%). Most of the subjects were suffering GTCS (88.3%), where as 6.9% was complex partial seizure and the remaining 4.6% was found to be partial seizure. Olafsson (1999) in Iceland reported the occurrence of epilepsy was higher in male (5.1 / 1000) than in female (4.4 /1000 population), which 63% was found to be GTCS type, 35% was Partial Seizure and 2 % was Unclassified[24]

Similarly in Indian perspective the prevalence of epilepsy as stated by Sridharan and Murthy, in male was (5.25 /1000 population) and female (4.56 /1000 population), in which 45-86% was GTCS type, and 11.45-54.54% was affected Partial Seizure. [25]

In the present study, schizophrenia was most prevalent psychiatric illness followed by depression. Similar observation was also observed in the previous studies by Qin et al., 2005; Hermann et al., 2000; Van der Feltz, 2002; Gaitatziz, 2004) in different population [12,17, 18, 19]. In our study the GTCS subjects exhibited maximum non adherence to antiepileptic drugs and this might causative factor for schizophrenia and depression in these subjects. Similar observation was seen in patients with poor compliance of antiepileptic drugs had a risk of developing psychiatric disorders[23]. Further, in our study significant correlation between psychiatric illness and epilepsy and its durations was observed and the incidence of schizophrenia and depression was found to be 44.18%, and 9.3% respectively.

V. Conclusion

In conclusion, the present study displays significant relationship between epilepsy and psychiatric illness, further the study outcome elicited the association between duration of onset psychiatric illness and duration of onset of epilepsy in a significant manner. Interestingly, in our study the prevalence of schizophrenia in epileptic patients is higher, a rare clinical scenario. Meanwhile, in our study the co-morbid depression and anxiety was very less when compared to other clinical studies.

VI. Limitation

- ✓ Since patients were from Psychiatry OPD where psychotic patients are more in number than neurotic patients therefore biasness to psychosis cannot be ruled out.
- ✓ Patients with minor psychiatric illness with epilepsy remains undetected due to lack of awareness and they don't present to psychiatry OPD.
- ✓ This is a cross sectional study

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