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Prevalence and Pattern of Psychiatric Co morbidity in Patient with Epilepsy

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Abstract: ***Introduction:*** *Epilepsy is a disorder of the brain. The psychiatric conditions can present either periictally or interictally. Higher rates of psychiatric disorders are observed in people with epilepsy compared with the general population and other medical conditions and that leads to consequences of disability, unemployment, dependence, social limitations, driving restrictions.* ***Aims & Objectives:1.****To assess the prevalence and pattern of psychiatric co-morbidity in patient with epilepsy,****2.****To determine the role of socio-demographic factors in patient with epilepsy having psychiatric illness.* ***Materials & Method:*** *In this cross-sectional study, 200 cases of epilepsy were taken from Medicine OPD, PDU Medial College & Hospital, Rajkot. GHQ-12 scale was applied for screening of psychiatric disorders and thereafter detailed interview was conducted with patient and psychiatric disorders were diagnosed according to DSM-V criteria.* ***Results & Discussion:*** *Psychiatric co-morbidity was present in 24.5% of patients with epilepsy, which included depressive disorders, anxiety disorders, mixed anxiety and depression, psychosis and bipolar disorders. Anxiety disorders (38.7%) and Depressive disorders (36.73%) were most common. Most of patients were hailing from lower socioeconomical class with no any major sex difference between them.****Conclusion:*** *In the community, epilepsy is associated with an increased prevalence of psychiatric disorders, Understanding the psychiatric correlates of epilepsy and early diagnosis as well as intervention is important to adequately manage such patients.*

Keywords: *Epilepsy, psychiatric comorbidity.*

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I. Introduction

Epilepsy is a neurological condition characterised by recurrent seizures. Through French workers Briquet [1] and Morel [2] it became recognised that psychological disturbances may occur as part of the seizure itself (ictal) or as an interictal disturbance involving various behavioural and cognitive functions. The psychiatric conditions can present either periictally or interictally. Higher rates of psychopathology are observed in people with epilepsy compared with the general population, other neurological control groups, and people with chronic non-neurological disorders. [3] Estimated 20-30% of patients with epilepsy have psychiatric disorder.The most common psychiatric conditions in epilepsy are Depression, Anxiety and Psychosis. [4-6]The highest rates of psychiatric comorbidities are reported in patients with chronic refractory seizure disorders. [8-10]Also Temporal Lobe Epilepsy and patient with poorly controlled seizures have more chances of depression and suicidal risk.[11]

II. Material and Methods

This is a cross-sectional study in clinical setting without the use of any normal control group. The study was planned to be carried out at the tertiary care hospital set up, Medicine OPD, PDU Hospital, Rajkot from July 2016 to July 2017. Total 200 patients with epilepsy of aged between 18 to 65 were taken for this study.

Study Design: cross-sectional observational

Study Location: This was a tertiary care hospital in Department of General Medicine, at Government hospital,Rajkot.

Study Duration: July 2016 to July 2017.

Sample size: 200 patients.

Subjects & selection method: All patients diagnosed as Epilepsy of both sexes, attending Medicine OPD, PDU Hospital, Rajkot were taken for study. We planned to use simple random sampling method with fraction of 4 for case selection and selected the patients according to inclusion and exclusion criteria, who taken treatment from Medicine OPD for Epilepsy at least last since 6months.

Inclusion criteria:
1. All the Patients with a clinical diagnosis of epilepsy.
2. Patients of age group of 18 to 65 years.
3. Patients who will give written informed consent.

Exclusion criteria:
1. Patient who are critically ill.
2. Patients uncooperative at the time of evaluation due to any reason.
3. Mentally retarded patient.
4. Patients who cannot communicate in Gujarati, Hindi, and English will be excluded.
5. Patients who have not given the consent for psychiatric evaluation.

III. Procedure methodology

Initially, we planned to administer our proforma to 10 patients attending Medicine OPD and diagnosed as Epilepsy as pilot cases to find out any problems & if required to modify the proforma based on this experience. Study of these pilot cases revealed that there was no problem in administering the proforma in these 10 patients; So, we later on included these 10 patients as part of the main study.During the study, we approached totally 208 patients and explained them about the study in details.Out of these 208 patients, 200 were eligible to participate in study.

We obtained their informed verbal and written consent. The remaining 8 patients were excluded due to insufficient information given in the proforma.Then the patients were clinically evaluated with history, detailed interview with patients and with their relatives to know course and consequences of events during seizure episode, seen all old records, reports and also MRI or EEG reports if available than diagnosed Epilepsy as per ILAE classification.

Then all patients were screened by using GHQ-12 (General health Questionnaire) to assess possible psychological distress. Bi-modal scoring method was applied for scoring of GHQ and Cut off 2 was taken. Patients who scored 2 or more than 2 in GHQ assessment, were again evaluated by psychiatric history and mental status examination for presence of any psychiatric illness.Final diagnosis of Psychiatric disorder was established by applying DSM-V diagnostic criteria.All the collected data was appropriately tabulated and data was analyzed to find out statistical significance with the help of Chi-square (χ^2) test and T test. Probability value less than 0.05 is taken as statistically significant.Result is presented and discussed in reference to previous studies.

Statistical analysis

All the collected data was appropriately tabulated and data was analyzed to find out statistical significance with the help of Chi-square (χ^2) test and T test. Probability value less than 0.05 is taken as statistically significant. Result is presented and discussed in reference to previous studies.

IV. Result

This table no.1 shows that out of 200 patients studied, 49(24.5%) was found to be having psychiatric comorbidity. Out of 185 GTCS type epilepsy patients, 45(24.32%) were having psychiatric comorbidity. Out of 11 Focal epilepsy patients, 4(36.36%) were having psychiatric comorbidity.

Table no.1: shows Prevalence of Psychiatry Co-Morbidity in various type of epilepsy

Type of epilepsy	No. of patients	Co morbidity present (n=49)	Percentage
GTCS	185	45	24.32%
FOCAL	11	4	36.36%
FOCAL WITH SECONDARY GENERALIZATION	1	0	0%
MYOCLONIC	3	0	0%
Total	**200**	**49**	**24.5%**

Table no.2 shows that out of 200 patients studied, 49(24.5%) were found to be having psychiatric disorder. Out of 49(24.5%) patients, 20(40.81%) were having depressive disorders, 19(38.77%) were having anxiety disorders, 7(14.28%) were having psychotic disorders, and 3(6.12%) were having bipolar disorders.

Table no.2: Pattern of Psychiatric Co-Morbidity

Psychiatric Co-morbidity	No. of patients (n=49)	Percentage
Depressive disorders	20	40.81%
Anxiety disorders	19	38.77%
Psychotic disorders	7	14.28%
Bipolar disorders	3	6.12%

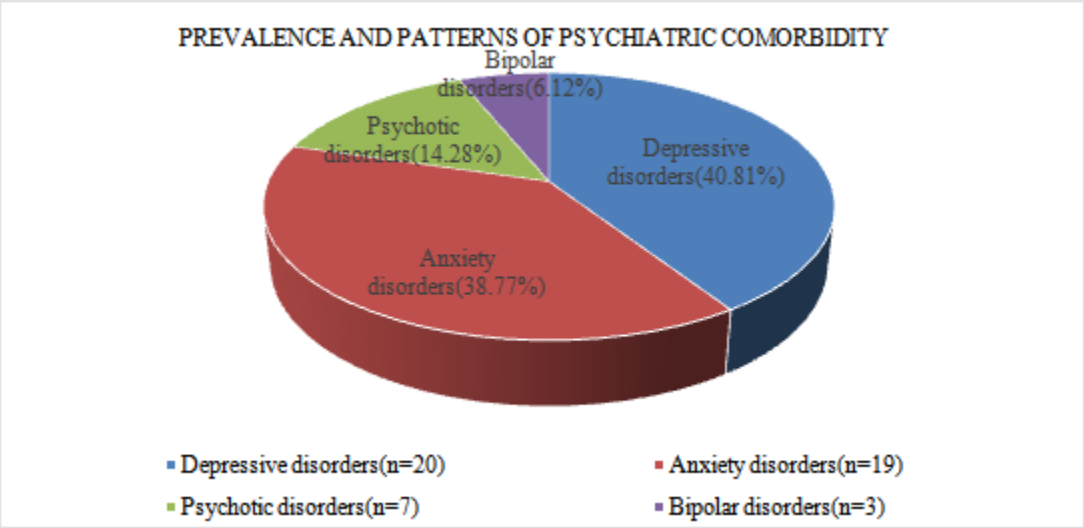

Table no.3 shows out of 45 patients of GTCS epilepsy, 18(40%) patients were having depressive disorders, 19(42.22%) patients were having anxiety disorders, 5(11.11%) patients were having psychotic disorders, 3(6.66%) patients were having bipolar disorders.

Table no.3: Pattern of Psychiatric comorbidity in GTCS Epilepsy

Co-morbidity	No. of patients (n =45)	Percentage
Depressive disorder	18	40%
Anxiety disorder	19	42.22%
Psychotic disorders	5	11.11%
Bipolar disorder	3	6.66%

Table no.4 shows that 4 patients of Focal epilepsy, 2(50%) patients were having depressive disorders, and 2(50%) patients were having psychotic disorders.

Table no.4: Pattern of Psychiatric comorbidity in focal epilepsy

Co-morbidity	No. of patients (n = 4)	Percentage
Depressive disorder	2	50%
Psychotic disorders	2	50%

Table shows comparison of different type of psychiatric comorbidity in relation to duration of epilepsy. Out of 49(24.5%) patients with psychiatric comorbidity only depressive disorders have statistically significant correlation with mean duration of epilepsy.

Table no.5: Comparison pattern of Psychiatric Co-Morbidity and duration of epilepsy

Psychiatric Co-morbidity	No. of patients (%) n=49	mean duration of epilepsy (SD)	p value (unpairedTtest)
With Depressive disorders	20(40.81%)	10.37(7.07)	t = 2.0536 p=0.0456 p<0.05
without Depressive disorder	29(59.18%)	7.01(4.39)	
With Anxiety disorders	19(38.77%)	6.47(4.20)	p=0.0658 p>0.05

Without Anxiety disorder	30(61.22%)	9.6(6.41)	
With Psychotic disorders	7(14.28%)	7.92(4.34)	p=0.8229 p>0.05
Without Psychotic disorder	42(85.71%)	8.46(6.07)	
With Bipolar disorders	3(6.12%)	8.33(6.80)	p=0.986 p>0.05
Without Bipolar disorders	46(93.87%)	8.39(5.83)	

There was no statistically significant difference in prevalence of co-morbidity with socio-demographic variables like age, area of domicile, religion, education, occupation, marital status and type of family.
Also, Comparison of Epilepsy related variable in patients with psychiatric co-morbidity and without psychiatric co-morbidity. There was no statistically significant difference in prevalence of co-morbidity with different variables of epilepsy like type of epilepsy, age of onset and total duration of epilepsy.

V. Discussion

We studied prevalence and patterns of psychiatry comorbidity in patients with epilepsy. Out of 200 studied patients we could find the psychiatry comorbidity in 24.5% (n=49) patients. Similar findings were obtained in various studies, like in study of Jose F et al. (2007) Canadian Community Health Survey was used and they found that the prevalence of any mental health disorder in patient with epilepsy was 23.5 (15.8–31.2). Similar finding also found in review study by Vuilleumier P et al. (1998)who analysed various data from different study in Paris and concluded that the overall prevalence of psychiatric disturbances in epileptic patients can be estimated between 20% and 30%. AnthanasiosGaitatzis et al. (2004)reported Six per cent of people with epilepsy in the general population appear to suffer from a psychiatric disorder, while this rises to 10–20% in populations with temporal lobe and/or refractory epilepsy. The prevalence of co-morbidity was somewhat higher in studies by Sajjadur Rehman et al. (2017)[53] and Cyriac N, Sureshkumar PN, Kunhikoyamu AM, Girija AS (2002)were 50%, 42.45% respectively in Indian study. Zeber JE et al (2007)in their study reported that out of 13699 patients with epilepsy 6320 had psychiatric comorbidity, prevalence of psychiatric comorbidity was 16.13%.

In our study, we found that major psychiatric comorbidity were depressive disorders which account 40.81% (n=20) of total psychiatric comorbidity, which includes major depressive disorder, other specified depressive disorder, major depressive disorder with anxious distress among them majority were diagnosis as major depressive disorders(n=10) and second was other specified depressive disorder(n=8) it was due to insufficient criteria of DSM-V. Similar finding obtained in following studies, Vuilleumier P et al. (1998)in their study reviewed various data from different studies in Paris, and found Depressive disorders affect 20 to 60 per cent of epileptic patients. Rajesh Jacob et al. (2002)found that 34% of epilepsy group had diagnosis of major depressive disorders. MilaneTareleTegegne, TilalumBetele Massie, Andargie Abate et al. (2013)found that prevalence of depression among epileptic people were 32.8 %.

Somewhat higher prevalence was also obtained in study by Ahmed Abu Sheer et al. (2009)found that the prevalence of depression was 63%, divided between 38.4% as mild depression & 24.6% moderate depression without severe depression. Nubukpo P et al. (2004)in their case control study found that proportions of epileptic patients displaying a severe depression (89.6%) are significantly higher ($p<0.0001$) than in control subjects (12.3% and 46.9%). While low prevalence was also obtained in various studies, AnthanasiosGaitatzis et al. (2004)found Mood disorders are the most common culprit (24–74%), particularly depression in 30% epileptic patients. Sajjadur Rehman et al. (2017)in their hospital based cross sectional study that was done in outpatient department of psychiatry, Regional Institute of Mental Health, Tezpur, India. Found that the most common psychiatric morbidity was depression and its prevalence was 18%. Jose F et al. (2007)in their study obtained 253 persons reported having epilepsy among which (95% CI) major depressive disorder (lifetime) present in 17.4% (10.0–24.9) patients.Cyriac N, Suresh Kumar PN, Kunhikoyamu AM, Girija AS (2002)this cross-sectional study was conducted in the Department of Neurology, Medical College, Calicut, Kerala, found that the prevalence of Depressive disorders was 16.98% and organic depressive disorder was the commonest psychiatric diagnosis.Mohammad Reza Mohammadi, Ahmad Ghanizadeh et al. (2006)found the prevalence of depressive disorders in epileptic patients in current study were: major depressive disorder 2.98% which is lowest. These differences in prevalence because of various methods and study settings.

In our study, we found the prevalence of Anxiety disorder was 38.71%, which include generalised anxiety disorders(n=8), other specified anxiety disorders(n=7) and panic disorders(n=4). Similar finding were also obtained from studies by Phabphal K et al. (2007)found that 39%(24.58% were borderline cases and 14.40% had clinical anxiety) of the epileptic patients had anxietyMilaneTareleTegegne et al. (2013)

found the prevalence of anxiety among epileptic people were 33.5%. Higher prevalence of anxiety disorders found in study by Nubukpo P et al. (2004) reported prevalence was 79.8% of severe anxiety on Western Africa. Opposite lower rate of prevalence was obtaining in many studies, AnthanasiosGaitatzis et al. (2004) [28] found that anxiety disorders occurred in 10–25% epileptic patients. Sajjadur Rehman et al. (2017)were obtained prevalence of Anxiety Disorders in 11% which were the most commonly found psychiatric morbidities. Jose F et al. (2007) found that the prevalence of anxiety disorders (12 month) 12.8% (6.0–19.7) and anxiety disorder (lifetime) 22.8 (14.8– 30.9). Mohammad Reza Mohammadi, Ahmad Ghanizadeh et al. (2006)found that generalized anxiety disorder in 1.33% and panic disorders in 1.49%.

Our study we found the prevalence of psychotic disorders was 14.28%. In our study, diagnostic entity of psychotic disorders were schizophreniform disorder, schizophrenia, other specified schizophrenia and other psychotic disorder, and unspecified psychotic disorder. Similar finding, we obtained in studies like Sajjadur Rehman et al. (2017)found psychiatric comorbidity was seen in 50% subjects with epilepsy, out of which prevalence of psychosis was 14%. Opposite finding lower prevalence also presented in various studies. Cyriac N, SureshKumar PN, Kunhikoyamu AM, Girija AS (2002)Out of 45(42.45%) who had psychiatric disorder, one case with organic delusional (schizophrenia-like) disorder.Vuilleumier P et al. (1998)reported that Psychoses affect 2 to 9 percent of patients and are more frequent in cases with aura or altered consciousness.AnthanasiosGaitatzis et al. (2004)found that prevalence of psychoses between 2-7%. Mohammad Reza Mohammadi, Ahmad Ghanizadeh et al. (2006)the prevalence of psychotic disorders in epileptic patients in current study was 0.25% which is lower most, it may be due to different method and limited study sample size.

In our study prevalence of bipolar disorders was 6.12%, in which both bipolar depressive episode as well as manic episode included. Similar finding found in following studies, Jose F et al. (2007)found that prevalence of mood disorders in 14.1% (7.0–21.1). Mohammad Reza Mohammadi, Ahmad Ghanizadeh et al. (2006) [54] reported the prevalence of bipolar mood disorder was 0.96%

There was no statistical significant difference in any socio demographic parameters of patients like Age, Sex, Area of domicile, Religion, Level of education, Occupation, Marital status, Type of family and Per capita income in patients with psychiatric co-morbidity and patients without psychiatric co-morbidity in our study. Nubukpo P et al. (2004)andCyriac N, Suresh Kumar PN, Kunhikoyamu AM, Girija AS (2002)and RosenmarieKobau et al. (2006)also found no role of socio demographic variables in their studies.

Out of 200 studied patients in present study, most common duration of epilepsy was between 1-4 years and least patients who had more than 12 years of duration of epilepsy. There were mean duration of epilepsy in patients with psychiatric comorbidity was 8.38 years with SD 5.82 and patients without psychiatric comorbidity was 7.32 years with SD 5.90, there were no stastically significant correlation between two groups($p=0.274$). But there was stastically significant relation between duration of epilepsy in Depressive disorders patients and without Depressive disorders patients ($p=0.04$). This type of correlation closely related to studies by Seth A, Mensah et al.andSajjadur Rehman et al. (2017).

Age at onset of psychosis ranges from 2-60 years. Most common age of onset of epilepsy in our study was between 16-30 years & it was least common after 45 years. Mean age at onset of epilepsy for patients with psychiatric co-morbidity was 28.51 years, SD=14.05 & for patients without psychiatric co-morbidity 26.28 years, SD=13.64. This difference of two groups was statistically not significant ($p=0.3248$).

VI. Conclusion

Our study suggested that prevalence of psychiatric co-morbidity (24.5%) is higher in patients with epilepsy irrespective of any socio demographic characteristics like age, gender, area of domicile, level of education, occupation, religion, marital status, type of family, and socio-economic status.

VII. Limitations of study

The major limitation of this study is its cross-sectional nature. We have studied the prevalence and pattern of psychiatric co-morbidity in patients with epilepsy from Medicine Department of our Hospital and therefore follow up of each patient was not possible.

There is no control group in our study so, we can't compare the prevalence and pattern of psychiatric co-morbidity in patients with epilepsy within normal population.

As we have conducted the study on the patients attending Medicine OPD of our Hospital, these patients may not be representative of all the patients in the community. Also, we have conducted the study only on 200 patients and sub sample size of different type of epilepsy like myoclonic as well as focal with secondary generalised epilepsy were too small, furthermore some type of epilepsy was not present in our study. Many previous studies suggested that there was significant role of Temporal Lobe Epilepsy in occurrence of psychiatric co-morbidity as well as changes in personality but in our study, mostly due to small sample size of this subtype of epilepsy.

The Instrument that we used in our study has certain limitations. First thing is that GHQ is a screening instrument and not diagnostic. Second thing is that only if GHQ score is more than two, we have inquired further for psychiatric diagnosis and excluded the patients with GHQ score less than two even if chances of such patients having psychiatric disorder is high.

In our study, we have not assessed severity of psychiatric illness therefore correlation of severity psychiatric illness with Epilepsy could not be established.

VIII. Direction for future study

To get a more accurate idea of prevalence and pattern of psychiatric co-morbidity in patients with epilepsy, a large scale, case control longitudinal study of such patients can be helpful and patients need to be evaluated in depth for epilepsy and psychiatric illness. Those epilepsy patients who are having some sort of psychiatric illness need further evaluation with respect to severity and correlation to epilepsy out comes.

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