ORIGINAL RESEARCH PAPER

Psychiatry

KEY WORDS:

ASSESSMENT OF DEPRESSION AND ANXIETY IN PATIENTS WITH GENERALISED TONIC CLONIC SEIZURES-A CROSS SECTIONAL STUDY

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Epilepsy has been defined as a brain disorder characterised by predisposition to generate recurrent seizures and it is associated with negative neurobiological cognition social and also psychological consequences.

Epilepsy accounts for about 1% of global burden of diseases. Prevalence of epilepsy ranges from 5-10 per 1000 people. Compared to the general population more people with Epilepsy are suffering from more co-morbid psychiatric illness 2-3 times.

Even though many earlier studies on epileptic patients have addressed psychosis, cognitive decline, sexual dysfunction, dysthymia are common among them, my study has been focused on Depression and Anxiety which are much more common among them. Both these disorders have a negative effect on the quality of life in these patients. Chronic stress due to burden of frequent nature of seizure attacks, and fear and threat of unpredictable nature of attacks put the patients at high risk of developing depression. Beyond that depression is associated with unemployment, younger age, lower income due to the illness, poor marital and social support and also due to the effects of antiepileptic drugs taken by them as well. Beyond that in addition to all said above the long duration of illness and the frequency of unpredictable attacks also contributes to depression.Suicide in epilepsy is five times more than the general population. Epilepsy by itself is an independent risk factor for committing suicide. When co-morbid depression is also associated with epilepsy the risk goes higher.

Anxiety disorders in epilepsy can be inter ictal or either it may be seizure related or post ictal. In newly diagnosed epileptic patients there is much concern regarding the possibility of seizure related injuries, fractures and psychological worries regarding sustaining injury in front of the public. They are also worried about the impact of their illness on quality of job, loss of job, disputes in marital state leading to an adjustment disorder.

Panic attacks without situational triggers occurs which is the most distinguishing feature of nature of attacks in epilepsy. Symptoms of generalized anxiety disorder such as Anxiety, excessive worry, poor concentration, somatic symptoms, sleep disturbances and irritability can occur in epilepsy. A state of anxiety may reinforce further seizure attacks. This in turn leads to further worsening of the quality of life among them[17].

Most of the studies done previously on epileptic patients have addressed that both Anxiety and depression are much more common among people with complex partial seizures. The current study has been planned to focus on the generalized tonic clonic seizure sub type which is much more common than other types of seizure. More over there is little data on previous studies in assessing the Psychiatric comorbidities like Anxiety and depression in generalized tonic clornic seizure patients.

Review of Literature:

Co-morbidity of depression and anxiety in Generalized Tonic Clonic seizures[58]:

Among the various types of epilepsy people with Generalized Tonic Clonic seizures have more anxiety symptoms than depressive symptoms. Dobson and cheung studied that co-morbidity of anxiety is 64% prevalence when depression present. The co-morbid prevalence of depression is 40% when they also exhibit anxiety symptoms. Hence both these disorder acts as a double edged sword affecting the quality of life of these patients.

In a study by Torta and Keller found that the prevalence of anxiety symptoms in epilepsy ranges from 25-66%[32,33]. In 2001 Cramer et al found theprevalence of anxiety disorders and symptoms being more common than depression in people suffering with epilepsy. The study found 48% of anxiety symptom prevalence whereas only 25% prevalence of depression among epileptics. In a study by Ekateaira Viteva in (2014), found that the prevalence of depression is only 40% whereas anxiety is 71% in epileptics. Kanner et al found anxiety in 73% of patients in his study who also had co-morbid depression[13]

Aims & Objectives

Aim:

To assess depression and anxiety in patients with generalized tonic clonic seizures and to study the prevalence of severity of illness among them.

Assessment is to be done in patients who are attending epileptic clinic in the department of neurology in Govt. Rajaji hospital.

Objectives:

1. To assess depression and anxiety in patients with Generalized Tonic Clonic seizures and to study its relationship with seizures.

MATERIALS AND METHODOLOGY

1. Approval is obtained from the institutional ethical committee.
2. Patients who are on follow up in epilepsy clinic in department of Neurology will be considered for study.
3. Sample size consists of 120 Generalized Tonic Clonic seizure disorder patients.
4. Selection will be done by random sampling method.

5. Patients satisfying the inclusion and exclusion criteria will be chosen for undergoing study,
6. Patients will be explained about the nature of the study.
7. After getting informed consent, patients will be interviewed and details will be collected as per proforma.
8. Thorough general physical examination and clinical psychiatric evaluation done.
9. Screening for anxiety and depression will be done following which rating scales will be applied to assess the severity of illness.
10. Based on symptomatology and examination patients are administered the following scales;

- MINI - International neuropsychiatric interview.
- Hospital anxiety and depression scale (HADS)
- Hamilton depression rating scale (HAM-D)
- Hamilton anxiety rating scale. (HAM-A)
- Quality of Life in epilepsy - 31 (QOLIE- 31)
- Kuppuswamy's scale for socio economic status

11. After which the association of depression and anxiety with seizure related and socio demographic variables are studied.
12. The results are statistically analyzed and final conclusion arrived at.

Mini-plus Neuropsychiatric Interview:
It is a brief structured clinical interview for Diagnosing Axis I Psychiatric disorders. It includes separate modules from A to P for each disorder. It has been validated against SCID-P and DSM III-R and CIDI. The administration time is about 15 minutes. It includes screening questions at the beginning and at the end diagnostic box to indicate whether criteria for a disorder has been met or not.

Ham-d:
This scale was devised by Max Hamilton in the year 1960. He designed it to be used for patients already diagnosed to have affective disorder to rate the severity of depression. It consists of 17 items in original version.

Scoring patterns: (0-7) - Normal, (8-13)-Mild, (14-18) – Moderate, (19-22)- Severe, > 23 – very severe depression.

Ham-a:
It was published by Hamilton in 1950. Originally designed to rate anxiety neurosis and not for severity rating. Time to administer is 20 minutes. It is a 0-4 item scale for 14 items. Score of (0-17) mild anxiety (18-25) - moderate and (26-30) severe anxiety.

Hads:
It was designed by Zigmond and Snaith in 1983. It assesses the anxiety and depression over past 1 week. 7 questions for depression and odd numbered another 7 questions for anxiety. Rating is from 0 to 3. A score of more than 11 indicates the presence of anxiety or mood disorders.

RESULTS:
Socio Demographic Data:
120 patients were recruited in the study. the majority of the participants in our study were in the age group 26 to 30 accounting for 32.5%. Participants who were in the age group 41 and above constitute only 10% in our study. the majority of the study group belongs to male who constituted 53.3% and the remaining being female who constituted 46.7% in our study. that 77.5% of people in our study group were married, in contrast to unmarried who constituted only 22.5% of our study. that 34.2% of our participants had a positive family history of psychiatric illness, and family history was negative in 65.8% of the study group.

Prevalence of anxiety and depression:
severe depression was present in 5.8% and moderate depression in 16.7% and mild depression in 11.7%, Anxiety was present in 13.9% and among which mild anxiety was present in 12.2%, moderate anxiety in 1.7% and mixed anxiety and depression was present in 2.4%.

Total Score		Frequency	Percent
Valid	0 NO DISEASE	57	47.5
	1 MILD ANXIETY	14	12.2
	2 MILD ANXI+MILD DEP	1	.8
	3 MILD ANXI+MODERATE DEP	2	0.8
	4 MODERATE ANXIETY	2	1.7
	5 MODERATE ANXI+MILD DEP	2	0.6
	6 MODERATE ANXI+MODERATE DEP	1	0.2
	7 MILD DEPRESSION	14	11.7
	8 MODERATE DEPRESSION	20	16.7
	9 SEVERE DEPRESSION	7	5.8
	Total	120	100.0

From our study 52.5% of the population has an illness depression was found in 34.2% of population and only Anxiety was present in 13.9%

Seizure frequency		Frequency	Percent
Valid	1 MILD	86	71.7
	2 MODERATE	27	22.5
	3 SEVERE	7	5.8
	Total	120	100.0

From our study group, the Table & Figure above states that the seizure frequency was mild in 71.7% of study population and it was severe in only 5.8%.

One Way Anova Results Based On Employment Status

S. NO	FACTORS	N	MEAN	SD	F-RATIO	STAT. RESULT
1	**HADS**					
	4 SKILLED	16	13.69	5.288	6.740	.000 Sig
	5 SEMISKILLED	30	12.57	5.722		
	6 UNSKILLED	36	8.17	3.996		
	7 UNEMPLOYED	38	10.34	4.778		
	Total	120	10.69	5.230		
2	**HAM A**					
	4 SKILLED	16	7.19	8.448	7.059	.000 Sig
	5 SEMISKILLED	30	5.90	8.891		
	6 UNSKILLED	36	.42	2.500		
	7 UNEMPLOYED	38	1.74	5.140		
	Total	120	8.11	12.731		
3	**HAM D**				.939	.012 Sig
	4 SKILLED	16	8.38	7.117		
	5 SEMISKILLED	30	9.67	6.925		
	6 UNSKILLED	36	7.06	5.377		
	7 UNEMPLOYED	38	8.08	6.326		
	Total	120	10.21	9.322		
4	**ADIMX8A QOLIE8:T-Over all Score**					
	4 SKILLED	16	54.3043	17.34971	3.921	.010 Sig
	5 SEMISKILLED	30	49.8886	20.04202		
	6 UNSKILLED	36	62.8027	11.37732		
	7 UNEMPLOYED	38	58.4473	14.84092		
	Total	120	57.0619	16.33900		

From the above table it was observed that unemployed people had high mean scores on HADS, HAM-A, HAM-D and lower scores on QOL. P Value is statistically significant < 0.05 at all the above scores.

Hence unemployed people have more anxiety and depression and also poor QOL.

One way ANOVA results based on Literacy

S. NO.	FACTORS	N	MEAN	SD	F-RATIO	STAT. RESULT

1	**HADS**					
	2 UG /PG	14	13.79	5.549	3.802	.003 Sig
	3 INTER / POST HS DIP	28	12.75	5.448		
	4 HIGH SCHOOL	20	8.65	4.557		
	5 MIDDLE SCHOOL	20	8.20	4.786		
	6 PRIMARY SCHOOL	25	10.60	4.262		
	7 ILLITERATE	13	10.08	5.188		
	Total	120	10.69	5.230		
2	**HAM A**					
	2 UG /PG	14	.00	.000	12.990	.000 Sig
	3 INTER / POST HS DIP	28	9.93	9.185		
	4 HIGH SCHOOL	20	.70	3.130		
	5 MIDDLE SCHOOL	20	.75	3.354		
	6 PRIMARY SCHOOL	25	.00	.000		
	7 ILLITERATE	13	5.08	7.942		
	Total	120	3.11	6.731		
3	**HAM D**					
	2 UG /PG	14	14.86	6.848	6.234	.000 Sig
	3 INTER / POST HS DIP	28	6.61	5.294		
	4 HIGH SCHOOL	20	6.90	6.121		
	5 MIDDLE SCHOOL	20	6.65	5.234		
	6 PRIMARY SCHOOL	25	10.28	6.168		
	7 ILLITERATE	13	4.92	4.310		
	Total	120	8.21	6.322		
4	**QOLIE - Over all Score**					
	2 UG /PG	14	40.0299	18.76618	5.159	.000 Sig
	3 INTER / POST HS DIP	28	54.7208	18.55958		
	4 HIGH SCHOOL	20	60.3324	13.44449		
	5 MIDDLE SCHOOL	20	64.9833	8.99380		
	6 PRIMARY SCHOOL	25	58.8074	12.78215		
	7 ILLITERATE	13	59.8709	16.16382		
	Total	120	57.0619	16.33900		

Sub Table: 1

On HADS the mean score for middle school people is 8.20 and Postgraduate is 13.79 P = 0.003 statistically significant. Hence people with higher education had high scores on HADS.

Sub Table: 2 & 3

On HAM-A and HAM-D the mean score is high for Postgraduate with compared to other sub group. P value is 0.000 which is statistically significant. Hence people with higher education had more anxiety and depression when compared to others.

Sub Table: 4

In respect to overall QOL, people with lower education status had high mean scores when compared to Postgraduates. P < 0.000 is statistically significant. Hence over all QOL is better in people with lower educational status.

T' Test results based on Drug Therapy

S. NO.	FACTORS	N	MEAN	SD	't' Value	STAT. RESULT
1	**HADS**					
	1 MONO	91	10.18	5.310	-1.936	.012 Sig
	2 POLY	29	12.31	4.699		
2	**HAM A**					
	1 MONO	91	3.76	7.288	1.894	.061 NS
	2 POLY	29	1.07	4.017		
3	**HAM D**					
	1 MONO	91	6.81	5.627	-4.637	.000 Sig
	2 POLY	29	12.59	6.473		
4	**QOLIE - Over all Score**					
	1 MONO	91	60.5225	13.77578	4.418	.000 Sig
	2 POLY	29	46.2027	19.06713		

Hads:

From the above table the people who were on Poly drug therapy had higher mean scores on HADS and HAM-D and lower scores on QOL. Here P value is < 0.05 which is significant. Hence patients on poly drug therapy had scores on depression who also have a poor QOL.

S. NO.	FACTORS	N	MEAN	SD	't' Value	STAT. RESULT
1	**HADS**				2.907	.004 Sig.
	1 PRESENT	41	12.56	4.691		
	2 ABSENT	79	9.72	5.260		
	Total	120				
2	**HAM A**				-1.216	.226 NS
	1 PRESENT	41	2.07	5.790		
	2 ABSENT	79	3.65	7.147		
	Total	120				
3	**HAM D**				6.669	.000 Sig.
	1 PRESENT	41	12.78	6.609		
	2 ABSENT	79	5.84	4.678		
	Total	120				
4	**QOLI - Over all Score**				-5.814	.000 Sig.
	1 PRESENT	41	46.4035	17.21041		
	2 ABSENT	79	62.5934	12.83315		

In Patients who had a positive family history of psychiatric illness scores high mean value on HADS when compared to others who had a negative family history. P value = 0.004 here is significant. Hence patients with Positive family history had a high HADS score.

Ham-a:

Here the P value is 0.226 which is not statistically significant. Hence patients with a positive family history do not have high anxiety scores.

Ham-d

Patients with a positive family history had high mean score and P value = 0.000 which is significant. Hence depression is more in people who had a positive family history.

Qol:

Here patients with positive family history had low scores P = .000 is significant.

Hence QOL is poor in people who had depression and with positive family history.

S. NO	FACTORS	N	MEAN	SD	't' Value	STAT. RESULT
1	**Age of onset of seizure**					
	1.MALE	64	26.03	9.749	2.855	.005 Sig
	2. FEMALE	56	21.00	9.525		
	Total	120	23.68	9.930		
2	**Seizure duration**					
	1.MALE	64	6.20	7.705	-1.089	.278 NS
	2. FEMALE	56	7.68	7.125		
	Total	120	6.89	7.446		
3	**HADS**					
	1.MALE	64	10.72	5.353	.061	.952 NS
	2. FEMALE	56	10.66	5.136		
	Total	120	10.69	5.230		
4	**HAM A**					
	1.MALE	64	4.66	7.647	2.843	.005 Sig
	2. FEMALE	56	1.34	5.006		
	Total	120	3.11	6.731		
5	**HAM D**					
	1.MALE	64	7.67	6.152	-.990	.324

	2. FEMALE	56	8.82	6.512		NS
	Total	120	8.21	6.322		
6	**QOLIE - Over all Score**					
	1.MALE	64	56.4898	17.039	-.411	.682 NS
	2. FEMALE	56	57.7157	15.627		
	Total		57.0619	16.339		

Sub Table: 1
It has been found that the mean age of onset of seizure in males is 26.03 and in female it is 21.00. t value= 2.855, P = 0.005. Here the observed difference in statistically significant. Since t value is significant at 0.05 level. Hence both male and female differ significantly with regard to age on onset of seizure.

Sub Table: 2
It has been found that mean duration of seizure in males and females when compared has a 't' value of -1.089 (P= 0.278). This difference is not significant since the 't' value is not significant at 0.05 level. Hence there is no difference in sex with regard to seizure duration

Sub Table: 3
The mean score for HADS on comparison between males and females has a 't' value = 0.061 (P= 0.952). Hence male and female do not differ since the 't' value is not significant at 0.05 level.

Sub Table: 4
On comparison between male and female with regard to Hamilton Anxiety Score, they differ significantly. (P < 0.005). Males had high anxiety scores when compared to females.

Sub Table: 5
On HAMD score the male and female when compared do not differ significantly. P value = 0.324 which is not significant at 0.05 level.

Sub Table: 6
On over all QOL score both sexes do not differ significantly since P value = 0.682 which is not statistically significant.

DISCUSSION

In our hospital, in the department of Neurology since the majority of the population in epileptic clinic belongs to Generalized Tonic Clonic seizures type,the study was planned to assess the psychiatric co-morbidity in them. Since most of the previous studies concluded that psychiatric co-morbidity was more common in patients with complex partial seizures and in patients with structural focal brain leison. The study here is planned in idiopathic Generalized Tonic Clonic seizures patients who were least studied.

In this study the prevalence of Psychiatric co-morbidity in epileptic patients was 52.5%. Among then depression was the commonest prevalence34.2% and Anxiety was present in 13.9% and mixed Anxiety and depression was found in 2.4% of them.

Among them the prevalence of mild depression was 11.7% moderate depression was 16.7 and severe depression was 5.8% by HAM-D scoring. Within the study group the prevalence of mild anxiety was 12.2% and moderate anxiety was 1.7% as assessed by HAM-A scoring. Only 2.4% of the patients showed features of both depression and anxiety on HADS, HAM-A & HAM-D scoring.

According to literature evidences the prevalence of depression in epilepsy ranges between 10-55%. This study results correlates well with standard Literature references. The previous studies supporting evidence for prevalence of depression within the range of our study are R. Jones et all 2012 (24-75%), Ekaterina V 2014 (40.63%) Rajesh J et al 2002 (34%), Adhikari A et all 2013 (36.8%), Ettinger et al 2004 (36.5%), Koban et al 2006 (32.6%), Kwon and park 2013 (27.8%) Kanner et al 2003 (30-50%).

On the contrary studies Jacoby et al 1996 concludes the prevalence of depression in epilepsy is only 9% and Gaitatzis et al 2004 (18.2%). Tellez- Zentence et al 2007 (17.4%) which is less compared to this study prevalence and Mehmedikas et all (70%) which is twice higher than our prevalence.

The prevalence of anxiety disorder ranges from 3-66% in epileptics according to literature evidences. In our study the prevalence of anxiety is 13.9% studies done previously supporting our prevalence are Gaitatzis et al 2004 (11.1%) Kobav et al 2006 (14.4%) Known and Park 2013 (15.3%) Brandt c et al2011 (19.51%). Andres M Kanner et al 2011 (19.6%). On the contrary most of other studies reports a higher prevalence of anxiety disorders Ekaterina V 2014 (71.43%). Kalkdn Balibey et al 2011 (26.8%) and A sadi Pooya et al 2011 (24.5%) Jacoby et al 1996 (25%) Tellez-zentho et al 2007 (22.8%). According to Literature evidences the mixed anxiety and depression prevalence in epilepsy ranges between 50-80 %. In our study the prevalence is only 2.4% which is too low. Studies supporting our diagnosis are. Andres M. Kanner et al 2010 4.8% had mixed anxiety and depressive disorder, Norberg MM et al 2008 (6.9%) and Jhonson Ek et al 2004 (9.4%).

Another finding in our study was when the severity of seizures is more there is higher prevalence of depression . It correlates well with previous studies that seizures freedom in past 6 months is associated with less depression and better QOL Andreas M. Kanner et al (2010), Kanner et all (2009), Vsiliosk et al (2007) Jacoby et al (1996) Victoroff J et al (1990) Kiki Mohammed et al (2006). On contrary the studies refuting our diagnosis are Attarian et al (2003) Gilliam et al (2002) Boylan et al (2004) stating seizure severity does not correlates with depression and anxiety.

New finding in our study is when the duration of seizure is less there is more prevalence of anxiety symptoms, which may be explained based on Literature evidences as an adjustment disorder in reaction to epilepsy in newly diagnosed patients.

With regard to socio demographic details, findings are males had high anxiety prevalence, higher literacy and higher socio economic status is associated with more anxiety and depression and hence poor QOL. This is contrary to prior studies which states that depression is more prevalent in females, lower literary and low socio economic status as supported by Elizabeth L et al (2010), Hermann BP et al (1989), Kimiskidis Vk et al (2007), Robinson E et al (2008), Thompsom Aw et al (2009).

On the contrary it was found that unemployed people have higher prevalence of depression and anxiety . It well correlates with previous studies that unemployment in past 6 months has a significant association withdepression and anxiety supported by Saygin GD et al (2014) Williams J et al (2003), Alanis GI et al (2005), Hesdorffer D et al (2005), Heaney Dc et al (2012).

In this study the prevalence of depression is more in patients with higher literacy and high socio economic status. This is contrary to earlier studies thatQOL is better in patients with higher socio economic status Vibha P et al (2010), Eva J et al (2009), Boylan et al (2004), An Jacoby et al (2009).

Limitations Of The Current Study:

- The sample was too small (120 patients) so that the study results cannot be generalized to whole community.
- Since all of the participants were on Antiepileptic drug therapy the drug induced anxiety and depression cannot be ruled out.

- Patients with a positive family history of Psychiatric illness have more chances of getting primary psychiatric illness than due to epilepsy per se.

CONCLUSION:

- From the study, it was found that the prevalence of depression and anxiety in epileptic patients is high.
- Among them depression is the commonest psychiatric co-morbid illness.
- Depression and Anxiety are more common in patients with high literacy profile.
- Positive family history of psychiatric illness is associated with more prevalence of depression in Generalized Tonic Clonic seizures patients.
- Unemployment has a significant positive association with prevalence of depression and anxiety.
- Depression and anxiety beyond epilepsy by itself further worsens the QOL in epileptic patients.
- Over all QOL is poor in patients with co-morbid depression, anxiety and who are unemployed.

Future directions:

Our study found that the prevalence of anxiety and depression is more common in patients with high literacy profile. Hence perceived stigma, knowing about the illness and knowledge about adverse effects of drug treatment in literates may cause more prevalence of anxiety and depression which needs further research. Regarding poly-drug therapy and higher prevalence of depression further research should be regarded in respect to every medication causing psychiatric illness should further be addressed.