ALTERED QUALITY OF LIFE IN EPILEPSY: SIGNIFICANCE OF INTERICTAL DEPRESSION

Todorova K.

First Psychiatric Clinic, UMHAT "St. Marina"-Varna

Reviewed by: assoc. prof. M. Arnaudova

SUMMARY

Depressive disorders, as the most common interictal psychiatric comorbidity in epilepsy, with prevalence rates of 10-60% of the patients, are an important issue in the management of people with epilepsy. **AIM AND METHOD:** We assessed the frequency, severity and the impact of comorbid depressive disorder on the quality of life (QOL) of people with epilepsy (PWE). The research was conducted on 106 patients with idiopathic epilepsy (41 males and 65 females), aged 18 to 60 years. The research protocol was applied interictally. Comorbid depressive disorder was diagnosed according to ICD-10 diagnostic criteria for affective and delusional disorders and supported by evaluation on Hamilton Depression Rating Scale (HAM-D-17). QOL was measured by Quality of Life in Epilepsy Inventory-31 (QOLIE-31). Statistical analysis included analysis of variance, correlation analysis, t-tests analysis. **RESULTS:** Comorbid depressive disorder affected 30(28.3%) of all patients. Based on HAM-D-17 scores depression was defined as mild in 24(80%) patients, moderate in 5(17%) and severe in 1(3%) patient. There were significant between-group differences for the QOLIE-31 overall score and all scores on QOLIE-31 subscales which were lower for the patients with comorbid depressive disorder. A moderate correlation was found between the interictal depressive disorder and lower scores for QOLIE-31 overall score and overall quality of life, emotional well-being, energy/fatigue and social functioning subscales. **CONCLUSIONS:** Comorbid depressive disorder is relatively common in PWE resulting in significant reduction of QOL of the affected subjects. These data clearly highlight the need to better appreciate its importance in the overall treatment plan of patients with epilepsy.

Key words: depression, epilepsy, quality of life

INTRODUCTION

Mood disorders have been demonstrated to have a significant adverse impact on QOL in the general psychiatric literature and initial studies in epilepsy have suggested a comparable effect (11). Depressive disorders in PWE are the most common interictal psychiatric comorbidity with prevalence rates of 10-60% of the patients depending on the type of the selected patient populations or differences in methodology for detecting psychiatric symptomatology (13,18). Despite this relatively high prevalence and their multifaceted clinical expressions depressive disorders often go unrecognized and untreated and yet as a part of the burden of living with epilepsy they represent an important issue in the management of PWE. Gilliam et al. (1997) noted comorbid depression as the most important predictor of QOL, even more powerful than the actual seizure frequency (6). These findings have been replicated by a number of authors, confirming the importance of the af-

fective state of the patient in assessing QOL (2,14). Furthermore comorbid depressive disorder seems to appear as a powerful predictor of poor prognosis in epilepsy. People with epilepsy and comorbid depression are more likely to experience side effects of anti-epileptic treatment, appear more often drug-refractory and have a poorer outcome after epilepsy surgery compared to epilepsy patients without comorbid depression (4,9,12,13). All these findings make appropriate and timely treatment of comorbid depressive disorder an essential part of a comprehensive treatment plan for PWE. AIM of our study was to assess the frequency and severity of comorbid depressive disorder in an adult patient population with idiopathic epilepsy without any other somatic or neurological comorbidity at the time of the psychiatric evaluation and to investigate the impact of the comorbid depressive disorder on the QOL of these patients.

SUBJECTS AND METHODS

The study was conducted on 106 patients with idiopathic epilepsy (41 males and 65 females), aged 18 to 60 years. The research protocol was applied interictally.

Address for correspondence:

K. Todorova, First Psychiatric Clinic, MHAT "Sveta Marina"
1, Hristo Smirnenski str, 9010 Varna, Bulgaria
e-mail: koralia_todorova@yahoo.com

All subjects underwent clinical psychiatric examination. Comorbid depressive disorder was diagnosed according to ICD-10 diagnostic criteria and the diagnosis was supported by evaluation on Hamilton Depression Rating Scale (HAM-D-17) (8). Based on HAM-D-17 scores depression was defined as mild (7-17 points), moderate (18-24 points) and severe (>24 points).

Tabl. 1. Clinical characteristics of the seizures.

Variable	Value
<i>Seizure type</i>	
• Partial seizures (simple partial, complex partial, with/without secondary generalization)	66 / 62,3%
• Generalized seizures (absence, atypical absence, myoclonic, clonic, tonic, tonic-clonic, atonic)	40 / 37,7%
<i>Frequency</i>	
• Seizure free	16 / 15,1%
• < 12 seizures per 12 months	29 / 27,4%
• ≥ 12 seizures per 12 months	61 / 57,5%
<i>Age at seizure onset</i>	
• Mean (SD)	19,79±13,19
• < 18 years	43 / 41,3%
• > 18 years	61 / 58,7%
<i>Duration of epilepsy</i>	
• Mean (SD)	17,22± 12,32
• < 5 years	21 / 20,0%
• 5 - 10 years	18 / 17,1%
• > 10 years	66 / 62,9%
<i>Seizure severity</i>	
• Mean (SD)	3,33± 1,94
• Mild 1 - 3	48 / 47,1%
• Moderate 3,1 - 5	28 / 27,5%
• Very severe 5,1 - 7	26 / 25,5 %
<i>AEM intake</i>	
• Without AEM	12 / 11,3%
• Monotherapy	50 / 47,2%
• Polytherapy	44 / 41,5 %

QOL was measured by an epilepsy specific questionnaire, the Quality of Life in Epilepsy Inventory-31 (QOLIE-31) (3). It contains seven multi-item scales that tap the following health concepts: emotional well-being, social functioning, energy-fatigue, cognitive functioning, seizure worry, medication effects and overall quality of life. A QOLIE-31 overall score is obtained using a weighted average of the multi-item scale score. Higher scores indicate better QOL. Statistical analysis included analysis of variance, correlation analysis, t-tests.

RESULTS

All enrolled subjects had a confirmed diagnosis of epilepsy, based on documented clinical data for at least 12 months

and were seizure-free for at least 72 hours before the psychiatric evaluation.

The entire sample included 106 patients with mean age 37.6± 11.57 years.

Table 1 presents the epilepsy specific variables of the sample. Data analysis revealed that 30(28.3%) of all evaluated patients with epilepsy were in a depressive episode with different severity. Based on HAM-D-17 scores, 24(80%) of the patients had mild depressive episode, 5(17%) had moderate depressive episode and 1(3%) patient had severe depression.

Patients were divided into two groups according to the presence of comorbid depressive disorder. All scores on QOLIE-31 were reduced for the group of patients with comorbid depressive disorder. Significant between-group differences were found for the QOLIE-31 overall score ($t=5.36$; $p<0.001$) and all QOLIE-31 subscale scores: seizure worry ($t=3.43$; $p<0.001$), overall quality of life ($t=5.07$; $p<0.001$), emotional well-being ($t=6.93$; $p<0.001$), energy/fatigue ($t=6.17$; $p<0.001$), cognitive functioning ($t=3.2$; $p<0.01$), medication effects ($t=2.09$; $p<0.05$) and social functioning ($t=3.94$; $p<0.001$). A moderate correlation was found between the presence of interictal depressive disorder and reduced scores for QOLIE-31 overall score ($r=-0.38$; $p<0.01$) and the following health concepts: overall quality of life ($r=-0.39$; $p<0.01$), emotional well-being ($r=-0.46$; $p<0.01$), energy/fatigue ($r=-0.44$; $p<0.01$) and social functioning ($r=-0.3$; $p<0.01$). Analysis showed that comorbid depression influenced the most emotional wellbeing, accounting for 21.16% of the variance, energy-fatigue, 19.36% of the variance and overall quality of life, 15.21% of the variance. Table 2 presents QOLIE-31 between group differences and correlations depending on comorbidity of epilepsy and depressive disorder.

DISCUSSION

As published data and our experience show depression in epilepsy is not a "single" or "homogeneous" disorder but a heterogeneous condition with various clinical expressions as well as different pathogenic mechanisms, clinical courses and treatment strategies (11,13). Because of this and according to ICD-10 criteria, we try to stick to the more correct term "depressive disorders" in epilepsy (13).

Results of our study revealed a prevalence of comorbid depressive disorder in patients with epilepsy similar to that reported in other studies. Almost 1 in 3 enrolled PWE experienced depressive symptoms suggestive of a mild or moderately severe depressive episode (5,13). By contrast, the prevalence of depression in the general population is thought to be 1-3% in men and 2-9% in women (1). All this data confirms that epilepsy is a risk factor for depression and patients with epilepsy have a four- to five-fold greater incidence of depressive disorder. The different prevalence rates reported in the literature result from differences in methodology for detecting psychiatric symptomatology and for selection of the type of patient populations studied (13).

Tabl. 2. QOLIE-31 between-group differences and correlations depending on comorbidity of Epilepsy and Depressive disorder

QOLIE - 31 Scale	Epilepsy without depression	Epilepsy with depression	t	p	r	p	D
Overall score	62,46± 16,72	42,31± 16,31	5.36	< 0,001	- 0.38	< 0,01	14.44 %
Seizure worry	51,01± 29,48	29,94± 25,76	3.43	< 0,001	- 0.26	< 0,01	6.76 %
Overall quality of life	63,45± 16,67	44,75± 18,14	5.07	< 0,001	- 0.39	< 0,01	15.21 %
Emotional well - being	62,76± 14,67	40,26± 15,99	6.93	< 0,001	- 0.46	< 0,01	21.16 %
Energy/Fatigue	62,46± 16,39	40,83± 17,17	6.17	< 0,001	- 0.44	< 0,01	19.36 %
Cognitive functioning	62,50± 21,97	47,06± 23,38	3.20	< 0,01	- 0.25	< 0,01	6.25 %
Medication effects	55,56± 33,29	40,74± 31,37	2.09	< 0,05	- 0.17	< 0,01	2.89 %
Social functioning	65,50± 27,57	41,80± 28,71	3.94	< 0,001	- 0.30	< 0,01	9.00 %

Moreover some studies suggest that there is a bi-directional interaction between epilepsy and depression based on common pathogenic mechanisms mediated by a decreased serotonergic, noradrenergic, dopaminergic and gabaergic activity (10,13). These data supports the concept of a higher than expected impact of depression on PWE and contradict the notion that depression is simply a consequence of having any chronic disorder.

Studies suggest that the presence of comorbid depressive disorder is found to be a very important factor affecting the QOL in patients with epilepsy (2,11,18). F.Gilliam (2002) reported a linear relation between interictal depressive symptoms and QOL, such as the more frequent and severe the symptoms of depression, the poorer the subjects' QOL (7). In our study the presence of comorbid depressive disorder remained a significant predictor for QOL. Comorbid depressive disorder affected QOLIE-31 overall score as well as scores on all included subdomains. QOLIE-31 scores were significantly reduced by comorbid depression and differences between groups by depression category were clinically significant. Similar results were reported by different authors in their studies (4,11,6,17). The scores on QOLIE-31 subscales indicated the negative impact of comorbid depression on all aspects of QOL and especially on emotional well-being and the energy-fatigue domain. Similar findings were published recently by V. Senol et al. (2007) for patients in Turkey (15).

CONCLUSION

Depressive disorders are a frequent comorbidity of epilepsy that have a very negative impact on QOL of the patients including their response to pharmacologic treatment. This may be due to the fact that depressive disorders and epilepsy appear to share common pathogenic mechanisms that may explain the bidirectional relationship between the two entities and their high comorbid occurrence. The significant influence of even mild-moderate depression on people's

perception of all aspects of their QOL suggests the importance of depression screening among people with epilepsy. Diagnosis and treatment of comorbid depressive disorder could be an important contribution to wellness of people with epilepsy.

REFERENCES

1. Beghi, E., Roncolato, M., Visona, G. Depression and altered quality of life in women with epilepsy of childbearing age. *Epilepsia*, **45**, 2004, 1, 64-70.
2. Boylan, L., L. Flint, D. Labovitz, S. Jackson, K. Starner, O. Devinsky. Depression but not seizure frequency predicts quality of life in treatment-resistant epilepsy. *Neurology*, **62**, 2004, 258-261
3. Cramer, J., K. Perrine, O. Devinsky, L. Bryant-Comstock, K. Meador, B. Hermann. Development and Cross-Cultural Translations of a 31-Item Quality of Life in Epilepsy Inventory. *Epilepsia*, 39, 1998, **1**, 81-88.
4. Cramer, J., M. Blum, M. Reed, K. Fanning. Epilepsy Impact Project. The influence of comorbid depression on quality of life for people with epilepsy. *Epilepsy Behav*, 2003,**4**:515-521.
5. Ettinger, A., M. Reed, J. Cramer, for the Epilepsy Impact Project Group. Depression and comorbidity in community-based patients with epilepsy or asthma. *Neurology*, **63**, 2004, 1008-1014.
6. Gilliam, F., R. Kuzniecky, E. Faught, L. Black, G. Carpenter, R. Schrodtt. Patient-validated content of epilepsy-specific quality-of-life measurement. *Epilepsia*, 38, 1997, **2**, 233-236.
7. Gilliam F. Optimizing health outcomes in active epilepsy. *Neurology*, 2002;**58**:S9-20.
8. Hamilton, M. A rating scale for depression. *J Neurol Neurosurg Psychiatry*, **23**, 1960, 56-62.
9. Hitiris, N., R. Mohanraj, J. Norie, G. Sills, M. Brodie. Predictors of pharmacoresistant epilepsy. *Epilepsy Res*, 75, 2007, **2-3**, 192-196.

10. Hesdorffer, D., W. Hauser, E. Olafsson, P. Ludvigsson, O. Kjartansson. Depression and suicidal attempt as risk factor for incidental unprovoked seizures. *Ann Neurol*, 2006; **59**:35-41.
11. Johnson, E., J. Jones, M. Seidenberg, B. Hermann. The relative impact of anxiety, depression, and clinical seizure features on health-related quality of life in epilepsy. *Epilepsia*, 45, 2004, **5**, 544-550.
12. Kanner, A. Epilepsy and mood disorders. *Epilepsia*, **48**, 2007, Suppl. 9, 20-22.
13. Kanner, A. Depression in epilepsy: a complex relation with unexpected consequences. *Curr Opin Neurol*, **21**, 2008, 190-194.
14. Perrine, K., B. Hermann, K. Meador, B. Vickrey, J. Cramer, D. Hays, O. Devinsky. The relationship of neuropsychological functioning to quality of life in epilepsy. *Arch Neurol*, **52**, 1995, 997-1003.
15. Senol, V., F. Soyuer, F. Arman, A. Ozturk. Influence of fatigue, depression, and demographic, socioeconomic, and clinical variables on quality of life of patients with epilepsy. *Epilepsy Behav*, 10, 2007, **1**, 96-104.
16. Tlusta, E., J. Zarubova, J. Simko, H. Hojdikova, S. Salek, J. Vlcek. Clinical and demographic characteristics predicting quality of life in patients with epilepsy in the Czech republic: How this can influence practice? *Seizure*, 2008, Jul.19. E-published.
17. Tracy, J., V. Dechant, M. Sperling, R. Cho, D. Glosser. The association of mood with quality of life ratings in epilepsy. *Neurology*, 68, 2007, **14**, 1101-1107.
18. Zeber, J., L. Copeland, M. Amuan, J. Cramer, M. Pugh. The role of comorbid psychiatric conditions in health status in epilepsy. *Epilepsy Behav*, 10, 2007, 539-546.