Frequency of Anxiety and Depression in Epileptic Patients

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ABSTRACT:
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Objectives: Depression and anxiety are commonly seen among epileptic patients. These comorbidities have a negative effect on achievement of effective treatment and improvement in the quality of life of epileptic patients. We aimed to determine the frequency of anxiety and depression in epilepsy and in subgroups of epileptic patients and their correlation with disease duration and seizure frequency.

Methods: Forty-one young male patients (13 temporal lobe epilepsy and 28 extra-temporal lobe epilepsy) and 48 young males as a healthy control group were included in the study. Each study participants completed the Beck Depression Inventory and the Beck Anxiety Inventory.

Results: There were high frequencies of anxiety (26.8%) and depression (34.14%) in the epileptic patients compared with control group (p=0.003, p=0.001, respectively). Although there was no statistical significance, the temporal lobe epilepsy group had higher anxiety and depression frequencies than the extra-temporal lobe epilepsy group (p=0.280, p=0.089, respectively). There was no significant correlations between disease duration and either anxiety inventory scores or depression inventory scores. However in the temporal lobe epilepsy group, we found a correlation with a medium level of significance between seizure frequency and Beck Anxiety Inventory scores as well as Beck Depression Inventory scores (r= 0.521, p= 0.068; r= 0.615, p= 0.025).

Conclusion: There were high frequencies of anxiety and depression in epileptic patients. A multidisciplinary approach and inter-disciplinary help co-operation is needed in the treatment of epilepsy. There is a need for controlled studies with larger sample sizes.

Keywords: epilepsy, anxiety, depression, frequency

INTRODUCTION
Epilepsy is one of the most frequent neurological diseases with a lifelong prevalence of an average of 4-10/1000. It is a chronic disease where known therapies are usually incapable of providing full cure, and thus the extended use of antiepileptic drugs and the negative impacts created by epileptic attacks on mental functions increase the disability rate1,2. As a result of such reasons, as well as depending on the location of epileptic focus, epilepsy patients often display psychiatric disorders (PD). The relationship between psychiatric patients and epilepsy has been known since ancient ages. The research about PD, especially depression, reveals an increase in epilepsy patients3-10. Similarly, the incidence of epilepsy is relatively high in psychiatric patients. In general population samples, the lifetime prevalence of epilepsy is 0.63%, whereas the incidence of epilepsy in psychiatric patients ranges from 4.7% to 9.7%9,11.

As the patients are not likely to often express such psychiatric problems, the success of antiepileptic treatment and the patient’s life quality are negatively effected8,12. The symptoms of depression in epilepsy patients have been reported to go unrecognized by practicing physicians (50%) and hospitals (30-70%)13. It has been reported that suicidal risk increases by five fold in epilepsy and 25 fold in temporal lobe epilepsy (TLE)14.
suicidal risk is 4-10 times higher in epileptic patients than in the general population. Furthermore, Sperli et al. reported that chronic epilepsy patients with PD were less inclined to resort to surgery and Kanner et al. revealed that anxiety, depression and sub-syndromic depression in epilepsy patients exacerbated medication-related side effects\(^3\)\(^{,15}\).

Our study aimed to identify the incidence of depression and anxiety in epileptic patients and to examine correlations with the type of epilepsy (extra-temporal lobe epilepsy (ETLE) and temporal lobe epilepsy (TLE), duration of disease and frequency of attacks.

**METHODOLOGY**

**Ethical Committee**

Our study was granted ethical approval by the Gülhane Military Medical Academy on February 8, 2011 and is numbered 167.

**METHOD**

41 patients who were diagnosed to have epilepsy and in whom an epilepsy classification was performed (13 TLE (31.7%), 28 ETLE (68.2%)) in accordance with the International League Against Epilepsy (ILAE) 1989 classification, as well as a group of 48 healthy controls, were involved in our study. All of the individuals were examined by an attending psychiatrist and then the Beck Anxiety Inventory (BAI) and Beck Depression Inventory (BDI) were administered by a psychologist, expert in the field. The results were compared between the epilepsy and control group and epilepsy sub-groups. In the epilepsy group, the correlation between frequency of anxiety and depression, the duration of disease and incidence of attacks were analyzed.

Each of the BAI and BDI consists of 21 questions and each question is scored with 0-3 points. The Beck Anxiety Inventory is an inventory which was created by Beck to measure the severity of an individual’s anxiety symptoms\(^{16}\). In Turkey, localization and validation studies were carried out by Ulusoy et al. and the cut-off score was determined to be 17\(^{17}\). The Beck Depression Inventory is an inventory which was created by Beck to be used to find out an individual’s depression risk and measure the level of depressive symptoms and changes in severity\(^{18}\). The inventory form in Turkish has been tested in terms of its validity and reliability and the cut-off score was determined to be 17\(^{19}\).

**Statistical Analysis**

Statistical analysis was performed with the statistical package for social sciences (SPSS version, 15.0). Distribution of data normality was assessed by the Shapiro-Wilk test. Results were presented as minimum, maximum and median values. The Chi-square/Fisher’s exact test was used for the assessment of differences between frequency of anxiety and depression in two groups. The Mann Whitney U test was used for comparison of BAI and BDI scores between groups. Correlation analysis was performed by the Spearman correlation test. Differences and correlations were considered statistically significant at the p<0.05 level for all tests.

**RESULTS**

As the hospital used is a military hospital, all the epilepsy patients and the control group consisted of young men.

The anxiety frequency was 11 (26.8%) in epilepsy group and 2 (4.16%) in the control group. The depression frequency was 14 (34.14%) in the epilepsy group and 3 (6.25%) in the control group. There were high anxiety and depression frequencies in the epileptic patients compared with the control group (p=0.003, p=0.001, respectively). In the TLE and ETLE groups, the anxiety frequency was 5 (38%) and 6 (21%), respectively. In the TLE and ETLE groups, the depression frequency was 7 (53.8%) and 7 (25%), respectively. The frequency of anxiety and depression results were summarized in Table 1.

The BAI and BDI scores were very much higher in the epilepsy group than the control group. The median BAI scores of the epilepsy and control groups were 10 and 4, respectively. The median BDI scores of the epilepsy and control groups were 12.
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The differences in terms of BAI and BDI scores between the epilepsy and control groups were statistically significant (p<0.0001, p<0.0001, respectively). Median values and comparison of findings of each group determined by statistical analysis are shown in Table 2.

There were no differences between the TLE and ETLE groups with respect to age and educational level (p=0.613, p=0.858, respectively). The differences in terms of BAI and BDI scores between the TLE and ETLE groups were not statistically significant (p=0.888, p=0.066, respectively). Median values and comparison of these findings are shown in Table 3.

No correlation was found between duration of epilepsy and frequency of epilepsy attacks and BAI and BDI scores in TLE and ETLE groups.
epilepsy and the BAI in TLE and ETLE patients ($r=0.247; p=0.415; r=0.183, p=0.350$, respectively). There was no correlation between duration of epilepsy and the BDI in TLE and ETLE patients ($r=0.261, p=0.390; r=0.128, p=0.518$, respectively). No correlation was found between frequency of epilepsy attacks and the BAI or BDI scores in ETLE patients ($r=0.166, p=0.397; r=0.070, p=0.724$, respectively). However, a statistically significant medium-level relationship was found between frequency of epilepsy attacks and the BAI and BDI in the TLE group ($r=0.521, p=0.068; r=0.615, p=0.025$, respectively). The correlation results were summarized in Table 4.

**DISCUSSION**

The co-occurrence of such symptoms as anxiety and depression in a chronic disease is a common situation. However, psychiatric co-morbidities, mostly depression and anxiety, have higher rates of incidence in a disease such as epilepsy, which is likely to cause social problems for the patient, influence mental functions as a result of attacks and antiepileptic drugs and in which the epileptic focus is an important factor in the brain. We have reported anxiety and depression in our study with a significant incidence among epilepsy patients, compared to the control group.

Matsuura et al. reported a higher incidence of PD even in newly-diagnosed epilepsy patients. In this study, we recorded significantly high incidences of anxiety and depression in epilepsy patients, compared to the control group, consistent with previous reports.

As a result of the characteristics of the temporal region and the attacks which occur in this region, a higher incidence of PD (mostly depression) is likely to occur in patients with TLE rather than other attack localizations and non-epileptic individuals, and this situation is reported in certain studies, whereas other studies show no difference between TLE and ETLE and even between TLE and general population with respect to PD incidence. In our study, there were no statistically significant differences between TLE and ETLE with respect to BAI and BDI scores (caused by the lower number of patients), but a higher frequency of depression (53% vs. 25%) and anxiety (38% vs. 21%) was reported in the TLE than in the ETLE group.

It was considered that besides the epileptic focus localization, the PD incidence is likely to be affected by duration of disease and frequency of attacks, and this has been suggested in certain studies. In our study, we found out that both depression and anxiety episodes are significantly correlated with frequency in TLE patients.

As the epileptic patients also suffer a chronic disease, the fact that depression and anxiety symptoms are considered as a disease-related adaptation problem and not questioned or regarded as important by the treatment team, poses a significant problem. The atypical clinical picture of depression and anxiety in epilepsy patients is caused by the fact that evaluation inventories, which have been developed with regard to depression and anxiety, have not been validated with epileptic patients. In addition, as long as they are not asked, the patients are likely to refrain from mentioning their psychiatric complaints due to a fear of stigmatization. Psychiatric co-morbidities create negative impacts on patients’ quality of life and make it difficult to control the epilepsy. Once the psychiatric symptoms in epileptic patients are carefully questioned, illnesses such as depression and anxiety disorder, which are likely to show a higher incidence in those patients, and the high suicidal risk, would be addressed; thus the success of treatment, the patient’s satisfaction and quality of life would be improved.

In conclusion, we found in our study, a higher incidence of anxiety and depression in epileptic patients. Although this incidence was not statistically significant, it was more evident in TLE patients. There were no significant correlations between disease duration with the anxiety or depression inventory scores. However, in the temporal lobe epilepsy group, we found a significant correlation (medium level) between seizure frequency and the BAI and BDI scores. The lower number of patients (particularly in the TLE and
ETLE sub-groups) and the fact that patients were from a certain group of gender and age (male in their 3rd decade) are the most important limitations of our study.

Epileptic patients are likely to display a higher co-occurrence of psychiatric disorders, mostly depression and anxiety. Psychiatric co-morbidities have negative impacts on patients’ quality of life and make it difficult to control the epilepsy. Psychiatric complaints in patients diagnosed with epilepsy should absolutely be questioned. A multidisciplinary approach and inter-disciplinary co-operation are needed in epilepsy treatment of epilepsy. Further studies with large sample sizes, analyzing the relationship between epilepsy and psychiatric disorders, are required.

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