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Research report

Affective temperament profiles and clinical correlates in patients with epilepsy: A link from mood disorders

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ABSTRACT

Background: The current study sought to investigate the affective temperaments of patients with epilepsy and possible relationships between disease characteristics and temperament profiles.

Methods: A total of 70 adults with epilepsy and 70 healthy volunteers completed the Beck Depression Inventory (BDI), the Beck Anxiety Inventory and the Temperament Evaluation of Memphis, Pisa, Paris and San Diego (TEMPS-A).

Results: Patients with epilepsy had higher scores on these three scales than healthy controls. With respect to temperaments, irritable temperament alone was significantly higher in patients than controls. Irritable temperament also had a significant positive correlation with psychiatric history, whereas depressive temperament had a significant positive correlation with illness and treatment duration. Patients who had suffered simple partial and complex partial seizures had higher anxious temperament scores than patients with generalized epilepsy.

Limitations: Because the study group was recruited through consecutive patients seen in a single neurology clinic, our findings may not be representative of PWE in general.

Conclusions: Because irritability is one of the key symptoms of interictal dysphoric disorder and because TEMPS-A irritable temperament and BDI scores were found to be significantly related, the high rate of irritable temperament in our patient sample may be associated with depressive mood. We may suggest that at least some of the affective symptoms in patients with epilepsy and the historical concept of “epileptic personality” may be explained by affective temperaments.

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1. Introduction

It is well known that a significant proportion of patients with neurological disorders, especially patients with epilepsy (PWE), also have psychiatric comorbidities, including mood disorders, in the course of their epileptic illnesses (Swinkels et al., 2005; Mazza et al., 2007; Mula et al., 2008). Mood disorders are classified into two major categories: unipolar depressive and bipolar disorder (BD). Depressive disorder is the most common psychiatric comorbidity in PWE and often tends to have atypical clinical manifestations with the symptoms of irritability and anxiety (Kanner, 2013).

Mazza et al. (2007) suggested that the prevalence of true manic depressive illness in epilepsy has been demonstrated to be in line with that reported in the general population (about 2%) whereas, Clarke et al. (2012) showed that the risk of BD among epileptic individuals is 6.3 times higher than individuals without epilepsy. BD shares some

common features with epilepsy including episodic nature, chronicity, pharmacological treatment strategies and spontaneity of the episodes (Mazza et al., 2007; Amann and Grunze, 2005).

Temperament features are early-appearing, core personality traits, showing relative stability with some change over time (Di Florio et al., 2010). The concept of affective temperaments has been developed by Akiskal et al. (1977). Akiskal and Akiskal (2005) considered affective temperaments to be subclinical manifestations or phenotypes of mood disorders—i.e., if there is a continuum for affective disorders, temperament is located at one end of it.

Axis I disorders as well as some personality and behavior differences have been linked to PWE. The terms “interictal dysphoric disorder (IDD)”, “interictal personality syndrome” and “epileptic personality” have been proposed for these symptoms (Swinkels et al., 2005; Mula et al., 2010).

Based on the literature, following reasons were cited in support of this study: (1) mood disorders and epilepsy have some features in common; (2) PWE have somewhat different personality traits than individuals without epilepsy; and (3) underlying neurological pathologies can influence the expression of psychiatric symptoms.

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Consequently, we suggest that PWE would be more likely to exhibit affective temperaments than healthy controls. Therefore, in this study, we sought to investigate the affective temperaments associated with PWE and the possible relationships between disease characteristics and temperament profiles.

2. Methods

2.1. Study sample

We evaluated 70 consecutive PWE who were admitted to the neurology outpatient unit of Osmaniye State Hospital. Inclusion criteria included (1) a diagnosis of epilepsy according to the International League Against Epilepsy criteria (Commission on Classification and Terminology of the International League Against Epilepsy, 1989); (2) an absence of diagnosed BD. Age at epilepsy onset, duration of epilepsy, seizure frequency, and duration of treatment were based on self-report whereas seizure type, existence of lesions, psychiatric history and, experience of auras were checked from the medical records. Seventy healthy volunteers comprised the control group. The control group was composed of the hospital staff and their family members.

The sociodemographic and clinical data form, the Beck Depression Inventory (BDI), the Beck Anxiety Inventory (BAI) and The Temperament Evaluation of Memphis, Pisa, Paris and San Diego (TEMPS-A) were applied to all participants.

The study was in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki. All patients and controls provided written informed consent for participation in the study.

2.2. Statistics

Because the data were not normally distributed with adequate variability, nonparametric tests were used. Mann–Whitney *U* and Kruskal–Wallis tests were applied for between-group comparisons. Chi-square was used for cross tabulations of categorical variables. Analyses of associations between the scores on all scales, illness duration and antiepileptic treatment duration in PWE were performed using Spearman rank correlations.

3. Results

The data from 70 patients with epilepsy (39 female) (mean age \pm SD = 27.91 \pm 6.25) and 70 healthy controls (30 female) (mean age \pm SD = 28.67 \pm 7.65) were analyzed. The demographic variables of both groups are shown on Table 1.

In the epilepsy group, 20 (28.57%) reported having generalized seizures, 37 (52.85%) reported having complex partial seizures and 13 (18.57%) reported having simple partial seizures. The mean age of illness onset was 12.70 \pm 6.80 years, and the mean illness duration was 15.04 \pm 6.72 years. The mean duration of antiepileptic treatment was 14.82 \pm 6.77 years. The seizure frequencies of the patients were reported as follows: 8 (11.4%) having seizures fortnightly, 18 (25.7%) monthly, 24 (34.3%) quarterly and 14 (20%) once or less than once per year. The proportion of patients having experienced auras was 50% ($n=35$). The number of patients who reported having brain lesions associated with epilepsy was 29 (42%). Thirty-two patients (45.7%) reported psychiatric disorder histories including major depression ($n=13$, 18.6%), generalized anxiety disorder ($n=5$, 7.1%), obsessive–compulsive disorder ($n=3$, 4.3%), panic disorder ($n=2$, 2.9%), social anxiety disorder ($n=1$, 1.4%), and adjustment disorder ($n=8$, 11.4%).

The BDI, BAI and TEMPS-A scores of the patients and controls are also shown in Table 1. Patients who had BDI scores over 17 were

Table 1
Demographic variables and BDI, BAI, and TEMPS-A affective temperaments scores of the patients and the controls.

Variable	Patients (n=70)	Healthy controls (n=70)	P values
Gender, n (%)			^b 0.865
Male	39 (%55.7)	40 (%57.19)	
Female	31 (%44.3)	30 (%42.9)	
Age (years), mean \pm SD	27.91 \pm 6.25	28.67 \pm 7.65	^a 0.698
Years of education, n (%)			^b 0.551
≤ 5	17 (%24.3)	20 (%28.6)	
5–11	46 (%65.7)	40 (%57.1)	
> 11	7 (%10)	10 (%14.3)	
Marital status, n (%)			^b 0.848
Single	27 (%38.6)	25 (%35.7)	
Married	39 (%55.7)	42 (%60)	
Divorced/separated	4 (%5.7)	3 (%4.3)	
Employment, n (%)			^b 0.741
Unemployed	12 (%17.1)	11 (%15.7)	
Housewife	30 (%42.9)	28 (%40)	
Student	6 (%8.6)	7 (%10)	
Officer	6 (%8.6)	11 (%15.7)	
Self employment	16 (%22.9)	13 (%18.6)	
Scales			
BDI, mean \pm SD	15.38 \pm 8.43	1.01 \pm 1.74	^a < .001**
BAI, mean \pm SD	15.07 \pm 7.64	0.78 \pm 1.35	^a < .001**
TEMPS-A, mean \pm SD			
Depressive	7.92 \pm 3.75	4.34 \pm 4.01	^a < .001**
Cyclothymic	8.21 \pm 4.91	1.97 \pm 3.30	^a < .001**
Hyperthymic	6.55 \pm 4.51	2.70 \pm 3.49	^a < .001**
Irritable	7.62 \pm 4.33	2.42 \pm 2.42	^a < .001**
Anxious	8.84 \pm 4.80	2.82 \pm 4.02	^a < .001**

^a Mann Whitney *U*.

^b Pearson Chi square.

** $P < 0.01$.

41.41% ($n=29$) and patients who had BAI scores over 17 (evaluated as having moderate and severe anxiety) were 32.85% ($n=23$).

Seven (%10) patients had depressive affective temperament while three (%4.28) of the controls had. Cyclothymic temperament was found in five (%7.14) patients versus one (%1.42) in control group. One person (%1.42) in each groups were found to have hyperthymic affective temperament. Five patients (%7.14) and three (%4.28) controls had anxious temperament. Of the patient group eleven patients (15.71%) had irritable temperament versus two (%2.85) in control group. A statistically significant difference between groups was only found for the irritable affective temperament ($\chi^2=6.86$, $p=0.00$).

There were no statistically significant differences between those patients with and without a specific dominant affective temperament in terms of seizure frequency. A significant relationship was found between anxious affective temperament and seizure type ($\chi^2=6.03$, $p=0.04$). The patients with simple (10.07 \pm 5.07) or complex partial seizures (9.91 \pm 4.76) had higher anxious temperament scores than the patients who had generalized seizures (6.05 \pm 3.61).

The male patients had significantly higher scores than the female patients for the depressive ($p=0.03$), hyperthymic ($p=0.04$), and irritable ($p=0.00$) temperaments. The male patients reported longer durations of both illness and treatment than the female patients ($p=0.00$). Depressive temperament scores for the females were higher in control group ($p=0.00$).

A significant correlation was found between depressive temperament scores and both illness ($r=0.33$, $p=0.00$) and antiepileptic treatment duration ($r=0.34$, $p=0.00$). Between the subgroups of the TEMPS-A and the scores on all other scales, the BDI was positively correlated with depressive and irritable temperament. The results of the correlation analysis are presented in Table 2. Comparisons of the scale scores between different patient subgroups revealed that PWE with a psychiatric history had significantly higher scores for the irritable temperament ($p=0.03$).

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