Emotional Disorders in Temporal Lobe Epilepsy: A preliminary study

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Objective

Epilepsy is a chronic neurological disorder often accompanied by changes in cognition and behavior (1). Mood disorders, particularly depression and anxiety, are the most frequent comorbid psychiatric conditions (2). An important dimension, responsive to situational and emotional stressors, is alexithymia that has been defined as the inability to identify and describe feelings. The aim of this study was to analyze affective states in patients with temporal lobe epilepsy and their anatomical correlates.

Materials

8 subjects with temporal lobe epilepsy (30.87±11.37 mean age, 4 with and 4 without mesial sclerosis) and 16 sex-aged matched controls were enrolled (Table 1).

Methods

Patients and healthy controls were undergone to Magnetic Resonance Imaging examination by using a 3.0 T MR scanner. The cross-sectional version of the structural image evaluation using the normalization of atrophy (SIENA) method (SIENAX) part of the FMRIB Software Library [FSL]; www.fmrib.ox.ac.uk) to estimate global and regional brain tissue volumes normalized for subject head size was used. Tissue-type segmentation with partial volume estimation is performed to calculate the total volume of brain tissue (NBV), including separate estimates of volumes of grey matter (GM) and white matter (WM) (3). Epileptic patients were also tested using Beck Depression Inventory (BDI-II), Hamilton Rating Scale for Anxiety (HAM-A) and Toronto Alexithymia Scale (TAS-20).

Table 1. Demographic characteristics of the family member of DOC patients.

	Patients	Controls
N. Subjects	8	16
Age (Mean ± SD)	30.87±11.37	29.61±8.91
WM	718690.3±14505.99	701783.9±129062.7
GM	1961151±3225443	839540±47149.69
NBV	1554841±56109.6	1564110±68136.2

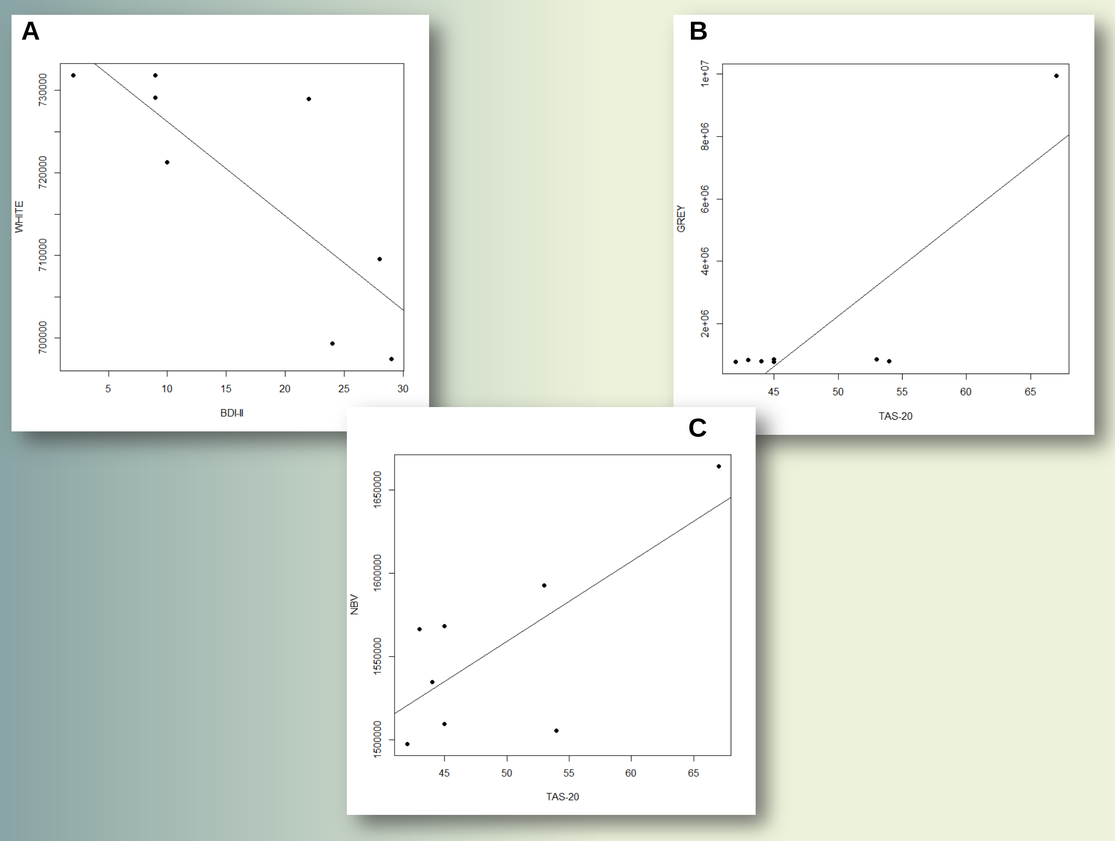

Figure 1. Correlation between Clinical Scale. (A) Scatter plot of BDI-II and WM. (B) Scatter plot of TSA-20 and GM. (C) Scatter plot of TSA-20 and VBM.

Results

Two-tailed Student's t test no showed significant differences in cerebral volumes and demographic variable between epileptics and control group. Clinical evaluation revealed a BDI-II score of 16.62±10.28, 12.87±5.44 for HAM-A and 49.12±8.51 for TAS-20. In epileptics group, we found a significant negative correlation between BDI-II scores and WM (r=-0.81; p=0.01). Furthermore, a positive correlation was showed in TAS-20 with GM (r=0.85; p=0.007) and NBV (r=0.73; p=0.04) (Fig. 1). Multiple regression analysis on clinical test showed that age was a significant predictor for HAM-A and TAS-20 (Table 2).

Table 2. Multiple regression analysis: significant predictors on each clinical score

Dependent variables	Predictors	β	Std β	p-value	Adjusted R^2
HAM-A	Age	0,36	0,76	0,06	0,69
TAS-20	Age	-0,44	-0,58	0,02	0,93
	GREY	0,000001	0,69	0,05	
DES-II	Age	-1,16	-1,11	0,002	0,94

Discussion

Our findings suggest the presence of mild affective alterations in epileptic patients. There were no significant differences in cerebral volumes between epileptics and control group. Nevertheless, subcortical white matter volume seems to be a neuroanatomical marker of depression. Furthermore, age plays an important role in the intensity of anxiety and alexithymia, possibly indicating an influence of disease duration.

Conclusion

To conclude, our results confirm the comorbidity of mood disorders in patients with epilepsy. This comorbidity may have a significant negative impact on the quality of life of epileptic patients. However, the absence of structural brain abnormalities suggests the need to study, in a larger sample, the role of biological and psychosocial factors in the development of this emotional changes and to clarify the relationship between these two disorders.

References

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