Psychiatric disorders in temporal lobe epilepsy: An overview from a tertiary service in Brazil

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ABSTRACT

Purpose: To evaluate the frequency and intensity of psychiatric disorders in a group of temporal lobe epilepsy (TLE) patients from a tertiary-care center.
Methods: Clinical and sociodemographic data of 73 patients were collected and a neuropsychiatric evaluation was performed with the following instruments: Mini-Mental State Examination (MMSE), structured clinical interview (MINI-PLUS), Hamilton Anxiety Scale (HAM-A), Hamilton Depression Scale (HAM-D), Brief Psychiatric Rating Scale (BPRS).
Results: Patients with TLE showed a high frequency of lifetime psychiatric disorders (70%), the most frequent being mood disorders (49.3%). At assessment, 27.4% of the patients were depressed and 9.6% met criteria for bipolar disorder. Nevertheless, depression had not been properly diagnosed nor treated. Anxiety disorders were also frequent (42.5%), mainly generalized anxiety disorder (GAD) (21.9%). Obsessive compulsive disorder (OCD) was present in 11.0% and psychotic disorders in 5.5% of the sample. Patients with left mesial temporal sclerosis (LMTS) exhibited more psychopathologic features, mainly anxiety disorders ($p = 0.006$), and scored higher on HAM-A and HAM-D ($p < 0.05$ in both).
Conclusion: TLE is related to a high frequency of psychiatric disorders, such as anxiety and depression, which are usually underdiagnosed and undertreated. Damage to the left mesial temporal lobe, seen in LMTS, seems to be an important pathogenic lesion linked to a broad range of psychopathological features in TLE, mainly anxiety disorders. The present study prompts discussion on the recognition of the common psychiatric disorders in TLE, especially on the Brazilian setting.

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1. Introduction

Mental disorders are very common in epilepsy and may even precede the onset of seizures. Studies have shown a high prevalence of epilepsy in individuals with mental disorders, suggesting an association between the two conditions.[1–3] Such connection was observed in a recent epidemiological study in a psychiatric hospital where 10% of the inpatients had epilepsy.[1] Further, several other studies report a high prevalence of psychiatric disorders in people with epilepsy.[4–6] Despite the lack of epidemiologic data in Brazil, it is estimated that there is something between 530 thousand and 890 thousand people with epilepsy and some associated mental disorders in this country.[7]

Temporal lobe epilepsy (TLE) encompasses epileptic syndromes that arise in the temporal lobes and mesial temporal lobe epilepsy (MTLE), the main subtype of TLE, is probably the commonest presentation of epilepsy in humans.[8–10] MTLE is frequently associated with a poor seizure response to antiepileptic drugs (AEDs), especially if mesial temporal sclerosis (MTS) is present.[9,11] MTLE is also called limbic epilepsy and the latter term has been preferred by many authors because it reinforces the idea of a system involvement rather than specific structures.[10] In addition, studies have emphasized that patients with TLE present a high propensity to develop psychiatric disorders due to the role of the limbic system in regulating emotions, mood and behavior.[12–15]

It should be noted that it is difficult to establish precisely the frequency of psychiatric disorders in epilepsy, as mental phenomena may result from a complex interaction between neurophysiologic changes caused by seizures, AEDs side effects, individual vulnera-

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bility and subjective experience of psychosocial impact.[6,16–18] It is, therefore, challenging to diagnose, treat, minimize functional impairment and improve quality of life of these patients.[2] In this study we conducted a psychiatric survey in a group of TLE patients in a tertiary-care service in Brazil and we describe and correlate their psychopathological, sociodemographic and clinical characteristics.

2. Methods

A cross-sectional study was conducted with 73 TLE patients. All subjects were monitored by the Epilepsy Clinic of the Neurology Service, Hospital das Clínicas, Universidade Federal de Minas Gerais (UFMG), which is a regional reference service for refractory epilepsy treatment. This service encompasses around 1000 patients that are referred from general practitioners, general physicians, or general neurologists of the whole state of Minas Gerais due to difficult control of seizures. This study was approved by the local Ethics Committee (according to the Declaration of Helsinki). The inclusion criteria were: diagnosis of TLE according to the ILAE criteria,[8] age more than 18 years and capacity to provide written informed consent for participation in the study. Patients were excluded if they had severe medical or neurologic disease other than epilepsy, history of previous neurosurgery, and severe cognitive impairment according to MMSE performance.[19]

Sociodemographic (age, gender, ethnicity, marital status, employment situation and educational level) and clinical information (age at onset and duration of the epilepsy, seizure type, seizure frequency, refractory epilepsy according to ILAE criteria,[20] antiepileptic drug regime, MRI and EEG findings) were collected.

Psychiatric diagnosis was made according to the Mini International Neuropsychiatric Interview (MINI) Plus version 5.0.0. The MINI-PLUS is an internationally validated standardized interview frequently used in clinical and research contexts, following DSM-IV and ICD-10 criteria.[21–23] Algorithms are integrated into the structure of the questionnaire and they allow hierarchical diagnosis as well as psychiatric comorbidities in the same patient.[21] For psychiatric diagnosis the recommendations of ILAE Commission on Psychobiology of Epilepsy were also followed in order to conduct a more descriptive classification, correlating clinical variables (e.g., ictal and interictal symptoms, relationship with AEDs therapy, etc.) and avoiding pre-setting all cases with an "organic" etiologic label.[24,25] Patients who met diagnostic criteria for clinically significant mental disorders were referred for psychiatric treatment. Anxiety symptoms were assessed using the Hamilton Anxiety Scale (HAM-A) (total score range: 0–56).[24,26,27] Hamilton Depression Scale (HAM-D)[24,28,29] was used to measure depressive symptoms. We used the 24-item HAM-D (total score range: 0–75), which includes helplessness, hopelessness and low self-esteem items,[29] in order to reduce the weight of the somatic symptoms, increasing its specificity. The 18-item Brief Psychiatric Rating Scale (BPRS) (total score range: 0–108) was used to quantify psychotic and general psychopathology.[30,31]

Descriptive analysis of categorical variables and proportions were calculated and presented. For comparison of categorical variables between groups Fisher's Exact test was performed and continuous variables were evaluated using the Kruskal–Wallis test. All tests were performed using SPSS version 15.0 for Windows. A lower than 0.05 two-sided p-value was considered significant for all tests.

3. Results

3.1. Clinical and sociodemographic characteristics

Seventy-three patients were included in this study. The sociodemographic and clinical characteristics of patients with TLE are displayed in Table 1.

Table 1
Sociodemographic and clinical characteristics of the study sample.

	Patients (n = 73)	
	n or mean (SD)	Proportion (%) or median (range)
Gender		
Male	34	46.6%
Female	39	53.4%
Age (years)	42.2 (10.0)	43 (21–65)
Ethnic group		
White	34	46.6%
Black	9	12.3%
"Pardo"[a]	30	41.1%
Educational level, years of study	6.9 (3.5)	6 (0–12)
Marital status[b]		
Single	29	40.3%
Married/stable union	28	38.9%
Divorced/separate	11	15.3%
Widowed	4	5.6%
Employment situation		
Employed	31	42.5%
Unemployed	10	13.7%
Retired (age or time of service purposes)	6	8.2%
Retired (due to illness)	26	35.6%
Seizure type		
Simple partial	31	42.5%
Complex partial	70	95.9%
Partial evolving to secondarily generalized	28	38.4%
Age at onset of epilepsy (years)	8.5 (9.8)	5 (0–49)
Duration of epilepsy (years)	33.7 (12.2)	34 (3–54)
Seizure frequency, seizures per month	4.8 (7.6)	2 (0–40)
Refractory epilepsy	59	80.8%
Seizure free for six months or longer	7	9.6%
MRI		
WMTS	10	13.7%
RMTS	25	34.2%
LMTS	30	41.1%
BMTS	8	11%
AEDs therapy regime (%)		
Monotherapy	9	12.3%
Dualtherapy	47	64.4%
3 AEDs	17	23.3%

SD, standard deviation; MRI, magnetic resonance imaging; WMTS, without MTS; RMTS, right mesial temporal sclerosis; LMTS, left mesial temporal sclerosis; BMTS, bilateral MTS; AEDs, antiepileptic drugs.
[a] "Pardo": mixed race or color (mulato, mestizo).
[b] One patient failed to disclose marital status.

Patients had a mean of 4.8 seizures per month, usually with childhood onset (mean age 8.5 years) and long time course (mean 33.7 years). A combination of focal seizures types was observed as 95.9% exhibited complex partial, 42.5% had simple partial seizures and secondarily generalization was reported in 28 individuals (38.4%). It is worth noting the impairment on working capacity where less than half (42.5%) of the patients were employed.

Most of the patients (64.4%) were on two AEDs. Carbamazepine (64.4%) in monotherapy or in association with other drugs was the most prescribed AED alone; benzodiazepines (72.6%) were the most common pharmacological group.

Refractoriness was characterized in the majority of patients (80.8%) and only a few had achieved seizure control for more than six months.