

Interictal Depressive Symptoms in Patients with Epilepsy

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Abstract

Purpose: To assess the prevalence of interictal depressive symptoms and their correlation to seizure variables among patients with epilepsy in a community hospital in Taiwan.

Methods: Data on age at onset, duration of epilepsy, seizure type, seizure focus, seizure frequency, antiepileptic medications used, and the etiology of epilepsy for 74 consecutive outpatients with epilepsy (47 male and 27 female; mean age = 35.8 ± 15.5 years) were recorded. Depressive symptoms were assessed using the Hamilton Depression Rating Scale (HDRS).

Results: Twenty-four (32.4%) patients had depressive symptoms, and 9 (12.2%) had major depression. Depressive symptoms occurred often in patients who were symptomatic for epilepsy. Depressive symptoms were not related to age at onset, duration of epilepsy, seizure types, seizure frequency, lateralization of seizure focus, and antiepileptic medication used.

Conclusion: Interictal depressive symptoms occurred in about one-third of patients with epilepsy. The association of interictal depression with secondary epilepsy may be particularly prominent, and we propose that interictal depression in

epilepsy is an organic mental disorder related to the underlying disease.

Key words: epilepsy, depressive symptoms, Hamilton Depression Rating Scale.

Introduction

Depression is the most frequent comorbid psychiatric disorder in epilepsy. Numerous recent studies confirm that the high occurrence (40-60%) of depressive symptoms in patients with epilepsy causes severe diagnostic, therapeutic, and social problems[1,2]. In general, depression is more common and/or more severe in patients with epilepsy than in patients with other neurological and chronic medical conditions[3]. The rate of depression appears to be lowest in community studies, increasing in patients who attend the hospital as outpatients and is highest in patients with medically intractable epilepsy being evaluated for epilepsy surgery[4]. The risk of suicide has been estimated to be 10 times higher than in the general population[5]. Several investigators have reported more frequent depression among those with epilepsy than among controls with a comparable handicap[6]. These findings imply that most depression in epilepsy is an organic mood disorder rather than a reaction to a chronic disability.

A clue to the origin of depression in epilepsy is the presence of a relationship with seizures variables. Interictal depression can arise with increasing seizures[7], or can be relieved by having seizures, similar to the effects of electroconvulsive

therapy[8]. Several studies have indicated that interictal depression occurs more often in patients with complex partial seizure (CPS) than in patients with primary generalized tonic-clonic seizures[9]. Other studies maintain that patients with epileptic foci lateralized to the left temporal lobe have a specific predisposition to interictal depression[10]. Anticonvulsant drugs also affect depression in epilepsy[11]. Further understanding of the correlation of depression with these seizure variables could clarify the role of seizure control in managing depression and help lessen the high rate of suicide among epilepsy patients[12].

Prior to this study, there were limited data to describe interictal depressive symptoms in Taiwan. This prospective study was designed to assess the prevalence of depressive symptoms in a community hospital in Taiwan, and the relationships between depressive symptoms and seizure variables of epileptic patients.

Subjects and Methods

Subjects were selected from consecutive outpatients in the neurology clinic at Cheng-Ching hospital, a private community facility. The consecutive subjects who had a history of epilepsy and were currently on anticonvulsant drug treatment presently were interviewed and examined by a neurologist. All patients with a known history of dementia, psychosis, current antidepressant treatment, or severe concomitant disease were excluded. Patients with aphasia and difficulties that affect interviewing were also excluded.

There were seventy-four patients available for assessment (47 male and 27 female). The mean age of this group was 35.8 ± 15.5 (16-75) years old, and about half of the patients were married. Only 11% (8/74) of patients reported that their parents or siblings had ever been diagnosed with depressive disorder. Seizure variables and epileptic foci were characterized by clinical interview, chart review and electroencephalogram (EEG) findings.

The interictal depressive symptoms were

assessed by a trained research assistant with the Hamilton Depression Rating Scale (HDRS). We defined patients as having depression if the score of the HDRS was above 10. Patients with an HDRS score within 10-13 were defined as having mild depression, 14-17 was defined as moderate, and severe depressive patients were those with an HDRS score of above 17.

Descriptive statistics were used to summarize data. Between-group comparisons were made with the t-test or ANOVA for continuous variables and Chi-square test of independence for dichotomous variables. Multiple regression was used to test the strength of the association between depression and risk factors. Tests were two-tailed, and results were considered significant at $P < 0.05$. Univariate correlates were assessed with Pearson correlation. Analyses were conducted using SPSS version 13.0 for Windows (SPSS Inc.).

Results

Twenty-four patients (32.4%) had depressive symptoms. Eight of these 24 patients (33.3%) had minor depression, seven patients (29.1%) displayed moderate depression, and the remained nine patients (37.5%) had severe depression. The prevalence of severe depressive symptoms was 12.2% (9/74). There were no differences in sex, age, marital status, and duration from onset of epilepsy. In seizure variables, interictal depression was also not correlated with seizure patterns, seizure frequency or the number of anticonvulsant drugs. In contrast, depression was more common among the patients with symptomatic epilepsy ($p < 0.05$) and temporal lobe epilepsy ($P < 0.05$). (Table 1)

A stepwise multiple regression with the HDRS as the dependent measure and age, sex, marital status, duration from seizure onset, epileptic foci, anticonvulsant drugs, primary or secondary epilepsy, and family history of depression as potential predictors produced a significant model [$F(1,73)=10.17$, $P < 0.005$], which accounted for 12.3% of the variance. Only symptomatic epilepsy

contributed significantly to the model.

Discussion

Our study showed that about one-third of epileptic patients had depressive symptoms. The prevalence rate was close to that reported in many previous studies. A study of concerns of living with epilepsy found that about one-third of patients spontaneously report mood as a significant problem[13]. In a community-based study that used the Hospital Anxiety and Depression Scale, (O'-Donoghue et al. observed that a group of 155 patients identified through two large primary practices in the United Kingdom, 33% of those with recurrent seizures had depression[14]. Although it is well established that being female and having a family history of depression are common depression-predisposing factors[15,16], our study did not identify any correlation between gender, age, or family history of depression.

In contrast to previous investigations, we did not detect a significant association between depressive symptomology and age of onset, duration of epilepsy or lateralization of epilepsy foci.

Polytherapy, indirectly suggesting drug resistance and a more severe course of epilepsy, is usually related to an increased risk of side effects, toxicity, and adverse drug interactions[15,16]. Surprisingly, in our analysis, no correlation between polytherapy and depression was found.

Many reports indicate the existence of a firm correlation between temporal lobe epilepsy, especially originating in the dominant (usually left) hemisphere, and the occurrence of depression[17]. In our research, patients with temporal lobe epilepsy seemed to have a higher rate of depression than patients with extratemporal lobe epilepsy. However, this was not an analyzed factor of depressive symptoms in patients with epilepsy under the logistic regression model.

Depression may be associated with a neurological condition that is also responsible for epilepsy, e.g. multiple sclerosis, cerebrovascular

disorders, dementia and head injury[4], and may be more common in patients with a structural lesion[18]. This study revealed that the depressive symptoms occurred more often in patients with symptomatic epilepsy. Previous studies showed that interictal depression is more common among patients whose seizures are focal rather than a primary generalized onset[9,19]. These findings suggest that interictal depression is often biological rather than due to the psychosocial difficulties of having a seizure disorder. Both biological depression and epilepsy could result from a common hypometabolic lesion in the left hemisphere. Stroke and other hypometabolic brain lesions are especially likely to precipitate depression when they occur in the left hemisphere[10]. Our study showed no significant difference between the interictal depressive symptoms and lesion laterality.

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Table 1. Demographic and seizure variables among different groups with depressive symptoms

Variable	Depressive Symptoms		Overall population (n=74)	Significant+
	Absent (HDRS<10) (n=50)	Present (HDRS >10) (n=24)		
Age onset year	34.1 ± 15.5 (16-75)	39.3 ± 15.1 (16-72)	35.8 ± 15.5 (16-75)	NS
Sex (male)	35 (70%)	12 (50%)	47 (64%)	NS
Marital status (married)	25 (50%)	13 (54%)	38 (51%)	NS
Family history (depression)	5 (10 %)	3 (13%)	14 (7%)	NS
Seizure Onset	28.8 ± 15.6 (8-74)	31 ± 16.5 (7-66)	29.5 ± 15.8 (7-74)	NS
Duration of epilepsy (years)	5.3 ± 6.3 (1-24)	8.1 ± 10.7 (1-37)	6.2 ± 8.0 (1-37)	NS
Temporal lobe epilepsy	23 (46%)	17 (71%)	40 (54%)	0.038 *
Polypharmacy	12 (24%)	8 (33%)	20 (27%)	NS
Symptomatic epilepsy	14 (28%)	14 (58%)	28 (38%)	0.012 *
Frequency (> 1/month)	16 (32%)	11 (46%)	27 (36%)	NS

Values are mean ± SD (with range in parentheses) or number of patients (with percentage in parentheses), NS indicates not significant.
 + Chi-square test for categorical data, t-test for continuous data.
 * p<0.05 , **p<0.01,

癲癇患者的憂鬱狀態分析

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摘 要

目的：本研究目的在於評估中部地區某區域醫院癲癇患者憂鬱症狀的比率以及造成憂鬱狀態的可能因子。

方法：本研究評估74位門診的癲癇患者(47位男性及27位女性)，就其癲癇發作的型態、初發年齡、癲癇發作期間、發作頻率、抗癲癇藥物使用情形以及癲癇發作的原因做詳細的紀錄；並使用漢氏憂鬱量表來評估病患的憂鬱症狀。

結果：32.4%的癲癇患者會產生憂鬱症狀，其中12.2%屬於重度憂鬱症狀。研究發現憂鬱症狀的發生和是否為腦部病變所導致的次發性癲癇有密切的相關；然而和其他的癲癇因子並沒有顯著差異。

結論：約有三分之一的癲癇患者產生憂鬱狀態，而造成憂鬱狀態的原因可能與潛在的病因所導致的腦部病變有相關。

關鍵字：癲癇、憂鬱症狀、漢氏憂鬱量表。