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Brief Communication

Validation of the Polish Version of the Hamilton Rating Scale for Depression in patients with epilepsy

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ABSTRACT

Objective: Depressive disorders are the most common comorbidities among patients with epilepsy (PWE). The availability of standardized clinical instruments for PWE is limited with scarce validation studies available so far. The aim of the study was to validate the Polish Version of the Hamilton Rating Scale for Depression (HRSD) in adult PWE.
Methods: A group of 96 outpatient PWE were examined by a trained psychiatrist using the Structured Clinical Interview (SCID-I) for DSM-IV-TR and the 17-item Polish Version of HRSD (HRSD-17). Receiver operating characteristic (ROC) curves were used to determine the optimal threshold scores.
Results: The ROC analyses showed areas under the curve approximately 0.9. For diagnoses of MDD, HRSD-17 demonstrated the best psychometric properties for a cutoff score of 11 with sensitivity of 100%, specificity of 89.3%, positive predictive value of 72.4%, and negative predictive value of 100%.
Conclusions: The 17-item Polish Version of HRSD proved to be reliable and valid in the epilepsy setting with a cutoff score of 11 points.

1. Introduction

Depression is the most frequent psychiatric comorbidity in patients with epilepsy (PWE), yet it is still underreported, underdiagnosed, and undertreated. The detection of depression in PWE in a clinical setting is complex, being both related to epilepsy itself and to the psychometric methodology used [1].

Several factors including antiepileptic drug (AED) side effects, as well as atypical symptomatology, may affect the accuracy of psychiatric diagnosis in PWE [1]. In particular, screening instruments lacking reference to a standardized structured psychiatric interview may not produce a credible diagnosis [2], as tools used in the general population may not be valid and reliable in PWE. Therefore, the definition of PWE-specific cutoff scores is of prime importance [2,3].

A limited number of clinical screening instruments for depression are validated in epilepsy, namely, self-report screening tools such as the Neurological Disorder Depression Inventory for Epilepsy (NDDIE) [4–22], the Beck Depression Inventory (BDI) [7,8], and the Hospital Anxiety and Depression Scale (HADS) [7,8]. The Hamilton Rating Scale for Depression (HRSD) [23] is a clinician-administered depression assessment scale, which was also validated for use in PWE [3,24]. It is commonly used in the general population to provide an indication of depression and serve as a guide to evaluate recovery [23,25].

The aim of this study was to validate the psychometric properties of the Polish Version of HRSD [26] as a screening tool in PWE for major depressive disorder (MDD), in order to identify its specificity, sensitivity, and cutoff scores.

2. Methods

2.1. Study sample

The study population selection and psychometric evaluation have been described in detail elsewhere [27]. Briefly, from a consecutive series of 118 PWE from a regional epilepsy outpatient unit, 96 subjects fulfilled inclusion/exclusion criteria and were enrolled in the study. None of the study subjects received any antidepressant treatment. All individuals underwent a complete neurological examination on selection. Inclusion criteria were as follows: (1) confirmed diagnosis of active epilepsy according to the International League Against Epilepsy criteria [28] by a trained epileptologist, (2) age 18–65 years, (3) stable antiepileptic treatment in the last 2 months, and (4) willing to provide a written informed consent to undergo the experimental procedures. Exclusion criteria included (1) neurologic somatic-related factors (last seizure within 24 h prior to examination, more than 10 seizures in the last month, major brain damage with mass effect, neurosurgical treatment of epilepsy, unstable somatic disease or serious neurological

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disorder, psychogenic nonepileptic seizures) and (2) psychiatry-related factors (cognitive disability, dependence on or abuse of alcohol and/or other drugs in the past 6 months and diagnosis of borderline, antisocial, or schizotypical personality disorder).

The study protocol was approved by the local bioethics committee at the Medical University of Gdańsk. All participants provided written informed consent for participation in the study.

2.2. Instruments

All subjects enrolled in the study (N = 96) were assessed using the full version of the Structured Clinical Interview (SCID-I) [29] and the Polish Version of HRSD-17 [26] at the same visit by the same psychiatrist (MSW). The Structured Clinical Interview is a semistructured interview used for assessment of DSM-IV-TR psychiatric disorders [30]. The 17-item HRSD is the most commonly used version of the scale representing the depressive episode severity measure. The HRSD-17 remission criterion for depression is set at the cutoff score of ≤6 [23,26,31,32].

2.3. Statistics

The receiver operator characteristic (ROC) curve was calculated in order to determine the sensitivity and specificity of HRSD-17 as a screening test for the DSM-IV diagnoses. The ROC values were interpreted according to the following guidelines: 0.9–1 (excellent), 0.8–0.9 (good), 0.7–0.8 (fair), and 0.6–0.7 (poor). Cutoff values were selected. There were no missing data or outliers.

Frequencies and descriptive statistics were analyzed for each variable. Comparisons between patients with current MDD and patients without MDD were made using Student's t-tests for normally distributed continuous data, Mann–Whitney's U-test for nonnormally distributed data, and Fisher's exact test for categorical data. A value of $p < 0.05$ was considered to be statistically significant. Statistical procedures were performed using Statistica 10.0.1011.

3. Results

Clinical and demographic characteristics are shown in Table 1. A more detailed clinical description of the study group including antiepileptic agents used is presented elsewhere [27]. According to SCID-I, the diagnosis of major depression disorder (current episode) was established in 21 (22%). The mean HRSD-17 total for study groups is shown in Table 2.

The ROC for HRSD-17 is shown in Table 3. For diagnoses of MDD, HRSD-17 demonstrated the best psychometric properties for a cutoff score of 11 with sensitivity of 100%, specificity of 89.3% (Fig. 1), positive predictive value of 72.4%, and negative predictive value of 100% (Table 3).

Table 1
Demographic and clinical characteristics of the study population.

	N = 96 (%)
Male sex (%)	31 (32.3)
Age, in years (SD)	36.6 (12.0)
Age of seizure onset (SD)	19.5 (11.6)
Duration of epilepsy (SD)	17.0 (11.8)
Number of seizures/last month — median (IQR)	3 (2.5)
Seizure type (%)	
Generalized	15 (15.6)
Simple partial	7 (7.3)
Complex partial	27 (28.1)
Partial evolving to general	47 (49.0)
Tonic–clonic	10 (10.4)
Absence	2 (1.0)
Myoclonic	1 (1.0)
Atonic	2 (2.1)
Number of AEDs (IQR)	2 (1.2)

SD — standard deviation; IQR — interquartile range.

Table 2
Psychometric characteristics of the study group.

Rating scale	Diagnostic category	(+)	(−)	Mann–Whitney Z	p	Difference (95% CI)
		Median (IQR)				
HRSD	MDD	18 (14; 21)	2 (0; 6)	6.924	<0.0001	14 (12 to 17)

4. Discussion

The total HRSD-17 score showed a significant ability to identify DSM-IV depressive disorder categories in PWE using ROC as compared with SCID-I. For MDD diagnosis, the cutoff score of 11 classified the optimum balance among sensitivity (100%), specificity (89.3%), and PPV (72.4%).

A limited number of HRSD-17 validation studies in PWE are available. de Lemos Zingano et al. [24] found a slightly lower optimal cutoff for the HRDS (≥9) with sensitivity of 73.7%, specificity of 77.2%, PPV of 51.9%, and NPV of 89.8%. They also included the diagnosis of interictal dysphoric disorder (IDD) [33] in the group with depressive disorders. In another study, a cutoff score >6 was found to yield the best sensitivity (94%) and specificity (80%) threshold for detecting depression with a PPV of 46% and an NPV of 99% [3]. Both studies reported on low PPV for HRSD, suggesting that standard clinical instruments based on DSM criteria fail to efficiently capture depressive disorders in epilepsy [3,24]. Our study revealed substantially higher PPV, making HRSD-17 a useful tool for identifying major depression in PWE. A cutoff of 6 was identified for the 'any depressive disorder' category. Interestingly, Mula et al. [3] found the same cutoff score (>6) with regard to major depression. Such diversity may result from different methodologies in populations studied [27]. Correspondingly, HRSD studies in patients with somatic comorbidity, including Parkinson's disease [34], stroke, and Alzheimer's disease [35], selected higher cutoff scores (12/13) at an acceptable PPV (approximately 75%). The higher cutoff scores with regard to the general population support the necessity for revalidation of threshold scores for HRSD-17 in PWE and other medical illnesses.

Depression is the most frequent comorbid psychiatric disorder in epilepsy [1,27]. Its prevalence has been estimated to range between 20% and 50% [1,27,36]. The hypothesized atypical features of mood disorders in PWE may not be precisely identified with standardized clinical instruments derived from DSM criteria [1,3,27,33]. Moreover, high comorbidity of anxiety disorders and depression in PWE [37,38] may 'blur' clinical presentation of depression in PWE with overrepresentation of atypical symptoms. As depressive disorders can overlap with the presence of pleomorphic, atypical, epilepsy-specific mood disturbances, the proper identification of MDD in PWE is of particular interest. It allows an implementation of a specific and optimized psychopharmacological and/or psychotherapeutic approach.

5. Study limitations

The study methodology may contribute to the conclusions drawn. The study may be underpowered because of a relatively small sample size. The study results refer to outpatients treated in the tertiary reference unit being at risk of a complicated course of epilepsy and a high percentage of patients with drug-resistant seizures. In order to minimize the influence of periictal and ictal psychiatric symptoms on interictal depressive disorders, subjects experiencing more than 10 seizures in the last month before participation were excluded. Thus, the results may underscore the depressive symptomatology and 'atypical' presentations of depression. Another limitation is the assessment methodology with the same rater in the study for evaluation of