

Can Psychological Testing Replace Psychiatric Evaluations in Patients with Epilepsy? Or Can Psychiatric Evaluations Replace Psychological Testing in Patients with Epilepsy?

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INTRODUCTION

The presence of psychiatric comorbidities in epilepsy, treatment emergent psychiatric effects of anti-epilepsy drugs (AEDs) as well as their possible psychotropic benefits are increasingly appreciated by both epilepsy researchers and clinicians. Although estimates vary, comorbid depression may be present in over half of patients with poorly controlled epilepsy (Gilliam and Kanner, 2002), and epilepsy is associated with increased rates of anxiety (Beyenburg *et al.*, 2005), bipolar disorder (Ettinger *et al.*, 2005), and even comorbid schizophrenia (Gaitatzis *et al.*, 2004). The high incidence of depression in patients with epilepsy led the Epilepsy Foundation to develop their Epilepsy and Mood Disorders Initiative (<http://www.epilepsyfoundation.org/about/related/mood/index.cfm>), which not only is intended to increase the recognition of depression in epilepsy patients, but also to develop better management and treatment outcomes strategies.

Depression in epilepsy is a clinically significant condition that is associated with increased medical costs (Cramer *et al.*, 2004) and consistently lower reported quality of life (QoL) – more closely associated with lower QoL than seizures themselves (Cramer *et al.*, 2003; Tracy *et al.*, 2007). Despite its high prevalence, depression in epilepsy is under detected and under treated (Harden, 2002; Kanner, 2003). Suicidal ideation and mortality secondary to suicide is significantly

increased in epilepsy (Hitiris *et al.*, 2007), and it is critically important to address issues related to mood and other disorders in epilepsy as part of standard clinical care (Kanner, 2005). Tasks include identifying mood and other disorders (anxiety), determining their relationship to seizures (interictal, periictal, postictal), and making pertinent treatment decisions/referrals for intervention. Similar concerns are present in pediatric epilepsy, in which high rates of affective and anxiety disorders exist but in whom appropriate treatment options are infrequently implemented (Caplan *et al.*, 2005). Psychiatric evaluation of the children involves many of the same issues as adults, but proper diagnosis is even more critical in this group in order to establish programs of early intervention when therapeutic benefit can be expected to be the greatest.

The ability to characterize psychiatric features of epilepsy, and to monitor either positive or negative AED effects during treatment, will vary based on the training, interest, and biases of the clinicians providing care to epilepsy patients, the availability of psychiatrists or clinical psychologists with experience and interest in epilepsy, or of the clinical investigators examining behavioral characteristics of epilepsy. Currently, there is often limited availability of appropriate resources and expertise in psychiatric aspects of epilepsy when developing diagnostic formulations and treatment strategies. At many epilepsy centers, a common approach to identify patients in need of more careful psychiatric evaluation and treatment has been to “screen” for psychological symptoms. In addition, given the recent interest in psychiatric comorbidities, psychiatric contributions are often explicitly assessed in many clinical research studies. In the present chapter, we will compare and contrast the contributions of psychiatric interviews and psychological testing in both clinical and research applications of epilepsy care.

DIAGNOSTIC ACCURACY

Correct identification of psychiatric characteristics of epilepsy or explicit psychiatric comorbidities is necessary to maximize the likelihood of successful treatment and intervention. Formal psychiatric diagnoses are made according to criteria presented in the Diagnostic and Statistical Manual (Fourth Edition) published by the American Psychiatric Association, or the International Classification of Diseases (Ninth Edition) published by the World Health Organization. Correct classification depends on the ability to elicit the necessary information to formulate a correct psychiatric diagnosis, as well as to determine subsyndromal symptoms that do not meet criteria for formal diagnostic classification. This is particularly true for depression and mood disorders in epilepsy since patients may not be aware of depressive symptoms. Patients may not volunteer this information spontaneously, and even upon questioning, may tend to minimize or deny symptoms making it important to obtain or verify symptoms from other sources such as the family.

Psychiatric diagnostic accuracy is variable in non-psychiatric settings. Primary care physicians commonly fail to recognize depression in the majority of patients, and when depression is diagnosed, the diagnosis is as likely to be correct as it is to be incorrect (Rogers, 2003). In more specialized practices such as neurology and epilepsy, patients are often asked to complete a medical questionnaire containing items related to depressive symptomatology, and in some practices, patients are given a formal depression questionnaire in order to elicit symptoms of depression. Information obtained through formal or informal screening/questionnaires alerts the clinician to the possible presence and severity of common depressive symptoms.

Screening patients for depression has been referred to as “case-finding” (Pignone *et al.*, 2002), and differs from less structured methods used by mental health providers in which clinical features of possible depression (e.g. feeling fatigued, headaches) are elicited through clinical interview and followed up as appropriate. The case-finding approach is often preferable in general (i.e. non-psychiatric) practice since non-structured interviewing depends on specific training and expertise in psychiatric interviewing, which many clinicians have not received. Without proper questioning, appropriate symptoms will not be elicited.

In the above scenarios, the instruments used to identify psychiatric symptoms become the initial stage of what ultimately should result in proper psychiatric diagnoses. If a patient reports symptoms such as losing interest in pleasurable tasks, or obtains a score on a depression questionnaire that exceeds a specified threshold, then either a more thorough evaluation of psychiatric symptoms is conducted or a referral made to an appropriate mental health provider who will perform an appropriate diagnostic psychiatric interview. Regardless of how the initial index of suspicion is raised, a psychiatric diagnosis has not been made and the goal of the screening is to identify patients in whom further diagnostic evaluation is warranted.

Formal psychiatric diagnoses require evaluation to determine whether diagnostic criteria (DSM or ICD) have been met. Psychiatric interviews include non-structured, semi-structured, and structured approaches, and the reliability of diagnosis varies across interview approaches. A non-structured interview is not scripted, and the order in which content is elicited and the language used for questioning is interviewer dependent. Non-structured interviews may be affected by “confirmatory bias”, meaning that after an initial diagnostic impression is made, there is a tendency to seek additional information consistent with that impression. Data consistent with initial impressions tend to be overvalued while information that does not support initial impressions tends to be discounted. An additional risk associated with non-structured interviews is the premature discontinuation of relevant questioning after the initial diagnostic impressions, thereby decreasing the likelihood of diagnosing less frequent conditions.

Because of the above limitations, structured and semi-structured interviews have been developed to increase the diagnostic accuracy for both psychiatric and

non-psychiatric use. Although both approaches are more reliable than non-structured interviews, structured interviews that follow standard language with a fixed sequence of questioning are more reliable than semi-structured approaches (Miller *et al.*, 2001).

The gold standard of structured psychiatric interviews is the Structured Clinical Interview for the DSM-IV (SCID), and generally can be administered in 60–90 minutes by appropriately trained clinicians. However, for many purposes, semi-structured psychiatric interviews such as the Mini International Neuropsychiatric Interview (MINI) (Sheehan *et al.*, 1998) or Brief Psychiatric Rating Scale (BPRS) (Overall and Gorham, 1962) are sufficient, with both approaches being significantly shorter than the SCID and requiring approximately 15–30 minutes to complete. The diagnostic concordance between the MINI and SCID in patients with chronic epilepsy is high, particularly for major depressive episodes (0.86) (Jones *et al.*, 2005a). Consequently, in many settings where psychiatric expertise is not readily available, the semi-structured MINI interview provides an acceptable alternative for obtaining psychiatric diagnoses. While highly reliable, even semi-structured psychiatric interviews require proper training, and since they are not the standard of care at many epilepsy centers, the persons performing such assessments generally do so outside what might be described as their standard of clinical care. Approaches such as the MINI also sacrifice information compared to a SCID since the coverage between the two is not identical. For example, the MINI provides information on current diagnoses rather than lifetime to present.

A research form of the SCID has been developed targeting only Axis I (i.e. non-personality) disorders (First *et al.*, 2001), and a self-report questionnaire (e.g. Psychiatric Diagnostic Screening Questionnaire, PDSQ) has been adapted to assess Axis I disorders by including appropriate time frames (Zimmerman and Mattia, 2001). With the PDSQ, the clinician is able to efficiently screen for a variety of Axis I disorders as well as being able to identify subsyndromal symptoms. While the PDSQ by itself is not diagnostic, it serves to ensure that significant disorders are not missed, provides an efficient approach to identify possible disorders with careful patient interview, or serves as a screening device to determine which cases should have appropriate mental health referrals. The PDSQ is well tolerated by patients, and is particularly useful in identifying less common disorders that may otherwise be overlooked (e.g. post-traumatic stress disorder (PTSD), eating disorders).

Summary

Psychiatric interviews are necessary to establish formal psychiatric diagnoses. The best psychiatric interviews are structured, and are valid and reliable approaches to patient diagnoses. However, they require significant personnel training to be used properly, and also require significant administration time, both of which decrease the frequency of use outside of primary psychiatric settings. Less structured

interviews may not be diagnostic by themselves, but with judicious use, are able to identify patients in whom more comprehensive evaluation is warranted, and also explore a variety of symptoms beyond mood/depression that may need to be the focus of intervention and treatment.

MONITORING CHANGE

Although the presence of major depression identified with structured psychiatric interviewing may at times be used as a dichotomous outcome variable in formal psychiatry settings (e.g. ECT treatment outcomes (Kellner *et al.*, 2006)), diagnostic classification may not reflect smaller degrees of change, particularly when the presence of mood alteration is not part of a larger psychiatric syndrome. In one report describing the development of psychiatric features surgery, pre- and postoperative SCIDs were obtained in a sample of 70 patients undergoing anterior temporal lobectomy (Pintor *et al.*, 2007). For statistical analysis, however, it was necessary to form single diagnostic groups by combining conditions (i.e. depressive disorders consisting of major depressive episodes, adjustment disorder with depressed mood, etc.; anxiety disorders including generalized anxiety disorders, social phobia, etc.), thereby losing much of the diagnostic precision obtained in the first place by performing the SCID. With greater power associated with larger samples, it is not necessary to collapse across groups in order to obtain statistical significance to demonstrate the beneficial effects of epilepsy surgery on depression and anxiety (Devinsky *et al.*, 2005). However, dichotomous diagnostic classification will always require greater sample sizes to reach statistical significance compared to parametric measures with continuous variables.

There are multiple questionnaires and inventories that are used to assess mood, some of which are completed by the patient (e.g. Beck Depression Inventory-II (BDI-II) (Beck, 1996), Minnesota Multiphasic Personality Inventory-II (MMPI-II) (Butcher *et al.*, 1989), Zung Self-Rating Depression Scale (Zung, 1965)), and others are rating scales that are completed by the clinician (e.g. Hamilton Depression Rating Scale (HAM-D or HDRS) (Hamilton, 1960), Montgomery Åsberg Depression Rating Scale) (Montgomery and Åsberg, 1979), Cornell Dysthymia Scale (Mason *et al.*, 1993), and Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977)). Although epilepsy and its treatment may be associated with factors such as fatigue and sleep disturbance that are also common components of depression, the presence of independent depressive symptoms can be identified with high reliability with few but highly specific questions (Neurological Disorders Depression Inventory for Epilepsy (NDDI-E) (Gilliam *et al.*, 2006)). Even though the NDDI-E is brief, it has better predicative power for depression in epilepsy than the longer BDI (Gilliam *et al.*, 2006; Jones *et al.*, 2005b), likely reflecting the successful effort to eliminate questions that could also be affected by medications.

There are significant advantages associated with psychological questionnaires and inventories. Many scales are self-report measures that require minimal or no assistance from the clinician. Like all self-report measures, however, these scales are subject to response bias, with the patient having the potential to distort test results.

Some scales require the clinician to rate various psychiatric symptoms. The HDRS (Hamilton, 1960) is perhaps the most commonly used scale in drug trials. The HDRS was developed to quantify the intensity of depression in patients already diagnosed. Nine items are rated on a 5-point scale and eight items are rated on a 3-point scale. Of course, the validity of HDRS is dependent on the skill of the clinical interviewer performing the rating. Clinical rating scales, like self-report inventories, may also be associated with symptom exaggeration or minimization.

Of the various scales presented, only the MMPI-II has explicit scales to measure both response distortion tendencies, and also has scales that indicate whether a patient may simply be responding randomly or carelessly (Butcher *et al.*, 1989). The MMPI-2 has 10 primary clinical scales that may assist in diagnosis, but by themselves are not diagnostic. Although the MMPI has been used in many studies of epilepsy, it is not typically part of multicenter trials since it typically requires the on-site presence of a clinical psychologist at each clinical site. The response burden on the patient is also quite high (567 questions) and results do not always readily conform to current diagnostic terminology, in part because it was developed without directly addressing diagnostic information such as symptom duration.

Because of their brevity, the Beck Depression Inventory (BDI) (Beck 1996) and Beck Anxiety Inventory (BAI) (Beck *et al.*, 1988) are among the most commonly used instruments to characterize psychiatric features of epilepsy in research studies not involving drug treatment. Like all screening measures, the BDI is not diagnostic of depression in epilepsy; it is associated with a high negative predictive value indicating a low probability of depression when low Beck scores are obtained (Jones *et al.*, 2005b). In this context, it serves as a good and convenient screening measure to identify patients requiring more comprehensive evaluation. Similar patterns of low false-positive identifications are present for other depression measures such as the CES-D (Jones *et al.*, 2005b). However, when the BDI or CES-D is given as a screening measure, it should likely be supplemented with an anxiety measure such as the BAI to insure adequate coverage of symptoms to screen for suicide and other risks.

When used as screening measures, psychological tests serve primarily to identify patients in whom further evaluation should be considered. Thus, it is easy to develop a system where measures such as the BDI/BAI are administered initially, and if there is a suggestion of abnormality on either scale, then an evaluation such as the MINI (or SCID) is conducted.

The other benefit of screening using psychological tests is their ability to identify subsyndromal disorders. Even in patients who do not meet diagnostic criteria for major depression, the presence of depression symptoms endorsed on

psychological tests is related to overall QoL (Loring *et al.*, 2004; Tracy *et al.*, 2007). This indicates that subsyndromal mood states are important to characterize as part of comprehensive epilepsy evaluation and management.

Summary

Psychological measures are not by themselves diagnostic of depression or other psychiatric conditions. However, unlike psychiatric diagnoses, they are able to easily measure subsyndromal mood states and, in the case of research applications, they are able to effectively monitor change due to treatment or disease progression, and provide greater statistical power as psychiatric outcome variables. When used clinically, psychological tests serve as effective screening measures to identify patients needing further evaluation, and are associated with relatively low false-positive rates of incorrect patient identification.

CONCLUSION

The answer to both questions contained in the title to this chapter is “no.” Both psychiatric interviews and psychological testing fill different needs in both clinical and research applications. Because diagnosis guides treatment, psychiatric interviews will be necessary during initial clinical evaluations. Also, because psychiatric interviews provide specific diagnostic classification, they are necessary in epidemiologic studies examining incidence and prevalence in static populations and in specific clinical outcome studies.

Psychological testing, while not in itself diagnostic, is useful in identifying patients for whom a more comprehensive evaluation is warranted. However, perhaps the greatest advantage of psychological testing is that it can monitor change even when formal diagnostic criteria are not present. In particular, psychological instruments can permit the detection of improvement in aspects of epilepsy management resulting from positive psychotropic effects of certain medications (Ettinger *et al.*, 2007) that may be present even in the absence a diagnosable mood disorder.

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