

## PSYCHIATRIC HISTORY AND TEMPORAL LOBECTOMY OUTCOME: LOOKING TO THE PAST TO PREDICT THE FUTURE

**A Lifetime Psychiatric History Predicts a Worse Seizure Outcome Following Temporal Lobectomy.** Kanner AM, Byrne R, Chicharro A, Wu J, Frey M. *Neurology* 2009;72(9):793–799. **PURPOSE:** To identify the psychiatric and epilepsy variables predictive of postsurgical seizure outcome after anterotemporal lobectomy (ATL). **METHODS:** Retrospective study of 100 consecutive patients with temporal lobe epilepsy (TLE) who underwent ATL. The mean ( $\pm$ SD) follow-up period was 8.3 ( $\pm$ 3.1) years. Three types of surgical outcomes were examined at 2 years after surgery and at last contact: class IA (no disabling seizures no auras), class IA + IB (no disabling seizures), and class IA + IB + IC (no or rare disabling seizures in the first postsurgical year). Logistic regression analyses were performed separately for the three types of surgical outcomes. The epilepsy-related independent variables included age at onset, cause of TLE (mesial temporal sclerosis, lesional and cryptogenic TLE), extent of resection of mesial structures, neuropathologic abnormalities, having only complex partial seizures, and duration of the seizure disorder. The psychiatric independent variables included a postsurgical and presurgical lifetime history of mood, anxiety, attention deficit hyperactivity, and psychotic disorders. **RESULTS:** The absence of a psychiatric history was an independent predictor of all three types of surgical outcomes. In addition, a larger resection of mesial structures was a predictor for class IA outcome, and having only complex partial seizures (vs generalized tonic-clonic seizures) was a predictor for class IA + IB and IA + IB + IC. Having mesial temporal sclerosis (vs other causes of TLE) was a predictor for class IA + IB + IC as well. **CONCLUSIONS:** These data indicate that a lifetime psychiatric history may be predictive of a worse postsurgical seizure outcome after an anterotemporal lobectomy.

### COMMENTARY

The association between epilepsy and psychiatric disorders is well established (1–3). Mood and anxiety disorders have been reported in up to 50% of patients with epilepsy (4), while psychotic disorders are less frequent but higher than in the general population (5). Psychiatric disorders tend to be viewed as a common comorbidity of epilepsy; although often underdiagnosed, they are important to recognize, potentially exacerbated by or concomitantly treated with antiepileptic medications (6), and contribute to a worsened quality of life (7). However, the relationship between psychiatric disorders and epilepsy has been shown to be bidirectional—each independently increases the risk of developing the other (8). As such, it is intriguing to consider that both epilepsy and psychiatric disorders also may modify the outcome of the other.

The observation that therapeutic control of psychiatric and epileptic disorders is correlated initially was addressed in a postsurgical study in 1963. Examining a large group of patients who underwent temporal lobectomy, Falconer et al. demonstrated that postoperative improvements in seizure control corresponded to improvements in the psychiatric domain (9). It is interesting to note that these surgical patients were largely identified from a psychiatric hospital and most had a preoperative psychiatric disorder. Subsequent studies of postoperative cohorts from epilepsy practices have demonstrated increases in psychiatric symptoms postoperatively (particularly

shortly after surgery) that are independent of seizure control (10,11).

More recently, the presence or absence of a psychiatric disorder has been identified as a predictor of a worse outcome in epilepsy (12), especially as a predictor of postsurgical seizure outcome, as illustrated herein by Kanner et al. The study center was uniquely qualified to perform this trial, as all presurgical patients undergo a semistructured interview, based on the Structured Clinical Interview for DSM IV disorders. In this retrospective study of 100 consecutive patients who underwent anterior temporal lobectomy (ATL), the authors examined the lifetime psychiatric history, age of onset and duration of epilepsy, extent of surgical resection, and Engel class seizure outcomes. Patients generally remained on at least one AED indefinitely following surgery. Fifty-six percent of the subjects had a presurgical lifetime history of a psychiatric disorder, consistent with the high prevalence reported in other studies (1–4). Mood and anxiety disorders accounted for most of the psychiatric history. Two years after the surgery, 44% of the subjects in the cohort were taking a psychotropic drug—a sobering statistic. The use of psychotropic medications postsurgically was not associated with seizure outcome.

The study's findings reflect the theme that psychiatric disorders and epilepsy outcome are concordant. The absence of a lifetime history of psychiatric illness strongly predicted a class IA (i.e., no seizures, no auras) postsurgical outcome. In fact, those without a psychiatric history were 13 times more likely to have a class IA outcome than those with a lifetime history of psychiatric illness. When assessing class IA and class IB (i.e., only auras but no disabling seizures) together, patients without

a history of psychiatric disorders were seven times more likely to experience this outcome. The effect of an absence of psychiatric illness was the most predictive when considering classes 1A, 1B, and 1C (i.e., disabling seizures caused by medication discontinuation or having had up to 3 disabling seizures during the first postsurgical year only) together, as patients without a history of psychiatric disorder were 16 times more likely to have a favorable outcome than those with the presence of a psychiatric history. Other nonpsychiatric factors also were associated with favorable seizure outcomes, including a larger resection of mesial structures, presence of mesial temporal sclerosis (MTS), and absence of a presurgical history of generalized tonic-clonic seizures.

There is other evidence that the presence of psychiatric disorders is associated with worse seizure outcomes, both medical and surgical. In a large cohort of subjects with newly diagnosed epilepsy, a history of psychiatric comorbidity was associated with progression to refractory disease (12). In another study, which examined postsurgical temporal lobectomy patients, a past psychiatric history plus new postsurgical psychiatric symptomatology predicted poor seizure outcome (10). Interestingly, although epilepsy surgery is associated with a high prevalence of postsurgical psychiatric symptomatology, a past history of psychiatric disorders does not seem to predict postsurgical psychiatric symptoms (10).

Why are psychiatric history and postsurgical seizure outcome related? As the authors discuss, the mechanisms remain largely unknown, despite ample evidence for common pathologic mechanisms in epilepsy and depression. Perhaps, mood disorders are a marker for a more extensively damaged cortex (i.e., a larger or more diffuse epileptogenic zone). It is also important to consider the possibility of nonepileptic seizures, particularly as postoperative anxiety disorders may mimic seizures. This effect was accounted for in the current study, as all patients who experienced more than three seizures postsurgically underwent video-EEG monitoring to rule out the possibility of postsurgical nonepileptic seizures.

Since the publication of the paper by Kanner and colleagues, similar findings have been reported, highlighting the increasing interest in and recognition of the importance of comorbid psychiatric disorders and epilepsy surgery (13). What do these findings mean to the clinician? Clearly, it is critical to recognize the need to systematically and thoroughly explore the psychiatric history of all patients with epilepsy, particularly those individuals considering epilepsy surgery. While such a history should not prevent a temporal lobectomy, the possibility that psychiatric disorders may be a marker for a more extensive epileptogenic zone should be considered during the

presurgical evaluation, and there may as well be potential implications for presurgical counseling and postsurgical medication decisions.

A number of additional issues that remain to be explored, including outcomes of epilepsy surgeries other than temporal lobectomy and the potential contribution of laterality, were not addressed by Kanner et al. Overall, however, the results of this and similar studies demonstrate the need for greater rigor in the psychiatric assessment of presurgical patients with epilepsy.

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