CURRENT LITERATURE IN CLINICAL SCIENCE

Is Behavior in Temporal Lobe Epilepsy Different than in Other Epilepsies? The Jury Is Out

Interictal Depression, Anxiety, Personality Traits, and Psychological Dissociation in Patients with Temporal Lobe Epilepsy (TLE) and Extra-TLE. Swinkels WA, van Emde Boas W, Kuyk J, van Dyck R, Spinhoven P. *Epilepsia* 2006;47(12): 2092–2103. PURPOSE: This study was performed to investigate the relation between symptoms of interictal depression, anxiety, personality traits, and psychological dissociation with the localization and lateralization of the epileptogenic zone in patients with partial epilepsy. METHODS: All patients were diagnosed according to the localization-related concept of the 1989 International League Against Epilepsy (ILAE) Classification of Epilepsies and Epileptic Syndromes, and the localization and lateralization of the epileptogenic zone was established by using the clinical criteria for noninvasive presurgical evaluation. This resulted in 67 patients with temporal lobe epilepsy (TLE) and 64 patients with extra-TLE. All patients were assessed on the various aspects of psychopathology by using a comprehensive battery of standardized diagnostic instruments. RESULTS: We did not find the hypothesized excess of psychiatric symptoms in patients with (mesial) TLE in comparison with patients with extra-TLE. We also found no differences between patients with the lateralization of epilepsy in the left versus the right hemisphere. CONCLUSIONS: TLE per se cannot be considered a risk factor in developing more or more severe symptoms of psychopathology in patients with partial epilepsy. Concomitant factors, such as the duration of epilepsy, seizure frequency, and frontal lobe dysfunction may play an additional role. Our findings support the hypothesis of a multifactorial explanation for the psychiatric symptoms in patients with epilepsy.

COMMENTARY

The report by Swinkels and colleagues provides further evidence that behavioral changes are not limited to patients with partial epilepsy whose seizure foci arise in the temporal lobe but also occur in patients with extratemporal foci. Nearly 90% of the extratemporal foci were in the frontal lobes. The study was moderately powered yet was not sufficient in size to identify small differences between mesial and laterobasal temporal lobe epilepsy (TLE) groups. Swinkels et al. found no differences between patients with mesial and laterobasal TLE, with TLE compared to extra-TLE, or with left versus right foci, across a variety of standard psychiatric inventories for depression, anxiety, and personality. Are patients with TLE different?

Controversy has endured regarding the specificity of behavioral changes in TLE as well as to the relative risk of such changes in patients with TLE as compared to patients with other epilepsy syndromes. The temporal lobes contain the amygdala and other limbic areas that modulate emotion, memory, and assign emotional valence to environmental stimuli. Acute and subacute temporal lobe disorders such as encephalitis, stroke, and tumor cause a wide spectrum of behavioral pathology, including irritability, aggression, mania, depression, paranoia, and psychosis. As Geschwind suggested, it would be expected that

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seizure foci arising in limbic portions of the temporal lobe also could cause behavioral changes (1). And indeed, they can. Yet the frontal lobes also contain large tracks of limbic cortex (i.e., anterior cingulate and orbitofrontal) as well as the prefrontal regions that make critical contributions to personality and to social and executive functions. Seizure foci arising in frontal regions similarly would be expected to alter behavioral function and result in mental pathology in some patients. And indeed, they do.

Swinkels and colleagues' study adds to a growing body of data that neither lateralization nor localization predicts risk of depression or anxiety in patients with partial epilepsy (2,3). A prospective, multicenter, epilepsy surgery study of 360 patients found no differences in the rates of depression or anxiety based on the side or lobe of seizure focus at baseline or the side or lobe of surgery (2). Similar to the Swinkels et al. investigation, this study found that higher baseline seizure frequency predicted an increased risk of psychiatric morbidity.

Studies published in the past few decades provide mounting evidence that a variety of partial as well as generalized epilepsies are associated with higher rates of psychiatric disease and adverse psychosocial outcomes when compared to patients with various medical conditions or other types of neurological disorders (4,5,6). It appears that in some patients, almost all epilepsies can alter interictal behavior. The accumulating data seem to move further away from the original concept that TLE is a risk factor for psychopathology and behavioral change. Or do

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they? Given the role of the frontal lobes in behavior, changes in mood, personality, as well as in social and executive functions would be expected in some patients with frontal lobe epilepsy.

Geschwind's main goal was to cull out specific features and clustering of behavioral changes in TLE. Thus, traits such as hypergraphia, increased emotionality and religious interests, or hyposexuality and viscosity, were considered relatively specific for TLE, and the concurrence of three or four of these traits in a patient suggested TLE. However, subsequent studies using the Bear-Fedio Inventory led to conflicting results, as some investigators found differences in particular features between TLE and other epilepsy syndromes, while many others did not (7). Yet, certain elements, such as hypergraphia, religiosity, and hyposexuality may have anatomic correlates, for example, to hippocampal atrophy (8,9).

More than 30 years after Waxman and Geschwind proposed an interictal behavioral syndrome in TLE, the jury is still out (10). Much of the controversy is perceptual. The purported syndrome was not defined by depression, anxiety, or other traditional psychiatric classifications. Indeed, that was the point! This interictal behavioral syndrome of TLE is not seen in patients with primary psychiatric disorders. Thus, the finding that the frequency of depression and anxiety disorders is similar among groups with TLE and other epilepsies is consistent with Waxman and Geschwind's original thesis. However, the surface has barely been scratched on the issue of social and behavioral changes in people with epilepsy. And until additional research brings more clarity, it remains uncertain if some localized or generalized epilepsy syndromes are associated with a characteristic spectrum or cluster of behavioral changes.

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