

SURGERY AIDS 'LESION-FREE' PATIENTS

Patients with partial epilepsy whose condition does not respond to optimal drug therapy could be candidates for anterior temporal lobectomy even if MRI scanning does not detect obvious brain lesions, suggests a new study by Gregory Worrell's group at the Mayo Clinic, Rochester, Minnesota, USA. "Although patients with obvious lesions on MRI are generally the most favorable candidates for surgical resection, many patients who appear to be lesion-free using MRI can benefit from total excision of the epileptogenic zone," notes Worrell.

Around 70% of all cases of epilepsy can be categorized as partial seizure epilepsy. The underlying factors in two-thirds of this subgroup can be localized to detectable abnormalities in the temporal lobe. Around 30% of patients with partial seizure disorders continue to have disabling seizures despite receiving optimal anticonvulsant drug therapy. Surgical resection can achieve a significant reduction, if not a complete abatement, of epileptic seizures, but surgery tends to be restricted to patients with obvious lesions on MRI. Few studies have been conducted to investigate the value of surgery in patients with no obvious MRI lesions.

To rectify this situation, lead author Michael Bell and other members of the Worrell group identified 272 patients retrospectively who were over 13 years of age, had temporal lobe epilepsy, and underwent anterior temporal lobectomy between January 1997 and June 2005 at the Mayo Clinic. A total of 44 patients were found to have no obvious MRI lesions detectable before surgery and follow-up data were used to assess their response to surgery.

Of the 40 patients followed up for at least 1 year, 24 (60%) did not experience a single disabling seizure following their operation, 19 (47.5%) became completely free of all seizures, including auras, and an additional six (15%) experienced a substantial decrease in seizure frequency. For the majority of patients, successful surgery rendered their epilepsy controllable by drug therapy—all but one remained on anticonvulsant medication.

"One of our major goals was to bring attention to the fact that patients with normal MRI and temporal lobe epilepsy may be good surgical candidates and we feel that the results demonstrated this very well," comments Worrell. The study also identified indicators that could be obtained before surgery using noninvasive diagnostic techniques to predict which patients would have the best results. "Subtle MRI alterations of the mesial temporal lobe, strictly concordant interictal epileptiform discharges, and concordant SISCO localization correlate with favorable surgical outcomes," explains Worrell.

Patients whose surgery failed usually experienced the return of their seizures within a few months. The procedure is not without its risks; "the most clinically significant consequence following surgery is the decline in verbal memory for patients undergoing dominant temporal lobectomy; they should be counseled about the likelihood of clinically significant verbal memory decline before surgery," stresses Worrell.

As neuroimaging evolves and more-sensitive forms of MRI that have increasing magnet strength are developed, more-subtle brain abnormalities could become readily apparent; this should help clinicians to pinpoint suitable surgical candidates with even greater accuracy.

Kathryn Senior

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