

COLLECTIVE DATA SUPPORTS EFFICACY OF MULTIPLE SUBPIAL TRANSECTION

Multiple Subpial Transection for Intractable Partial Epilepsy: An International Meta-Analysis

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Because the number and variety of patients at any single facility is not sufficient for clinical or statistical analysis, data from six major epilepsy centers that performed multiple subpial transections (MSTs) for medically intractable epilepsy were collected. A meta-analysis was performed to elucidate the indications and outcome, and to assess the results of the procedure. Overall, 211 patients were represented with data regarding preoperative evaluation, procedures, seizure types and frequencies before and after surgery, postoperative deficits, and demographic information. Fifty-three patients underwent MST without resection. In patients with MST plus resection, excellent outcome (>95% reduction in seizure frequency) was obtained in 87% of patients for generalized seizures, 68% for complex partial seizures, and 68% for simple partial seizures. For the patients who underwent MST without resection, the rate of excellent outcome was only slightly lower, at 71% for generalized, 62% for complex partial, and 63% for simple partial seizures. EEG localization, age at epilepsy onset, duration of epilepsy, and location of MST were not significant predictors of outcome for any kinds of seizures after MST, with or without resection. New neurologic deficits were found in 47 patients overall, comparable in MST with resection (23%) or without (19%). These preliminary results suggest that MST has efficacy by itself, with minimal neurologic compromise, in cases in which resective surgery cannot be used to treat

uncontrolled epilepsy. MST should be investigated as a stand-alone procedure to allow further development of criteria and predictive factors for outcome.

COMMENTARY

Multiple subpial transection (MST) is still a controversial procedure. This analysis provides data on the largest group of patients reported for this technique: 211 gathered from six epilepsy centers. Outcomes were quite favorable—an excellent outcome (defined as 95% or better seizure reduction) was obtained in 62–87% of patients. Interestingly, results were almost as good for MST alone as for MST combined with resection, especially for simple and complex partial seizures. For generalized seizures (presumably all of these were secondarily-generalized tonic-clonic seizures, although the authors do not specify that) resection increased the excellent outcomes from 71%–87%.

About half the procedures were on the frontal lobe, while most of the rest were temporal. Apparently the meta-analysis did not allow correlation of the lobar site with outcome or with incidence of adverse effects. The incidence of “persisting” neurologic sequelae was 19% with MST alone, 23% with MST plus resection, mostly hemiparesis or memory decline.

These results are encouraging. They suggest that MST alone is a viable option for many patients, with a high rate of worthwhile improvement and relatively low risk of significant neurologic damage despite the fact that most of these procedures were directed at the “eloquent” cortex. There is always some possibility of selection bias in any uncontrolled report of a procedure; centers like ours, that have had unimpressive results with MST, tend to do fewer cases, and do not publish results. Nevertheless, this report should stimulate further definition of the best areas of cortex for this approach and the potential adverse effects in relation to the location and total area transected.

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