

DOES EPILEPSY SURGERY CONVERT MEDICAL INTRACTABLE TEMPORAL LOBE EPILEPSY TO A MEDICALLY TREATABLE SEIZURE DISORDER?

Antiepileptic Drug Treatment before and after Selective Amygdalohippocampectomy

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Retrospectively, we analyzed pre- and postoperative (po) antiepileptic drug (AED) treatment in relation to long-term annual seizure outcome in the Zurich selective amygdalohippocampectomy (AHE) series. In 376 patients [hippocampal sclerosis (HS), $n = 185$; other lesions (lesional), $n = 191$] with a follow-up of more than 1 year, in the last available outcome (lao), 60% were seizure and aura free [International League Against Epilepsy (ILAE) class 1]. During the year before surgery, in the HS group, a mean of 2.3 ± 0.8 AEDs were taken. The percentage of patients without AEDs increased to 36.1% in the po years 1–5 [po year 5: HS ($n = 133$) 27.8%; lesional ($n = 111$) 45.9%]. In po years 7–11, this percentage was between 40% and 43% [po year 10: HS ($n = 75$) 29.3%; lesional ($n = 65$) 55.4%]. In the ILAE class 1a, at po year 5, 63 of 85 (74.1%) patients had discontinued AED intake. At lao, 36.2% of patients were off AEDs, and an additional 18.9% had a “substantial” reduction (i.e., from polytherapy to monotherapy, or a reduction of the existing monotherapy by at least 66% compared with the year before AHE). The relapse rate was similar for patients who were free of disabling seizures (a) for 1 year and without AEDs (17.1%), (b) immediately after surgery with or without AEDs (18.4%), and (c) had a substantial AED reduction over the entire follow-up period (18.9%). The rate of regained full seizure control, however, was significantly better for group (b) compared with (c) (77% vs. 53%); 10.9% of patients showed the “running down phenomenon” (i.e., had seizures during the first po year, but then became seizure free for 1 or more years). The percentage of patients free of “disabling” seizures, who did not follow the medical advice to discontinue/reduce AEDs, is about 30% after po year 10. In po year 15, this figure was 4.2 times higher for HS versus lesional

patients. We conclude that the time of discontinuation of AEDs after AHE should be tailored based on the results of the presurgical evaluation, the early po seizure outcome, the histopathologic findings, the intraoperative electrocorticography findings, and the po EEG. In an optimal constellation, substantial AED reduction with the goal of a monotherapy can be advised after 1 year and discontinuation 2 years after surgery.

COMMENTARY

Patients who elect to have a temporal lobectomy for the management of their intractable temporal lobe epilepsy do so with the expectation of *being cured* and of being able to discontinue their antiepileptic drugs (AEDs). Although the data from most temporal lobectomy studies suggest that approximately two thirds of patients can be expected to be free of “disabling seizures” (i.e., no seizures or only auras) (1), the period within which and the frequency rate at which AEDs can be discontinued is yet to be established.

Judging from Wieser and Hane’s data, it appears that about one third of patients can be expected to discontinue AEDs, whereas another 30% who are free of disabling seizures will continue on AEDs. Do these data imply that amygdalohippocampectomy yielded a cure (no seizures, no auras, and no AEDs) in only one third of the patients and transformed an intractable seizure focus into a treatable one in another third? Unfortunately, the retrospective nature of this study limits, to some degree, the conclusions that can be drawn from these data. Patients may refuse to discontinue their AEDs for a variety of reasons (e.g., fear of seizure recurrence; unwillingness to give up driving privileges temporarily), even if they have remained free of seizures and auras. Furthermore, the variable duration of the postsurgical follow-up period (from 1 to 18 years) may falsely yield a more favorable outcome among the patients with a shorter follow-up. The only way to answer this question is to carry out a prospective double-blind, placebo-controlled study in which patients are randomly assigned to continuation or tapering of AEDs. Such a study has not yet been done.

The postsurgical seizure outcome of the 376 patients who underwent amygdalohippocampectomy is comparable to those

of other types of temporal resections, in which about two thirds of patients also become free of disabling seizures (1). Other retrospective studies that have investigated the successful postsurgical discontinuation of AEDs after temporal lobectomy show a preference for staying on medication. The percentage of seizure-free patients in whom AEDs successfully were discontinued generally ranges from 20% (2) to 40% (3), although in one study, up to 53% of patients stopped taking their medications (4). Of greater concern is the issue that these percentages represented a minority of all operated-on patients—8.8%, 18%, and 30%, respectively.

Of the patients who experienced only auras, 9% were able to discontinue their AEDs successfully. The rate of seizure relapse in these patients has yet to be studied in a systematic manner, however. Clearly, a greater percentage of these patients would consider discontinuing AEDs if a low risk of seizure recurrence could be documented in a prospective, multicenter, randomized, placebo-controlled study. Only this type of study will determine, with some certainty, the variables (pre- and postsurgical) predictive of a successful discontinuation of

AEDs after temporal lobectomy and whether epilepsy surgery cures temporal lobe epilepsy or converts it from an intractable to a treatable seizure disorder.

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References

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