

Surgical treatment of nonlesional neocortical epilepsy

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Objective: The proportion of surgery for nonlesional neocortical epilepsy has recently increased, with a decrease in surgery for mesial temporal lobe epilepsy. The objective of this study was to evaluate the long-term surgical outcome and to identify possible prognostic factors in patients with nonlesional neocortical epilepsy. **Methods:** We included 109 consecutive patients without MRI-identifiable lesions who underwent focal surgical resection for drug-resistant neocortical epilepsy. Follow-up information for at least 10 years was available for all but one patient. Univariate and standard multiple logistic regression analyses were performed to identify the predictors of surgical outcomes, and a generalized estimation equation model was used for the longitudinal multiple logistic regression analysis of up to 21 years of follow-up. **Results:** At 1 year after surgery, 59 out of 109 patients (54.1%) achieved seizure freedom, and 64 out of 108 (59.3%) patients achieved seizure freedom at the last follow-up. Only 11 out of 108 patients (10.2%) experienced definite changes in postoperative seizure status. Localizing patterns in functional neuroimaging, concordant results in presurgical diagnostic evaluations, the presence of aura, and complete resection of areas of ictal onset with frequent interictal spikes during the intracranial EEG study were favorable surgical outcome predictors. **Conclusion:** Our study showed that nearly 60% of patients with nonlesional neocortical epilepsy achieved long-term seizure freedom, and that changes in postoperative seizure status were rarely observed. Several predictors of favorable surgical outcomes were identified, which can help select optimal candidates for surgical treatment among patients with nonlesional neocortical epilepsy.