

Delays in Surgical Treatment for Epilepsy and Cerebrovascular Disease: Decades versus Days

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Background:

Temporal lobe epilepsy and significant carotid stenosis are associated with paroxysmal clinical events (i.e., seizures and transient cerebral ischemia) that allow identification of candidates for surgical therapy prior to permanent morbidity or death in many patients. Based on systematic reviews of the literature, the American Academy of Neurology (AAN) has published guidelines recommending carotid endarterectomy for symptomatic carotid stenosis greater than 70% and anterior temporal resection for recurrent temporal lobe seizures that have not been controlled by two medications. However, delays in surgical treatment have been reported for both procedures.

Methods:

We searched PubMed.gov for the relevant terms for epilepsy surgery (e.g., epilepsy surgery, refractory epilepsy, temporal lobe epilepsy) and endarterectomy (e.g., cerebral revascularization, endarterectomy, symptomatic carotid stenosis) to identify articles evaluating clinical utility and/or time to surgical intervention after onset of the condition as defined by the AAN guidelines. We reviewed all articles that quantified the benefit of surgical intervention and/or delays in treatment.

Results:

Publications assessing clinical utility (most commonly an analysis of randomized controlled trial data) indicate that gain in quality adjusted life years (QALYS) compared to optimal medical therapy was 7.5 years for epilepsy surgery and 9.64 years for endarterectomy in symptomatic stenosis >70%. Estimates of increased survival were 5.0 years for epilepsy surgery modeled at age 35 years. Rates of ipsilateral stroke and death were significantly improved in the initial 2.5 years following endarterectomy, but modeling of improvement in long-term mortality was not presented in the NASCET or other RCTs. Recent publications indicate that the average time between onset of symptoms prior to endarterectomy is 8-12 days in the US and Europe, but 21 years between onset of refractory epilepsy and epilepsy surgery.

Discussion:

Significant improvements in QALYS and survival are provided by surgical treatment for refractory temporal lobe epilepsy and symptomatic carotid stenosis. AAN guidelines subsequently recommend both interventions for appropriately selected patients. Multiple publications in the stroke literature emphasize the increased morbidity caused by delays beyond the recommended window of 14 days in nearly ½ of candidates for endarterectomy. Most papers in the epilepsy literature that discuss delays in surgery provide rationalization, rather than criticism, for the multi-decade delay prior to epilepsy surgery.