

Mortality in surgically versus medically treated patients with medically refractory temporal lobe epilepsy

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Background and objective: An increased mortality has been noted in patients with epilepsy, which is 2-3 times higher than the general population. Excess mortality in epilepsy is ascribed to poor seizure control, status epilepticus, sudden unexpected death in epilepsy (SUDEP) and psychiatric co-morbidity. The greater decline in average seizure frequency after epilepsy surgery has been noted to translate into a lesser mortality rate.¹ Although anterior temporal lobectomy offers a far better seizure outcome (~70% seizure freedom) than continued medical treatment in patients with refractory temporal lobe epilepsy, its influence on long-term mortality is uncertain.² In view of the scarce knowledge available till date, we hypothesized that a decline in seizure frequency after anterior temporal lobectomy will lead to a significant reduction in mortality. In this study, we attempted to compare the influence of surgery and medical treatment alone on mortality in medically refractory temporal lobe epilepsy patients.

Methods: Patients with medically refractory epilepsy who had undergone presurgical evaluation at our Epilepsy Center from 1995 through 2000 fulfilling the following inclusion criteria were included: 1) seizure semiology suggestive of temporal lobe epilepsy, 2) interictal and ictal EEG localized to temporal region, and 3) MRI showing temporal lesion or normal. The mortality related data was collected prospectively till July 2004 through clinic visits and postal questionnaires. Patients who did not respond to 2 consecutive questionnaires were contacted personally by home visits.

Results: Out of 455 patients, 324 underwent anterior temporal lobectomy (surgery group) and 131 were unsuitable or unwilling for surgery (medical group). The median age was 27 years. Male to female ratio was 3:2. The median follow-up period was 4.5 (0.15-9) years. Last follow-up was available in 316 (97.5%) surgically and 118 (90.1%) medically treated patients. Though the demographic data in the 2 groups was matched, the presurgical data was concordant for a localized epileptogenic zone in 89.2% versus 19.1% in the surgical and medical groups, respectively. The seizure outcome was significantly better after surgery with 77% seizure free and 32.7% off medications (11.5% seizure free and 0.8% off medications in the medical group; $p < 0.001$). During the follow-up period, the overall mortality in the entire study was 4.6%. There were 12 deaths (3.8%) in the surgical group and 8 (6.8%) in the medical group. In the surgical group, 4 died due to seizures (one immediate postoperative, one status and 2 SUDEP), one due to fall and head injury, four by suicide, two due to medical illness, and 1 had unknown cause. In the medical group, 3 died due to seizures (one status and 2 SUDEP), one each due to homicide, drowning and medical co-morbidity and 2 due to unknown cause. There was no statistically significant difference in the mortality rate between the surgical and medical arm ($p 0.289$). No significant difference in seizure related deaths was noted between the 2 groups ($p 0.396$).

Conclusion: Comparative analysis between the surgically and medically treated groups showed no significant difference in mortality. Epilepsy surgery did not lead to significant benefit in reducing mortality despite significantly better seizure outcome.

References

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