Seizures and aneurysms

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Hart and colleagues1 herein provide long-term follow-up data on the frequency of seizures following the treatment of a ruptured cerebral aneurysm in patients enrolled in the International Subarachnoid Aneurysm Trial (ISAT). The ISAT population consists largely of patients with good-grade subarachnoid hemorrhage with predominantly small anterior circulation aneurysms that were considered at the time of the trial (1994–2002) to be equally amenable to both clip occlusion and coil embolization. Overall, 11% of these patients suffered a seizure after randomization. Seizures were more common in those allocated to microsurgical repair (14%) than in those allocated to endovascular repair (8%). When one looks at the risk of seizures after discharge out to 5 years, there were still more seizures in the microsurgical cohort (10% vs 6%). In addition to microsurgery, other risk factors for seizures include higher Fisher grade, delayed stroke due to vasospasm, any stroke, older patient age, and middle cerebral artery (MCA) aneurysm location. The authors have conducted 2 notable subgroup analyses to look specifically at the issue of microsurgery versus endovascular surgery.

In the first analysis, the authors looked at 1288 patients (60% of the total) who had no other risk factors for seizures (no shunt, no second craniotomy, no stroke, no rebleeding). In this cohort, the risk of seizures was equal between the 2 repair techniques as long as the lesion was not an MCA aneurysm. The second analysis looked at 1458 patients (68% of the total) who had made a good recovery (modified Rankin Scale Score 0–2) by 2 months after aneurysmal SAH, and who thus would probably want to drive. In this cohort, the risk of seizures was again equal between the 2 repair techniques as long as the lesion was not an MCA aneurysm. The authors hypothesize that extensive sylvian fissure dissection and retraction are to blame for the increased risk of seizures after clip occlusion of MCA aneurysms. It is hard to know much about the surgical techniques used during the trial because they were not recorded, but the seizure data certainly argue for careful handling of tissues, sharp dissection, and minimization of retraction. Although the issue of unnecessary retraction has received increased attention in the decade following completion of this trial, the authors should be congratulated for underscoring the importance of microsurgical technique in this particular cohort of patients for whom coil embolization is usually not a good option due to unfavorable anatomy.

Thus, although there may be hidden biases in the ISAT data (for example, 3-fold higher incidence of seizures in the microsurgical arm prior to treatment; non-standard antiepileptic paradigm), the data are helpful in establishing seizure reduction after aneurysmal SAH as a major focus of care. Unfortunately, these data do not support the generalized use of prophylactic anticonvulsants in even “high-risk” patients, but rather, they provide the adjudicated baseline incidence needed to power prospective trials of anticonvulsants appropriately in select individuals.

Disclosure

The author reports no conflict of interest.

Reference


Response


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We are grateful to Dr. Connolly for his observations about our paper on the probability of seizures after either clip occlusion or coil embolization of a ruptured cerebral aneurysm. We would point out that the Cox proportional hazards model showed that younger rather than older age predisposed patients to seizures (Tables 4 and 5).

We agree that the risks do not justify the use of anticonvulsants in routine, uncomplicated cases, but their use will obviously remain a matter of judgment in complicated cases, particularly in MCA aneurysms. Whether the seizure risk of approximately 1.8% in the 1st year in patients who have made a good recovery at 2 months is considered sufficiently low by the various authorities issuing driving and flying licences, the relicensing of drivers of goods and passenger-carrying vehicles or pilots will be based on a balanced judgment in the various jurisdictions.

We hope that the data will provide a reliable basis for such judgments to be made with a reasonable degree of confidence.

Disclosure

The authors report no conflict of interest.

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