AJNR

Ruptured Intracranial Aneurysm Treatment Outcomes

A. Bansal and C.P. Derdeyn

AJNR Am J Neuroradiol 2008, 29 (10) e98
doi: https://doi.org/10.3174/ajnr.A1193
http://www.ajnr.org/content/29/10/e98

Ruptured Intracranial Aneurysm Treatment Outcomes

We read with interest the recent article by Natarajan et al[1] regarding the outcome of treated patients admitted to their institution with aneurysmal subarachnoid hemorrhage during an 18-month period. The authors achieved excellent results in these patients and should be commended. We would like to point out 2 issues that deserve closer review, however.

First, their data do not strongly support their conclusion that the overall results of treatment for aneurysmal subarachnoid hemorrhage have improved significantly during the last decade. They cite comparison data from 2 prior studies published in 1995[2] and 1996[3] (quoted as 1999 in the article) from their own institution. The first demonstrated favorable outcomes (Glasgow Outcome Scale of 4 or 5) in 97%, 88%, and 81% of patients presenting with subarachnoid hemorrhage due to rupture of an anterior circulation aneurysm assigned Hunt and Hess (HH) scale grades of I, II, and III, respectively. The second study demonstrated similar outcomes in 54% and 24% of patients initially presenting with HH scale grades of IV and V, respectively. The current series demonstrated a 3-month modified Rankin Scale score of 0–2 in 86%, 85%, 57%, 60%, and 35% of patients with aneurysmal subarachnoid hemorrhage assigned HH scale grades from I–V. It is not clear whether these differences are statistically significant. Furthermore, this improvement seems limited to patients admitted with HH scale grades of IV or V and curiously appears to be at the expense of worse outcomes in patients originally admitted with better clinical grades.

Second, the conclusion that the outcome of patients with coiled and clipped aneurysms in their study was similar is technically accurate, but also misleading. This study was not designed in a fashion that would allow a meaningful comparison of outcomes between the 2 groups: There are no conclusions that can be drawn from these data to guide clinical practice. This was a retrospective chart review of a relatively small number of nonrandomized consecutive patients. As at most institutions, patients were selected for treatment technique on the basis of the best judgment of the treating physician. At their institution, the presence of medical comorbidities and greater hemorrhage severity favored coiling. The patients in the coiling group had worse HH scale, Fisher, and World Federation of Neurologic Surgery grades than those in the clipping group. Although logistic regression analysis was performed in an attempt to control for these pretreatment variables, at least 1 of them (HH) was a significant independent predictor of outcome.

Despite these differences in important pretreatment variables favoring those in the clipped group, the patients with clipped aneurysms experienced longer stays in the intensive care unit, and significantly more of them developed vasospasm. More patients in the clipped group required endovascular therapy for vasospasm, one of whom died following a complication of angioplasty. One patient in the clipped group rebled, whereas none of the patients with coiled aneurysms did. Patients with coiled aneurysms were significantly more likely to be discharged home, whereas patients with clipped aneurysms were significantly more likely to be discharged to a rehabilitation facility.

In summary, this article reports very good outcomes in a large consecutive series of patients with aneurysmal subarachnoid hemorrhage managed with modern treatment modalities. No further conclusions can be drawn from these data, however.

References

1. Natarajan SK, Sekhar LN, Ghodke B, et al. **Outcomes of ruptured intracranial aneurysms treated by microsurgical clipping and endovascular coiling in a high-volume center.** *AJNR Am J Neuroradiol* 2008;29:753–59
2. Le Roux PD, Elliott JP, Downey L, et al. **Improved outcome after rupture of anterior circulation aneurysms: a retrospective 10-year review of 224 good-grade patients.** *J Neurosurg* 1995;83:394–402
3. Le Roux PD, Elliott JP, Newell DW, et al. **Predicting outcome in poor-grade patients with subarachnoid hemorrhage: a retrospective review of 159 aggressively managed cases.** *J Neurosurg* 1996;85:39–49

A. Bansal
C.P. Derdeyn
Neuroradiology Section
Mallinckrodt Institute of Radiology
Washington University School of Medicine
St Louis, Mo

DOI 10.3174/ajnr.A1193