What did we learn from the ARUBA trial?

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Many criticisms have been leveled at the ARUBA trial (A Randomized Trial of Unruptured Brain Arteriovenous Malformations). 1 However, the study stands as the only prospective, randomized trial of unruptured brain arteriovenous malformations (AVMs). The questions we need to answer are: What have we gained from this trial? And how do we apply this to the management of these patients?

Many of the outcome data in the treatment arm of the ARUBA trial are contaminated by prior therapeutic trends that have since been largely abandoned because of high complication rates and low obliteration rates. On the other hand, the natural history data provided by the trial are particularly compelling and remind us about the important role of microsurgical resection. Conservative management resulted in a 10% risk of stroke or death and a 15% risk of disability over 33 months. These results require that we provide patients with effective, low-risk management strategies. Published data have already outlined appropriate protocols for the classification and treatment of cerebral AVMs. 2 Pooled analysis of outcomes has shown that Spetzler-Martin Grade I and II (Class A) AVMs can be managed with microsurgical resection alone, achieving good outcomes in 96% and 90% of patients, respectively. These results support microsurgical resection based on the ARUBA trial’s natural history data. Class B or Spetzler-Martin Grade III AVMs are a heterogeneous collection of malformations that require a case-by-case evaluation with special consideration for multimodal therapy. A conservative approach is warranted in patients with these AVMs when they present without a history of rupture. Conservative management is the recommendation for Class C or Spetzler-Martin Grade IV and V AVMs, with intervention being considered only with progressive neurological decline and/or repetitive hemorrhage. Although these recommendations are not new, the published results of the ARUBA trial emphasize the required adherence to evidence-based treatments. Endovascular training continues to expand, with entry via neurology, radiology, and neurological residencies creating an environment in which complex cerebral pathologies are being managed by subspecialists with very different backgrounds. The evolution of endovascular interventions has been invaluable to the management of cerebrovascular disease. However, it is critical that best practices be employed in the management of AVM cases in order to achieve acceptable outcomes compared to the natural history data. Nowhere has this been more clear than in the results of the ARUBA trial.

Minimally invasive technology may ultimately evolve to challenge microsurgical outcomes for Class A AVMs, but it has not yet reached that point. Although endovascular treatment may seem more attractive to patients, its use as a primary or combined therapy for low-grade AVMs is not supported by the current data. In summary, microsurgical resection remains an indicated and effective therapeutic intervention for unruptured low-grade AVMs. It is our responsibility as physicians to properly inform and guide our patients in order to achieve the best possible outcomes. The ARUBA trial is a critical reminder of this responsibility. (http://thejns.org/doi/abs/10.3171/2014.5.FOCUS14256)

Disclosure

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References


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