Interventional AVM therapy against epileptic seizures

Treatment between Scylla and Charybdis?

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Symptomatic epileptic seizures constitute a common neurologic complication in patients with arteriovenous malformations (AVMs). In many patients, a first-ever seizure may be the clinical index event leading to the diagnosis of an otherwise asymptomatic AVM. This scenario seems to be particularly frequent in young adults, while during childhood and beyond the age of 60, AVMs are less likely to be diagnosed based on seizures alone.[1] The occurrence of seizures is associated with neuroradiologic features such as lobar AVM location, large nidus size, arterial border zone topography, and the presence of superficial venous drainage.[2] For nonepileptic patients diagnosed with an unruptured AVM, the 5-year incidence of first-ever seizures on follow-up has been estimated around 8%, but this risk may increase to 23% if AVM rupture has occurred.[3]

In the current issue of *Neurology*®, Josephson et al.[4] add to their prior studies on the long-term risk of AVM-associated seizures. This stimulating article provides longitudinal data on the risk of seizures in patients followed with or without interventional AVM therapy. Based on an analysis of 219 patients with AVM from the well-established, prospective Scottish Audit of Intracranial Vascular Malformations (SAIVMs), the results suggest the proportion of patients with first or recurrent seizure over 5 years following interventional AVM treatment (35%) is basically the same as compared to the first 5 years following clinical presentation in conservatively managed cases (26%, $p = 0.5$). Even more importantly, the proportion of patients who have had seizures, but achieve 2-year seizure freedom, was similar following interventional AVM therapy (52%) as compared to conservative management (57%). Finally, the observed effects remained independent of whether or not the AVM had initially presented with hemorrhage or epileptic seizures.

These findings blunt the common assertion that interventional AVM therapy reduces seizure recurrence, thus justifying the treatment of otherwise asymptomatic, unruptured brain AVMs. The illustrative survival curves on seizure recurrence may remind treatment teams that the primary goal of interventional AVM therapy remains the prevention of future AVM hemorrhage, and that its benefit for the prevention of epileptic seizures remains as yet unproven, at least over a 5-year period. It also emphasizes that the neurologist's role should be more than as a silent bystander in the multidisciplinary management of symptomatic AVM patients.[5]

One of the main values of the study is its multidisciplinary multicenter design, as it allows minimizing the potential referral bias of single-center or single-discipline datasets. Similar to other observational AVM cohorts, clinical events in the patient sample may nonetheless be systematically influenced by interventional treatment selection, as only 70 (32%) of the 219 patients remained untreated during follow-up. Therefore, the authors welcome the opportunity to compare their findings to those from the ongoing NIH/National Institute of Neurological Disorders and Stroke–funded trial A Randomized Trial of Unruptured Brain AVMs (ARUBA) (www.arubastudy.org, NCT00389181) when these become available. The ARUBA study constitutes the only randomized clinical trial evaluating the long-term risk for patients with unruptured brain AVMs followed with or without AVM eradication and will provide prospective longitudinal outcome data on seizure recurrence in patients with or without interventional AVM therapy. The trial is currently offering participation to patients diagnosed with an unruptured brain AVM via multidisciplinary treatment teams at over 60 international study sites.[6]

DISCLOSURE

The author reports no disclosures relevant to the manuscript. **Go to Neurology.org for full disclosures.**

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