

Is intervention beneficial for brain vessel malformations?

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Individuals diagnosed with a brain arteriovenous malformation (BAVM) -- an abnormal tangle of arteries and veins -- are at increased risk of vessel rupture and bleeding that can cause permanent brain damage. Traditionally, doctors have prescribed preventive interventions like surgery, but there is suggestive evidence that this invasive approach may actually increase risk of a rupture, at least in some patients.

Now, physician-scientists at Columbia University Medical Center and NewYork-Presbyterian Hospital are the principal investigators of an ongoing international, multicenter, NIH-funded study examining whether intervention or a hands-off approach is best for the two-thirds of individuals with a BAVM that has not bled.

"Before modern imaging was widely available, most BAVMs were discovered only after they had bled. At that time it was generally assumed that the few patients discovered with the condition that had not bled would require prophylactic intervention, but there was no conclusive evidence. This study will help answer this question," says Dr. Timothy A. Pedley, neurologist-in-chief at NewYork-Presbyterian Hospital/Columbia University Medical Center and the Henry and Lucy Moses Professor and chairman of the Department of Neurology at Columbia University College of Physicians and Surgeons.

The clinical trial, called "A Randomized Unruptured Brain Arteriovenous Malformation (ARUBA)," is comparing the best possible invasive treatment strategy (any combination of endovascular,

neurosurgical or [radiation therapy](#)) for unbled BAVM randomized against noninvasive medical management. The trial will recruit 800 patients to see whether invasive treatment or noninvasive management reduces the risk of death or symptomatic stroke over five years. There are more than 100 participating sites in the U.S. and around the world.

Previous research, including studies conducted by NewYork-Presbyterian/Columbia, has suggested that the annual risk of spontaneous hemorrhage may be as low as 1 percent for many non-ruptured BAVMs, especially among those for whom intervention appears feasible. But those with large and more complex BAVMs have higher hemorrhage rates and pose greater technical problems for intervention, and as a result treatment is deferred for many, given the risks. Age, deep brain location, associated aneurysms, and deep venous drainage add to hemorrhage risk factors.

"All told, it has been difficult for neurovascular teams to determine how to balance the possible risk of intervention against the potentially low hemorrhage risk in patients whose BAVMs have not bled. ARUBA has been undertaken to obtain information that will improve clinical decision-making," says study principal investigator Dr. J.P. Mohr, neurologist at NewYork-Presbyterian Hospital/Columbia University Medical Center and the Daniel Sciarra Professor of Neurology at Columbia University College of Physicians and Surgeons.

Source: New York- Presbyterian Hospital

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