## Hydrogel Endovascular Aneurysm Treatment Trial

Aneurysm recurrence after coiling has been associated with aneurysm growth, (re)hemorrhage, and a greater need for follow-up. The second-generation HydroCoil Embolic System (HES; MicroVention, Inc) consists of a platinum core with integrated hydrogel and was developed to reduce recurrence through enhancing packing density and healing within the aneurysm.

OBJECTIVE: To compare recurrence between the second-generation HES and bare platinum coil (BPC) in the new-generation Hydrogel Endovascular Aneurysm Treatment Trial (HEAT).

METHODS: HEAT is a randomized, controlled trial that enrolled subjects with ruptured or unruptured 3- to 14-mm intracranial aneurysms amenable to coiling. The primary endpoint was aneurysm recurrence using the Modified Raymond-Roy Classification. Secondary endpoints included minor and major recurrence, packing density, adverse events related to the procedure and/or device, mortality, initial complete occlusion, aneurysm retreatment, hemorrhage from target aneurysm during follow-up, aneurysm occlusion stability, and clinical outcome at final follow-up.

RESULTS: A total of 600 patients were randomized (HES, n = 297 and BPC, n = 303), including 28% with ruptured aneurysms. Recurrence occurred in 11 (4.4%) subjects in the HES arm and 44 (15.4%) subjects in the BPC arm (P = .002). While the initial occlusion rate was higher with BPC, the packing density and both major and minor recurrence rates were in favor of HES. Secondary endpoints including adverse events, retreatment, hemorrhage, mortality, and clinical outcome did not differ between arms.

CONCLUSION: The coiling of small-to-medium aneurysms with second-generation HES resulted in less recurrence when compared to BPC, without increased harm. These data further support the use of the second-generation HES for the embolization of intracranial aneurysms <sup>1</sup>.

## 1)

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