New research shows minimally invasive therapy is effective in treating chronic subdural hematoma

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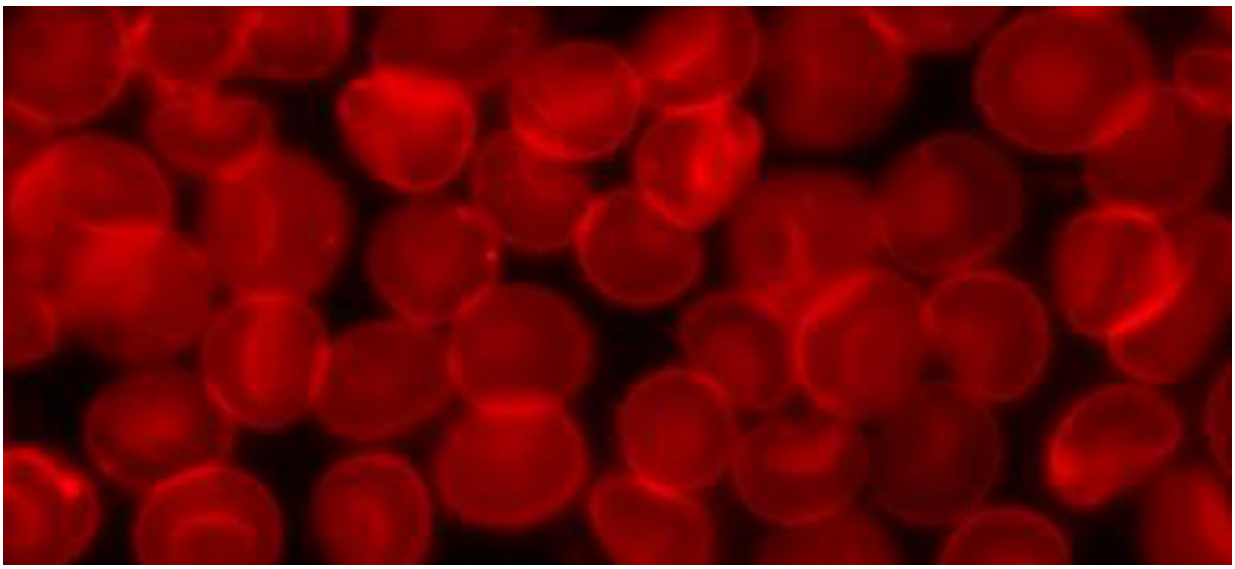

Credit: Wikimedia Commons

The Society of NeuroInterventional Surgery (SNIS) is acknowledging middle meningeal artery embolization (MMAE) as a beneficial adjunctive treatment for chronic subdural hematoma in light of new research. The minimally invasive MMAE procedure significantly reduced the failure rates of traditional surgical and non-surgical management strategies without an increased rate of serious neurological complications.

Chronic subdural hematoma refers to the gradual accumulation of blood over the surface of the brain. This disorder primarily affects elderly patients, is associated with significant morbidity and mortality, and represents a tremendous health care resource burden.

As the U.S. population continues to age, studies show that chronic subdural hematomas may be the most prevalent neurosurgical diagnosis that requires treatment within the next decade.

The existing standard of care for treating chronic subdural hematomas involves either drilling holes into the skull to drain the blood (i.e., surgical management) or watchful waiting with various medical interventions (i.e., non-surgical management) for patients who do not require early surgical intervention and/or are poor surgical candidates.

However, an average of 10% to 30% of patients experience recurrence of chronic subdural hematoma after surgery, often necessitating reoperation. Studies show these surgical failure rates are higher among elderly patients. Failure rates in patients initially managed non-surgically are reported to be even higher.

According to three new prospective randomized controlled trials (EMBOLISE, MAGIC-MT, and STEM), adjunctive MMAE significantly reduces the failure rates of standard management strategies. The technically straightforward and minimally invasive MMAE procedure is performed using small catheters inserted through blood vessels in the arm or leg.

These small catheters are then navigated into the middle meningeal artery, and liquid agents are injected into these blood vessels, solidifying within them (like glue), blocking them off, and stopping the chronic bleeding into the subdural space. This treatment represents a major shift in the management of this disease.

The effect sizes of adjunctive MMAE in patients in the non-surgical arms of MAGIC-MT and STEM indicate that many patients may be able to avoid open surgery completely as MMAE substantially reduced the failure rates of non-surgical management.

For patients who required surgical drainage, EMBOLISE showed that adjunctive MMAE significantly reduced reoperation rates. The surgical management arm of the STEM trial showed a similar robust trend with MMAE cutting surgical failure rates by about half; however, STEM did not show differences in the non-surgical and surgical subgroups separately, and as such, the surgical arm findings were not significant as a stand-alone subgroup.

Adjunctive MMAE with liquid agents started in 2018 with two members of SNIS who went on to lead the pivotal STEM trial (sponsored by BALT U.S.)—former SNIS President Adam Arthur, MD, MPH and David Fiorella, MD, Ph.D.

"The presented data indicate that this novel adjunctive procedure represents an important advance as it reduces the failure rates of standard management strategies with a high margin of procedural safety. Chronic subdural hematoma is an exceedingly common problem, and these findings will be relevant to a large population of patients. We look forward to the final published results of all three studies," said Dr. Fiorella, professor of neurosurgery at Stony Brook University.

"In many ways, these data are really just the beginning. There will be a tremendous amount of additional insight coming very soon. The MEMBRANE trial from Cerenovus just recently completed enrollment, and a combined analysis of all four of these randomized controlled trials of MMAE is planned."

"It is important to acknowledge that EMBOLISE and STEM were

performed under investigational device exemptions within the context of U.S. FDA-regulated prospective clinical trials. No liquid embolic agent currently has U.S. FDA clearance for MMAE, and regulatory review is pending."

"It is incredible to see the fruits of our labor after six years of research," said Dr. Arthur, chair of neurosurgery at the University of Tennessee Health Sciences Center and Semmes-Murphey Clinic.

"Together as neuro-interventionalists and neurosurgeons, we are making a difference by providing evidenced-based, effective, and patient-centric minimally invasive alternatives to traditional treatment strategies. My SNIS colleagues are continually producing remarkable work to advance the field, and I am eager to witness what is to come."

Provided by Society of NeuroInterventional Surgery

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