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UC Study finds new coiling devices are less effective than old standbys In thwarting brain aneurysm recurrence

CINCINNATI – A retrospective analysis of 100 patients suffering from a ruptured brain aneurysm has found that expensive new coiling devices are no more effective than bare platinum coils at preventing aneurysms from recurring.

A team of researchers from The Neuroscience Institute at the University of Cincinnati (UC) and University Hospital, led by Andrew Ringer, M.D., evaluated the risk of intracranial aneurysm recurrence after endovascular treatment with each of three different kinds of coils.

Dr. Ringer, the study's principal investigator, is a neurosurgeon with the Mayfield Clinic and is director of endovascular neurosurgery and associate professor of neurosurgery at UC.

The findings will be presented at the International Stroke Conference Feb. 20-22 in New Orleans.

An intracranial aneurysm is a balloon-like bulge or blister on an artery in the brain. Aneurysms with thin necks, known as saccular aneurysms, are often treated with a clip. During a craniotomy, a procedure in which the skull is surgically opened, a neurosurgeon places the clip across the neck of the aneurysm, thereby shutting off the aneurysm's blood supply.

Surgeons also can use a minimally invasive procedure to treat saccular aneurysms through coiling. A catheter is inserted into an artery in the groin and threaded up through the body to the brain, and a tiny coil is discharged directly into the aneurysm. The minimally invasive procedure enables the patient to avoid surgery and the risks associated with opening the skull.

In an important drawback, however, coils may occasionally compact within the aneurysm. When compaction occurs, blood flows back into the aneurysm, making repeated treatment necessary.

"Companies have tried to address the issue of recurrence after coiling by engineering coils using one of two different approaches," said Dr. Ringer. "One is coated with a polymer designed to promote tissue

healing at the neck (opening) of the aneurysm, and one is coated with a gel that, when exposed to blood, is designed to expand inside the aneurysm to fill all the nooks and crannies.

“The purpose of our study was to assess the effectiveness of these new treatments,” Dr. Ringer continued. “We found that neither of these newer -- and more costly -- coils performed any better than the bare platinum coils.”

To determine whether the new strategies posed an improvement, Dr. Ringer and his research team analyzed the outcomes during a 3 ½-year period of 100 successively treated patients who had suffered ruptured aneurysms of medium size (5 to 15 millimeters in diameter).

At the end of one year, the bare platinum coils were associated with the least number of repeated treatments. The percentage requiring repeated treatment was 6.4 percent in the platinum coils group, 11.5 percent in the expanding gel-coating group, and 20.9 percent in the polymer-coating group.

The results, Dr. Ringer said, “suggest the possibility that a factor, or factors, other than coil-surface coating may be responsible for reducing aneurysm recurrence.”

Other researchers involved in the study were Shah-Naz H. Khan, M.D., Christopher Nichols, M.D., and Todd A. Abruzzo, M.D., all of The Neuroscience Institute.

The Mayfield Clinic is recognized as one of the nation's leading physician organizations for clinical care, education, and research of the spine and brain. The group includes 20 neurosurgeons and treats 20,000 patients from 35 states and a dozen countries in a typical year. Mayfield's neurosurgeons are active participants in important clinical trials and have pioneered surgical procedures and instrumentation that have revolutionized the medical art of neurosurgery for brain tumors and neurovascular diseases and disorders.

The Neuroscience Institute, a regional center of excellence, is dedicated to patient care, research, education, and the development of new treatments for stroke, brain and spinal tumors, epilepsy, multiple sclerosis, traumatic brain and spinal injury, Alzheimer's disease, Parkinson's disease, disorders of the senses (swallowing, voice, hearing, pain, taste and smell), and psychiatric conditions (bipolar disorder, schizophrenia and depression).

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