Medical Xpress

Routine testing after aneurysm coiling carries low risk

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A very low risk of complication is associated with a routine test that determines whether a brain aneurysm treated with endovascular coiling has started to recur, a study led by the University of Cincinnati Neuroscience Institute has shown.

The multi-site, retrospective study, published in the November issue of *Neurosurgery*, found a complication rate of 0.43 percent in 2,243 patients who had undergone cerebral angiography three months or more following endovascular treatment of a brain aneurysm. Of the 12 complications that occurred, only one was both major and permanent.

"Our study shows that the use of routine testing with angiography following endovascular treatment of brain aneurysms carries a very low risk of complication," says Andrew Ringer, MD, the study's lead investigator and director of endovascular neurosurgery at UC. "Because the risk is small, routine angiography should not be viewed as a deterrent to endovascular treatment of aneurysms."

A brain aneurysm is a balloon-like bulge or weakening of an arterial wall. If the walls of an aneurysm become too thin, it can rupture, often causing brain damage or death. Approximately 27,000 individuals suffer a ruptured brain aneurysm in the United States each year, according to the National Institute of Neurological Disorders and Stroke. Primary risk factors include smoking, hypertension and alcohol and drug abuse.

Specialists treat brain aneurysms in different ways. Some aneurysms are

treated surgically through an opening in the skull or eyebrow. Neurosurgeons can place a clip on the aneurysm at its base, thereby blocking the blood flow into the aneurysm and preventing it from bleeding

If the aneurysm is not surgically accessible, endovascular specialists can reach it by threading a flexible catheter, which is capable of being steered, from the large femoral artery near the groin up to one of four arteries in the neck that lead to the brain. Using this technique, specialists can advance platinum coils through small tubing into the aneurysm, once again blocking the blood flow and preventing the aneurysm from bleeding.

Endovascular coiling was originally approved by the Food and Drug Administration as a treatment for aneurysms that could not be surgically treated, but it has emerged as a first-line option for surgically accessible aneurysms as well.

"The downside to coiling," Ringer says, "is that while the risk is very low, it carries a higher rate of aneurysm recurrence than clipping. As a result, maintaining a watchful eye on the coiled aneurysm, through diagnostic angiography, is imperative."

Angiography is a minimally invasive test that allows specialists to look closely at arteries in the brain. It involves injecting a contrast dye into arteries, via a catheter, in order to make them visible.

Ringer, a neurosurgeon with the Mayfield Clinic, and colleagues reviewed data from patients who had undergone angiography surveillance of coiled aneurysms between January 2002 and December 2006. The UC-led study was the first ever to explore angiography risk solely among patients who had undergone coiling.

Previous studies of angiography have found complication risks among all patient groups ranging from 0.17 to 2.63 percent, the researchers reported. These studies included patients who were older and more likely to suffer complications, often because the test was being performed as a result of known or suspected cerebral blockage. The risk of stroke is among the most serious risks of angiography.

"As a subset of this overall group, patients undergoing angiography after endovascular coiling may be younger and healthier than patients in other angiogram risk studies," Ringer says. "The finding that their risk from surveillance angiography is lower than what has been found in studies of all patient groups confirms what we have seen in our medical practices."

Source: University of Cincinnati

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