

Minimally invasive stroke treatment produces better patient outcomes than surgical operation

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While minimally invasive coil treatments for those with a ruptured brain aneurysm have proved to be a more effective technique than traditional surgical operation in selected patients, the superior procedure is drastically more expensive, according to new research from the Zeenat Qureshi Stroke Research Center at University of Minnesota Medical School.

Using outcomes from more than 2,000 patients - half of whom underwent minimally invasive endovascular coiling for brain aneurysms - and economic data gathered from a variety of hospitals throughout the United States, it is clear the minimally invasive procedure has better patient outcomes - including quality of life - than the neurosurgical counterpart.

Minimally invasive treatments on average cost about \$72,000 more than surgical treatments for each quality-adjusted life year gained (including costs stemming from disability, hospitalization, retreatment, and rebleeding) - partly because multiple follow-up treatments are necessary within the first year of endovascular treatments, as opposed to one major surgical operation.

Coiling is a technique that involves placing a small catheter into the aneurysm and filling it with platinum coils. The catheter is introduced through a blood vessel in the groin and advanced under X-ray all the way

into the brain blood vessels.

With accrual of additional years with better outcome status, the cost-effectiveness of endovascular coiling would most likely progressively improve and eventually reverse direction, said Alberto Maud, M.D., principal investigator of the study.

"The minimally invasive treatment is better tolerated in selected critically ill patients with ruptured brain aneurysms. The procedure is effective in preventing a second rupture but currently limited in terms of cost due to the need for additional follow-up procedures to treat new aneurysm growth," Maud said. "However, a new generation of devices promises to provide more permanent obliterations for aneurysms. It should be noted that despite additional treatments, patients treated with endovascular treatment continued have lower rates of death and disability than those treated with open surgery."

The research is published in the May issue of the *Journal of Neurosurgery*.

Other benefits of minimally invasive surgery include less time in hospital and lower chance of disability, said Adnan I. Qureshi, M.D., senior investigator of the study, who is also the director of the Minnesota [Stroke Initiative](#). Currently about 30 to 40 percent of all patients with aneurysms are treated with minimally invasive procedures, he said.

Intracranial aneurysms impact about 2 percent of the general population worldwide and are present in 10 million people in the United States. Until recently, the predominant treatment was open operation. However, endovascular treatments have increased as the technique has improved.

Source: University of Minnesota ([news](#) : [web](#))

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