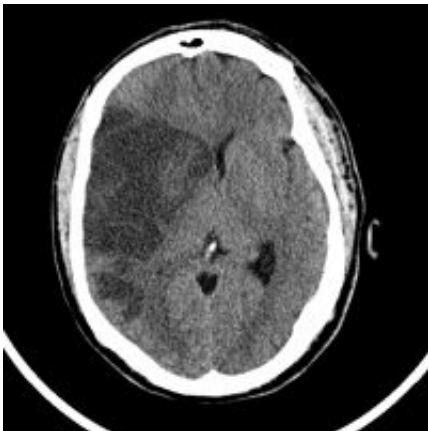


# Weighing the Options after Life-Altering Stroke

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CT scan of the brain of a patient who has suffered a massive stroke. The darker, wedge-shaped area on the left is the portion of the brain that has been damaged.

(PhysOrg.com) -- Choosing to have aggressive brain surgery after suffering a severe stroke generally improves the patients' lives and allows them to live longer, according to research by neurologists at the University of Rochester Medical Center.

The findings should help [patients](#) and families put into perspective a decision that is nearly always painful and difficult to make - whether putting a patient through aggressive [surgery](#) after a catastrophic [stroke](#) is worth it.

“For families facing this difficult choice, the more information we can

provide, the better for their decision-making,” said neurologist Adam G. Kelly, M.D., who has helped hundreds of families chart a course after severe stroke. Kelly presented the findings last month at the International Stroke Conference in San Diego.

Kelly and colleague Robert Holloway, M.D., studied three separate analyses of patients who had had a serious type of stroke known as a malignant [middle cerebral artery](#) infarction, in which [blood flow](#) to a large part of the [brain](#) is cut off. Further damage occurs when the damaged brain swells in the days immediately following the initial stroke, as delicate [brain tissue](#) is pushed up against the hard inner skull. Increased swelling and pressure in the brain diminish blood flow even further.

Even under the best circumstances, patients who have suffered such strokes face at least moderate disability, and often their challenges are severe, no matter what type of treatment is chosen. A patient might be paralyzed on one side of the body. They may have lost their ability to speak or even to comprehend what is said to them. They may need a breathing or [feeding tube](#). At the very least, they’ll likely need help each day with tasks like bathing, cooking, and taking care of themselves.

Kelly and Holloway looked at patients who were treated with medical options alone and compared their outcomes to those of patients who had a surgical procedure known as a [hemicraniectomy](#). In that procedure, doctors remove a piece of the skull temporarily, limiting further damage by giving the brain room to swell. The portion of the skull that is removed is put back in place a few months later.

Typically the decision whether or not to go ahead with the surgery is made by families grappling with the catastrophic effects of severe stroke on their loved one. In the face of great uncertainty and under great duress and time pressures, families have to make the decision.

“There is no reliable early predictor of how most people will do after a stroke,” said Kelly, an instructor and fellow in the Department of Neurology.

“Some people have a small stroke, with few effects, and we can predict that outcome fairly well. Others have strokes that are immediately catastrophic. But the vast majority of patients are in the middle, and we have a hard time predicting what the outcome will be. There is a lot we don’t know about how the brain responds to injury, and how it recovers,” Kelly said.

Kelly and Holloway studied data from three studies in Europe that looked at the outcomes of 93 people after stroke. The studies demonstrated that patients who didn’t have the surgery were about three times more likely to die within a year than patients who did have the surgery, though many of the surgical patients were left with considerable disability.

Using a technique called decision analysis, Kelly and Holloway re-evaluated the outcomes of these trials to incorporate quality-of-life ratings for surviving patients. The authors found that even in the face of significant stroke-related disability, as a whole, patients who had undergone the surgical procedure had an improvement in their quality of life. The physicians then used a related method called sensitivity analysis to determine situations in which surgery might not be the preferred treatment. Only under circumstances where patients valued the outcome after stroke extremely poorly - almost as a fate worse than death - was surgery not the preferred option.

“There has been debate for a long time about the effects of this surgery for patients. It definitely saves lives, but we’re asking whether the surgery really paid off for these patients. Did the patients value their health state? Was it worth it to them?” asks Kelly. “The answer most

often is ‘yes.’”

The authors say there are several types of patients for whom surgery clearly isn’t a good option. These include people who were already in poor health before the stroke, people whose chances of surviving the surgery are questionable, and patients who have clearly stated that they would not want such measures to be taken.

For those who do opt for surgery, Kelly and Holloway found that living longer due to the surgery was only part of the benefit. Those patients also valued their health. That might seem difficult to understand for people who are healthy, but it does not surprise Holloway, who has worked with hundreds of patients severely limited by stroke.

“For years I’ve witnessed families wrestle with these decisions,” said Holloway. “If the families make the decision based on what they imagine the future to be, they may decide it’s a surgery the patient wouldn’t want. But nearly always, when they’ve made the decision to go ahead with the surgery, the families are subsequently happy they made that decision.

“People who survive devastating stroke often do much better than people think they will do. People who haven’t experienced a health condition, such as stroke, almost always provide a lower estimate of their quality of life compared to people who are actually living with that condition or disease,” Holloway added.

Kelly has witnessed the same dynamics himself.

“People have a remarkable ability to compensate for whatever problems they face,” said Kelly, whose fellowship is supported by the National Institute of Neurological Disorders and Stroke. “Oftentimes, the fear of the unknown, and the anxiety it causes, is worse than the actual situation. Over time, people adapt to their deficits, and as they do, they value their

quality of life more highly.”

Provided by University of Rochester Medical Center ([news](#) : [web](#))

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