

Near-complete blood flow restoration critical for best outcomes in stroke

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Two Rhode Island Hospital researchers recently found that restoring near-complete blood flow to the brain is necessary to restore or preserve neurological function following stroke. Seems like a no-brainer, right?

Yet until their research was complete, many physicians and researchers believed that partial blood-flow restoration was good enough. Not anymore.

The study by Mahesh Jayaraman, M.D., director of interventional neuroradiology, and Brian Silver, M.D., director of the Comprehensive Stroke Center at Rhode Island Hospital, is published online in advance of print in the *American Journal of Neuroradiology*.

The researchers found that when performing intra-arterial [stroke therapy](#) – putting a catheter directly into a blood vessel in the brain in an effort to open it – it's simply not enough to open some of the vessels. Rather, opening the vast majority of the vessels is needed to truly restore [neurological function](#) in patients with [acute ischemic stroke](#) who are ineligible for, or fail to improve following intravenous [tissue plasminogen activator](#) (tPA), a common treatment for stroke.

"Stroke caused by a large blockage in the brain is potentially debilitating," Jayaraman said. "But if we can successfully restore blood flow to the majority of the blood vessels in the brain, then we may be able to help reduce the severity of a patient's stroke. While previous studies have shown that any restoration of blood flow can help, our

results are the first to show that near-complete restoration is needed to help improve [patient outcomes](#), including the preservation of fine and [gross motor skills](#), speech and behavior."

The purpose of the study was to determine whether the degree of restoration of blood flow to the brain has an impact on the degree of [brain damage](#) and clinical outcomes. The study found that there are, in fact, significant differences in [clinical outcomes](#) between partial and near-complete blood flow restoration following intra-arterial stroke therapy for strokes that occur in the front part of the brain. As a result, Jayaraman and Silver concluded that future patient care plans should focus on restoring as much blood flow as possible, combining new technologies with a health care infrastructure designed to deliver rapid care.

"Rapid treatment is critical for stroke patients," Silver said. "It's not enough to just open blood vessels to the brain; it has to be done as early as possible. At Rhode Island Hospital, more than 50 percent of our patients are treated with intravenous clot busters (tPA) in less than 60 minutes after arrival, and a significant number of stroke patients are being treated with an intra-arterial therapy in less than two hours from the time they arrive. Stroke treatment needs to evolve, and that includes using new technologies that allow physicians to remove the clot in its entirety as quickly as possible."

Stroke is a leading cause of death in the United States; more than 800,000 people in the U.S. die each year from cardiovascular disease and strokes. Sometimes called a "brain attack," stroke occurs when a clot blocks the blood supply to the brain or when a blood vessel in the brain bursts. If not treated in a timely manner, stroke can cause death or significant disability, such as paralysis, speech difficulties and emotional problems.

Provided by Lifespan

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