

# Groundbreaking study expands clot removal window in stroke

November 13 2017, by Arvind Suresh

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A procedure to remove clots from blocked brain vessels – known as thrombectomy - may be beneficial for some stroke patients even if they come in to the emergency room beyond the 6-hour treatment window that current guidelines endorse, according to a groundbreaking study conducted by an international team of physicians and researchers led by UPMC and Emory University.

The results, which were first announced in May at the European Stroke Organization Conference were published today in the *New England Journal of Medicine*.

"When the irreversibly damaged brain area affected by the [stroke](#) is small, we see that clot removal can make a significant positive difference, even if performed outside the six hour window," said Tudor Jovin, M.D., director, UPMC Stroke Institute, director UPMC Center for Endovascular Therapy and professor of neurology and neurosurgery at the University of Pittsburgh, who co-led the trial. "However, this does not diminish urgency with which [patients](#) must be rushed to the ER in the event of a stroke. The mantra 'time is brain' still holds true."

In the study, researchers randomly assigned stroke victims who arrived at the hospital outside the six-hour time window to either thrombectomy or to standard medical therapy. To select patients for the trial, the researchers used a new paradigm, which used brain imaging and clinical criteria as opposed to just time alone.

"Looking at the physiological state of the brain and evaluating the extent of damage and other clinical factors may be a better way to decide if thrombectomy will benefit patients as opposed to adhering to a rigid time window," said co-principal investigator Raul Nogueira, M.D., professor of neurology, neurosurgery and radiology at Emory University School of Medicine, and director of neuroendovascular service at Marcus Stroke & Neuroscience Center, Grady Memorial Hospital.

Brain imaging and clinical information (neurological deficit) was used to identify and enroll patients who had a small area of irreversibly damaged brain and a significantly larger [brain](#) tissue area that was imminently threatened by loss of blood supply, but still alive – a criterion known as clinical infarct mismatch.

The results showed that almost half of the patients (48.6 percent) receiving endovascular therapy had a good outcome at 90 days after treatment – defined as the patient being independent in activities of daily living – showed clinical benefit, while only 13.1 percent showed benefit in the group that received clot-busting drugs alone. There was no difference in mortality between the two groups.

The researchers planned to enroll a maximum of 500 patients over the course of the study period. However, a pre-planned intermediate review of the treatment effectiveness when 200 patients were enrolled led the independent Data Safety Monitoring Board overseeing the study to recommend early termination of the trial based on pre-defined criteria demonstrating that clot removal provided significant clinical benefit in the selected patients.

**More information:** Raul G. Nogueira et al. Thrombectomy 6 to 24 Hours after Stroke with a Mismatch between Deficit and Infarct, *New England Journal of Medicine* (2017). [DOI: 10.1056/NEJMoa1706442](https://doi.org/10.1056/NEJMoa1706442)

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