

Stroke patients' access to clot-busting drug increases dramatically when they're rushed directly to regional stroke centers

Study highlights:

- Identifying stroke patients in the ambulance and taking them directly to stroke centers increases access to treatment.
- A Toronto study showed a four-fold increase in access to the clot-busting drug tPA when stroke victims were taken directly to stroke centers instead of the closest hospital.
- Oct. 29 is World Stroke Day.

DALLAS, Oct. 29, 2009 – Routing stroke patients directly to designated stroke centers – instead of taking them to the nearest hospital – dramatically increased access to a key clot-busting drug that can reduce stroke disability if given within the first few hours of symptoms, researchers reported in *Stroke: Journal of the American Heart Association*.

During the study of a citywide initiative in Toronto, Ontario, four times as many patients were treated with tissue plasminogen activator (tPA), a drug that dissolves clots, a common cause of stroke, than had been treated prior to the start of the initiative. The American Stroke Association recently recommended that tPA be given to some patients up to 4.5 hours after symptoms begin.

In 2007, the American Heart Association/American Stroke Association issued a policy statement titled "Implementation Strategies for Emergency Medical Services within Stroke Systems of Care," which recommends patients be transported to the nearest stroke center if it can be done within a reasonable time.

The Toronto protocol trained paramedics to screen for stroke and then take stroke patients to one of three regional stroke centers with an around-the-clock stroke team that could administer tPA intravenously (also called thrombolytic therapy).

"Protocols like this are necessary because not all hospitals offer thrombolytic therapy and too many patients arrive at a hospital too late to receive treatment," said David Gladstone, M.D., Ph.D., lead author of the study, assistant professor of medicine at the University of Toronto and director of the Regional Stroke Prevention Clinic at Toronto's Sunnybrook Health Sciences Centre. "Effective delivery of tPA for stroke requires an emergency response and a coordinated team approach involving paramedics, hospital stroke teams, emergency room and radiology personnel, and inpatient medical and intensive care staff.

"Time is brain," he said. "The faster the treatment is given, the greater the chance of a good outcome. Every minute counts during an acute stroke."

In the study, researchers examined the impact at Sunnybrook, one of the three stroke centers in Toronto, during the first four months of the plan's activation and compared it to the same four-month period the previous year.

Because 9-1-1 operators and paramedics directed patients to a stroke center, the percentage of stroke patients arriving at Sunnybrook in less than two-and-one-half hours from stroke onset went from 30 percent to 49 percent and led to a four-fold increase in the number of patients treated with tPA. The tPA treatment times for patients transported under this new protocol were significantly faster and the average hospital stay reduced from five days to four during the study.

An important part of getting patients treated rapidly is public awareness, Gladstone said. In the four-month study period and in the year before, a television campaign aired — independent of the study protocol — alerting people to stroke warning signs.

Because each hospital's capabilities vary, to better ensure patients are guided to the best facility to handle stroke, Gladstone encourages calling 9-1-1 if someone is exhibiting stroke symptoms instead of driving them to the nearest emergency room.

The initiative was implemented as part of a provincial government strategy to build an organized stroke care system in Ontario. Paramedics from Toronto Emergency Medical Services were trained on the protocol and equipped with a prompt card detailing stroke symptoms including sudden arm or leg weakness on one side of the body, speech difficulties or facial droop. Paramedics pre-notified the stroke center enroute and a “code stroke” alert went to the stroke team before a patient arrived. This allowed the patient to be assessed immediately by the stroke team instead of going through the standard emergency room assessments, which also saved precious minutes.

“It’s all about getting the right patient to the right hospital at the right time,” said Gladstone, who is a researcher for the Heart and Stroke Foundation of Ontario. “One of the most gratifying experiences in medical practice is to witness a patient with severe, disabling stroke symptoms who then rapidly and dramatically recovers after successful treatment with tPA.”

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Editor’s note: Oct. 29, 2009 is World Stroke Day. The American Heart Association/American Stroke Association, join international organizations on World Stroke Day, with a unified message about the global threat of stroke. This year’s theme, “What Can I Do?” encourages people all over the world to take action against stroke. For more information, visit: www.strokeassociation.org.

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