



**Stroke patients' access to clot-busting drug increases dramatically when they're rushed directly to designated stroke centres**

Toronto, ON (October 29, 2009) – Routing stroke patients directly to designated stroke centres – 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 report in *Stroke: Journal of the American Heart Association*.

During the study of a citywide initiative in Toronto, four times as many stroke patients were able to be treated with tissue plasminogen activator (tPA), a drug that dissolves clots, than had been treated prior to the start of the initiative.

In Canada, someone dies or is disabled by a stroke every ten minutes. Treatment with tPA has been approved for use within the first three hours of a stroke, but likely reaches less than five per cent of stroke patients on a national level mainly because of this narrow time limit. New recommendations allow for treatment up to 4.5 hours after stroke onset in some patients.

As part of the Toronto protocol, paramedics were trained to screen for stroke and then transport stroke patients directly to a designated Regional Stroke Centre with an around-the-clock stroke team that could rapidly assess patients and administer tPA intravenously (also called thrombolytic therapy).

"Protocols like this are necessary because thrombolytic therapy has not been available at most hospitals, and too many patients arrive at hospital too late to receive treatment," said David Gladstone, lead author of the study and Director of the Regional Stroke Prevention Clinic at Sunnybrook Health Sciences Centre and Assistant Professor of Medicine at the University of Toronto. "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 Health Sciences Centre, one of three Regional Stroke Centres in Toronto, during the first four months of the protocol activation and compared it to the same four-month period the previous year.

Because 9-1-1 operators and Toronto Emergency Medical Services directed patients to a stroke centre, the percentage of stroke patients arriving at Sunnybrook within 2.5 hours of their stroke onset went from 30 per cent to 49 per cent and led to a four-fold increase in the number of patients who could be treated with tPA in the three-hour time window. The tPA treatment times for patients transported under this protocol were also significantly faster and the average hospital stay for treated patients reduced from five days to four. During the study period, one in two ischemic stroke patients arriving within 2.5 hours received the clot-busting drug, and one in four stroke survivors achieved a full recovery within 24 hours of treatment.

Dr. Gladstone cautions that tPA is not appropriate for all types of strokes, however, as it carries a substantial risk of bleeding complications and patients must meet a set of strict eligibility criteria.

An important part of getting patients treated rapidly is public awareness, Gladstone said. During the study period, a television campaign by the Heart and Stroke Foundation aired — independent of the study protocol — alerting people to the warning symptoms of stroke.

Because each hospital's capabilities vary, to better ensure patients are quickly guided to the best facility to handle the initial management of 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 the Ontario Stroke System, a provincial government strategy for building organized stroke care. 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, sudden facial droop, or sudden speech difficulties. Paramedics pre-notified the stroke centres en route and a “code stroke” paging alert went to the stroke team before a patient arrived. This allowed patients 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 also a researcher for the Heart and Stroke Foundation of Ontario. “One of the most gratifying experiences in medical practice is to witness the dramatic recovery of a patient from a severe, disabling stroke after successful treatment with tPA. For some patients, it is truly miraculous.”

The study was supported by Sunnybrook Health Sciences Centre, University of Toronto Department of Medicine, Sunnybrook Osler Centre for Prehospital Care, the Registry of the Canadian Stroke Network and the Institute for Clinical Evaluative Sciences.

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