

FOR RELEASE:
3 p.m. CT/4 p.m. ET
Thursday, Aug. 7, 2008



CONTACT: For journal copies only,
please call: (214) 706-1396
For other information, call:
Karen Astle: (214) 706-1392
Bridgette McNeill: (214) 706-1135
Julie Del Barto (broadcast): (214) 706-1330

Study highlights:

- *In a study that analyzed data on more than 15,000 stroke patients only 23 percent arrived at the hospital within two hours of symptom onset and were suitable for evaluation to receive tPA.*
- *Those who arrived by ambulance were more than twice as likely to receive timely CT scans as those who “walked in” on their own.*
- *Researchers said it’s important for people to recognize the symptoms of stroke and promptly call 9-1-1. Arriving at a hospital by ambulance could lead to faster stroke diagnosis and speed treatment.*

American Heart Association rapid access journal report:

Arrival method, slow response often delay stroke care

DALLAS, Aug. 8 — Most stroke patients can’t recall when their symptoms started or do not arrive at the hospital in a timely manner, so they cannot be considered for time-dependent therapies such as the clot-busting drug tissue plasminogen activator (tPA), researchers reported in *Stroke: Journal of the American Heart Association*.

“tPA has been demonstrated to reduce disability from ischemic (clot-caused), stroke, however, the drug is only currently approved for use within three hours of symptom onset,” said Kathryn M. Rose, Ph.D., lead author of the study and research associate professor in the Department of Epidemiology at the University of North Carolina at Chapel Hill. “It is important for people to recognize the symptoms of stroke and promptly call 9-1-1 (Emergency Medical Services) when they occur.”

Researchers analyzed data on 15,117 patients from 46 hospitals enrolled in the North Carolina Stroke Registry (NCCSR) from January 2005 to April 2008. The majority were ages 45 or older; 54 percent were women; 53 percent of patients arrived by Emergency Medical Service (EMS); and 38 percent received care at hospitals designated as stroke centers.

The most common stroke presumptive diagnoses at admission were:

- blood-clot-related or ischemic stroke — 43 percent,
- transient ischemic attack or TIA — 28 percent,
- bleeding (hemorrhagic stroke) — 9 percent, and
- unspecified type of stroke — 20 percent.

Only 23 percent of all NCCSR patients arrived at the hospital within two hours of symptom onset and were thus suitable for evaluation to receive tPA. Current National Institute of Neurological Disorders and Stroke (NINDS) guidelines recommend that a patient receive a

computer tomography (CT) scan within 25 minutes of hospital arrival. In an analysis of 3,549 patients who arrived at the hospital within two hours of symptoms onset, only 23.6 percent received a CT scan within 25 minutes. Among this group, researchers found that those who arrived by ambulance were more than twice as likely to receive a timely CT scan than were those who “walked in” on their own.

Patients receiving care at a Primary Stroke Center were also more likely to receive a timely scan than those treated at other hospitals as were men compared to women. Neither race, health insurance status, time of day nor weekday versus weekend arrival affected how quickly a CT scan was given.

“Although patients arriving at the hospital within two hours of symptom onset were significantly more likely to receive a timely CT scan than those who did not (24 percent vs. 9 percent), most (76 percent), did not,” Rose said. “This points to areas where stroke systems of care can be improved in hospitals. Improvements could increase patients’ access to time-dependent therapies and potentially reduce disability from stroke.”

The NCCSR differs from most quality improvement efforts because it encourages collection of patient data concurrent with care as opposed to later collecting it from medical records. The NCCSR is one of four registries originally funded by the Centers for Disease Control and Prevention as a Paul Coverdell National Acute Stroke Registry with a mandate to measure, track and improve the quality of acute stroke care.

Co-authors are Wayne T. Rosamond, Ph.D.; Sara Huston, Ph.D.; Carol V. Murphy, R.N., M.P.H.; and Charles H. Tegeler, M.D. Disclosures for individual authors are available on the manuscript.

The Centers for Disease Control and Prevention funded the NCCSR via a grant to the North Carolina Division of Public Health, which partners with the UNC School of Public Health.

Editor’s note: Stroke is the nation’s No. 3 killer and a leading cause of disability. The American Academy of Neurology, the American College of Emergency Physicians, and the American Heart Association/American Stroke Association have created Give Me 5 for Stroke, a campaign offering the public an easy way to remember the stroke warning signs by using five short words: walk, talk, reach, see, feel. It also encourages emergency department professionals to quickly recognize, diagnose, and treat a stroke. Call 888-4STROKE or visit giveme5forstroke.org.

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NR08– 1096 (Stroke/Rose)

Contact Information: Dr. Rose can be reached at (919) 966-1967 and kathryn_rose@unc.edu.
(Please do not publish contact information.)