Assessment of Emergency Medical Technicians Serving the Phoenix Metropolitan Matrix of Primary Stroke Centers

To the Editor:

Emergency medical services (EMS) personnel are integral to the effectiveness of any stroke system of care. EMS providers are the first medical contact for up to 70% of patients with acute stroke.\(^1\) Emergency medical technicians (EMTs) are uniquely positioned to hasten stroke care through early identification of patients and notification of their imminent arrival at the closest appropriate hospital. These critical actions allow for the earlier mobilization of in-hospital stroke teams and preparation for emergent neuroimaging.\(^2\) The concept of the primary stroke center (PSC) was founded on the principle of delivering acute stroke patients to facilities specifically trained and equipped to deliver immediate stroke care. In 1998, Phoenix Operation Stroke (a committee of local stroke experts supported by a division of the American Stroke Association), and the Arizona Emergency Medical Systems, Inc, began the process of establishing a matrix of PSCs. Before the implementation of the matrix in 2003, EMTs were specifically trained to recognize and manage stroke. In 2005, with the assistance and Human Subject Research Board approval of the Bureau of EMS in the Arizona Department of Health Services, we conducted an anonymous, voluntary, Internet-based survey to assess our regional EMTs’ knowledge of the identification, management, and transport of acute stroke patients to matrix PSCs. The questions on the survey were based on material from the EMS formal acute stroke training module. We received 186 of 514 responses (36%) from 16 of the 26 EMS agencies (62%) in the metropolitan area. The results revealed that 76% identified the 5 classic signs and symptoms of stroke, 69% identified the components of the Cincinnati Prehospital Stroke Scale (CPSS), 97% identified the importance of determining and recording the time of stroke symptom onset, 53% identified 3 hours as the window of opportunity for treatment with intravenous thrombolysis, 56% identified that transport to a PSC is a high priority, 51% recognized the importance of prenotification and provision of estimated time of arrival, a maximum of 67% recognized whether any given area hospital served as a PSC, and 88% were satisfied with the operations of the Phoenix Metropolitan Matrix of PSCs. The main limitation of this survey of our regional EMTs and their stroke awareness is the low overall response. We estimate that responders underwent self-selection for a higher level of stroke awareness and knowledge base. Therefore, we strongly suspect that this survey result is an overestimation of the true EMTs’ knowledge. It is encouraging that there is a high level of stroke awareness and knowledge but most other categories of results leave room for continued improvement. This simple survey represents the first attempt at evaluation of their education, performance, and skill retention since the implementation of the Matrix in 2003. The development and validation of prehospital diagnostic instruments, such as the CPSS and the Los Angeles Prehospital Stroke Screen, have permitted EMTs to identify stroke patients in prehospital settings with a higher degree of sensitivity and specificity.\(^1,3\) The concept of PSCs is still evolving, and how best to maximize the benefit to stroke patients in a large metropolitan area without overburdening emergency medical resources remains unclear. We suggest that there is a need for a metropolitan-wide stroke system with a computer-aided dispatch service available to each first-responding unit. This would provide instant feedback regarding the location and distance to the nearest PSC. Although no large-scale en masse retraining on acute stroke has been presented to the EMS system as a whole to address the deficiencies we have uncovered, some agencies have conducted repeat stroke training as part of their continuing education. In a large urban EMS system, EMTs should be capable of effectively identifying, managing, and appropriately transporting stroke patients to PSCs for acute treatment. We propose that a system-wide standardization in continued stroke training to assist EMTs in keeping current with the latest changes in acute stroke care is necessary.

Disclosures

None.

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*Stroke*. 2007;38:e25; originally published online April 12, 2007;
doi: 10.1161/STROKEAHA.106.479568

*Stroke* is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0039-2499. Online ISSN: 1524-4628

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://stroke.ahajournals.org/content/38/6/e25

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