EMS Myth #2
Thrombolytic therapy is the standard of care for acute ischemic stroke

Like most practitioners of emergency medicine, I was surprised to see the American Heart Association (AHA) increase the level of its recommendation of recombinant tissue plasminogen activator (tPA) for acute ischemic stroke in its Guidelines 2000 for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. I had followed the literature and agreed that it looked like a promising therapy. But, I thought, it was certainly not the standard of care for current medical practice. As an ED and EMS director at the time, I quickly prepared a stroke team and began to plan for routine thrombolytic therapy for appropriate patients. In fact, I administered tPA to a patient with acute ischemic stroke who subsequently experienced resolution of his symptoms. However, shortly thereafter, I received a letter from my supervisor, who advised that our collective medical institutions would not provide tPA for stroke until additional scientific evidence was available. This was soon followed by a letter from our medical malpractice insurance carrier stating we would not be covered for malpractice litigation resulting from administering tPA for stroke. It was a confusing and frustrating time.

tPA for Stroke History

In the mid 1990s, the AHA launched a campaign to promote awareness of stroke. The goal of this campaign was to encourage both clinicians and patients to think of stroke (cerebrovascular accident) as an emergency on par with myocardial infarction. This initiative came to be known as the brain attack campaign, capitalizing on the term heart attack’s wide recognition among the public. The impetus behind the brain attack campaign was the development of thrombolytic drugs for use in stroke. These drugs, if given to ischemic stroke patients within three hours of the onset of symptoms, appeared to decrease subsequent stroke morbidity. Thus, with a definitive therapy finally available for stroke care, patients were encouraged to immediately seek emergency care when the possible signs or symptoms of a stroke occurred. EMS providers across the United States and Canada quickly rallied to the campaign. Many EMS systems initiated prehospital thrombolytic screening protocols, and patients were taken to hospitals with designated stroke teams. The stroke teams were a consortium of emergency physicians, neurologists, neuroradiologists and neurosurgeons who agreed to quickly respond to, evaluate and treat stroke patients who arrived at their hospitals.

The AHA published brain attack literature that stated, “A clot-busting drug that helped revolutionize heart attack treatment, tPA holds enormous potential for the treatment of ischemic stroke, which accounts for 70 to 80 percent of all strokes. It is estimated that tPA could be used in 400,000 stroke cases per year to save lives, reduce disability and reverse paralysis.” When first approved in 1996 for the treatment of ischemic stroke, tPA was classified by the AHA as a Class II-B intervention (acceptable, safe and useful but optional). However, in their Guidelines 2000 for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care, tPA for ischemic stroke was upgraded to a Class I intervention (always acceptable, proven safe and definitely useful). This upgrade was based on a large study of tPA in ischemic stroke by the National Institute of Neurological Diseases and Stroke (NINDS).²

The Scientific Evidence

The recommendations to upgrade tPA from Class II-B to Class I were based upon a single study (the NINDS trial). There has been considerable criticism of the NINDS trial for various methodological reasons. The most striking of these was the fact that in that trial, many more patients in the 90-180-minute treatment group had milder stroke scores at baseline compared to those in the placebo. That is, patients with less severe initial symptoms received tPA, while patients with more severe symptoms did not. It would seem intuitive, therefore, that patients in the treatment group would fare better, as they were not as ill to start with. Another criticism of the study was that the proportion of patients enrolled in the 0-90-minute treatment group was artificially increased through statistical methods. Many researchers feel

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While many in emergency medicine are reluctant to embrace tPA for ischemic stroke, it remains a Class I recommendation by the AHA. As with many controversial therapies, there are quality clinicians who say it works, while others say it kills.

References

Next Month: EMS Myth #3
Critical Incident Stress Management and related interventions are effective in managing EMS-related stress.

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