



Pre-Hospital Stroke Evaluation and Management

EMS Newsletter

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Joan M. Kolodzik, MD, FACEP

Of all the life threatening emergencies we are called to face every day, few are as potentially devastating as stroke. More than 100,000 strokes occur in the U.S. every year, resulting in personal loss of independence and productivity, and untold dollars in support for recovery and rehabilitation.

Risk factors for stroke include age >70 years old, high blood pressure, and cardiovascular disease, including dysrhythmias like atrial fibrillation. Stroke is defined as a sudden loss of neurologic function. The two common types of stroke are hemorrhagic, caused by bleeding in the brain, and ischemic, resulting from a clot causing occlusion of a cerebral vessel. Ischemic strokes are by far the most common type, accounting for >80% of all strokes. The exact symptoms of stroke depend on the area of the brain that is affected, and may include motor, sensory, speech, vision, or cognitive deficits. In general, the more profound the symptoms appear, the greater the amount of brain tissue is affected.

Transient Ischemic Attacks, or TIA's, are sometimes referred to as 'mini-strokes'. These neurologic deficits are just as sudden as a full stroke, but largely improve or resolve within 24 hours. TIAs are always ischemic in nature, caused by clots in the heart or arteries that travel to the brain. Although patients and families are understandably reassured when these symptoms resolve, there is a significant likelihood that the patient will go on to develop a completed stroke within a year. All new-onset TIAs require emergency evaluation.

If your patient is to have the best possible outcome from stroke or TIA, all medical providers must approach this with a sense of time urgency. The most important task is to establish an accurate time of onset of symptoms. This may require some investigation with the family or friends. If the patient awakens with symptoms, for example, the time of onset is not assumed to be the time of waking, but rather sometime since the patient was last observed to be neurologically 'normal'. Some ischemic stroke patients may qualify for acute intervention if they arrive at a Stroke Center hospital within three hours

of onset of symptoms. The next task is to document an accurate and complete exam, with attention to vital signs and neurologic deficits. Be sure to document a thorough medical history, especially aspirin and blood thinner use. Although hypertension is a risk factor for stroke, current medical literature suggests that high blood pressure NOT be treated aggressively unless specifically directed by medical control. This allows the brain to autoregulate circulation and preserve flow around viable brain tissue.

Prehospital providers should familiarize themselves with the NIH Stroke Scale, or similar tool that use used by the hospital they are transferring to. (See asa.trainingcampus.net). The American Heart Association FAST campaign educates the public on the use of a generic stroke score that is easy to use and reproducible (Face asymmetry, Arm drift, Speech, Time to call 911). Just as the Glasgow Coma Score helps communication in trauma patients, a stroke scale puts reproducible data at the fingertips of all providers. An accurate time of onset and stroke score, when communicated to Medical Control, allows the receiving hospital to be prepared to get your patient immediate evaluation and initiation of appropriate treatment.

Treatment options may include surgery, thrombolytics, or admission/observation, depending on the nature and duration of each patient's condition. Some patients may benefit from transfer to a hospital that has a Stroke Team standing by. Our job as prehospital providers is accurate assessment, communication, rapid transfer, and as always, attention to the ABC's.