Adopted: 8/04

Stroke, Acute/TIA: Immediate Evaluation and Care

BRIEF SUMMARY

Step 1: Assess and manage ABCs.
Step 2: Determine whether patient may be having a stroke.
Step 3: Activate Emergency Medical System (ambulance) & give immediate care.
Step 4: After the patient has been transported, proceed with notification steps.

Step 1: Assess and manage ABCs

- Is the patient maintaining an airway? If the patient's level of consciousness is depressed and there are concerns about maintaining airway, lie the patient down in left lateral decubitus position or, preferably, the "recovery position." Be prepared to clear excess saliva or vomitus if needed.
- Send someone to the front desk to announce "Code 99 to room____ (or some other specific location)." Available supervising physicians should immediately assist.
- Is the patient breathing adequately? If the level of consciousness is depressed and the patient is not breathing, initiate mouth-to-mouth respiration or advanced techniques to provide ventilation.
- Does the patient have a pulse? If not, initiate full CPR.

Step 2: Determine whether the patient may be having a stroke

Assess symptoms and perform brief neurological exam.

History
Very few nonvascular neurological diseases will cause *sudden onset of focal brain dysfunction, the hallmark of stroke*. Stroke or TIA is more likely in patients over the age of 45 who do not have a history of seizures or epilepsy, especially if symptom duration is less than 24 hours. Suspect stroke or TIA when the patient has any of the symptoms listed in the table below.

Common Signs and Symptoms of Stroke/TIA

Unilateral paralysis—Weakness, clumsiness, or heaviness, usually involving 1 side of the body.
Unilateral numbness—Sensory loss, tingling, or abnormal sensation, usually involving 1 side of the body.
Language disturbance—Trouble understanding or speaking (*aphasia*) or slurred speech (*dysarthria*).
Monocular blindness—Painless visual loss in one eye, often described as a curtain dropping.
Vertigo—Sense of spinning or whirling that persists at rest. Isolated vertigo is also a common symptom of many nonvascular diseases; therefore, at least one other symptom of TIA or stroke should also be present.
Ataxia—Poor balance, stumbling gait, staggering, incoordination of one side of the body.

Other associated symptoms may include very severe headache, cranial nerve deficits, diplopia, dysphagia,

Physical Examination

The results of a brief neurological examination may add to the index of suspicion as well as set a baseline of the patient's function. Abnormality in any *one* of the following procedures is strongly suggestive of stroke (Cincinnati Prehospital Stroke Scale).

- **Facial droop** (have patient show teeth or smile). If one side of face does not move as well as the other side, this is considered abnormal.
- **Arm drift** (patient closes eyes and holds both arms straight out for 10 seconds). Normally, both arms move the same or both arms do not move at all. Checking bilateral grip strength may also be helpful.
- **Abnormal speech (have the patient say "you can't teach an old dog new tricks")** Abnormal findings include slurring words, using the wrong words, or inability to speak.

Note: If the patient is diabetic, has acetone breath or has not eaten recently, and has no focal deficits, consider giving fruit juice or appropriate substitute.

Step 3: Activate EM system and give immediate care

Immediate response is critical for patients who are having a stroke in progress. *If thrombolytic therapy is to be an option in the emergency room, even an hour can make a significant difference in its effectiveness*. In addition, a recent study suggested that the window of opportunity to prevent recurrence after a TIA or minor stroke may be as little as hours after the initial event. (Coull 2004)

- Do not leave the patient unattended. The supervising physician will lead the care. Send someone to the front desk to announce "Code 99 to room____ (or some other specific location)." Available supervising physicians should immediately assist.
- 911 is called. The caller should stay on the phone to provide information as needed. Give the exact location on campus. Inform the operator in the annex in case the ambulance arrives there in error.
- Send an intern to the street to direct EM personnel to the appropriate parking lot.
- Calm and reassure the patient.
- Record on appropriate immediate care checklist/EM form as the event continues.
- Determine level of consciousness (use AVPU scale or Glasgow coma scale).
- Provide oxygen by mask, if available (15 liters/min; limit rate to 6 liters/minute in patients with severe COPD).
- Check vital signs (pulse, respirations, blood pressure).
- Take blood pressure in both upper extremities, but only if time permits.
- Fill out Emergency Referral Form (on the back of the Checklist). Give photocopy to EM personnel.
- Determine the exact time of onset of stroke signs/symptoms.
- Unless there is strong suspicion that the patient is a diabetic who is in crises, do NOT give the patient anything to eat or drink because of the risk that s/he may deteriorate and vomit while unable to protect his/her airway.
- Do NOT give the patient aspirin.

Differential Diagnosis of Stroke/TIA

Seizure with persistent neurological signs (Todd's paralysis)
Migraine with persistent neurological signs
Craniocerebral/cervical trauma
Meningitis/encephalitis
Hypertensive encephalopathy
Intracranial mass (tumor or subdural/epidural hematoma)
Metabolic disturbances
- Hyperglycemia (nonketotic hyperosmolar coma)
- Hypoglycemia
- Postcardiac arrest ischemia
- Toxicological cause
- Endocrine disorder (myxedema)
- Uremia

Psychiatric syndromes
Shock and CNS hypoperfusion

AVPU SCALE

Determine if the patient is

Alert **V**erbal **R**esponds to Pain (pinch inner aspect of arm) or is **U**nresponsive.

GLASGOW COMA SCALE (COMA SCORE (E + M + V) = 3 TO 15)

EYE OPENING	**E**
Spontaneous	4
To speech	3
To pain	2
Nil	1

BEST MOTOR RESPONSE	**M**
Obeys (verbal command)	6
Localizes (e.g., pushes arm away when pinched)	5
Withdraws (from pinching inner arm)	4
Abnormal flexion (from pinching inner arm)	3
Extensor response (from pinching inner arm)	2
Nil (from pinching inner arm)	1

VERBAL RESPONSE	**V**
Oriented	5
Confused conversation	4
Inappropriate words (not able to converse)	3
Incomprehensible sounds	2
Nil	1

Step Four: Proceed with notification steps

- When the paramedics arrive, inquire where the patient will be transported. Telephone the emergency department at that hospital and give a verbal report directly to the emergency physician on duty. Indicate whether the patient has received a cervical adjustment because of the possibility of a hemorrhagic stroke.
- Contact patient family member and patient's PCP. Be sure that appropriate consent forms have been signed by the patient. If there is no consent form already signed and the patient is not capable of signing, obtain and record verbal permission.
- Inform the Dean of Clinics as soon as the patient has been transported. Check all appropriate documentation. Be sure that the Immediate Care check list is in the chart and is accurately filled out and that the EM Form has been dispatched with the EM personnel.
- Write a brief narrative of the event in the SOAP.
- A Significant Event Analysis (SEA) meeting will be scheduled by the Dean of Clinics or Dean of Clinical Education at a later date.

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References

American Academy of Orthopedic Surgeons, Emergency Care and Transportation of the Sick and Injured, 4th edition. Park Ridge, IL: ORCO; 1987.

Anonymous. Guidelines 2000 for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Part 7: the era of reperfusion: section 2: acute stroke. The American Heart Association in collaboration with the International Liaison Committee on Resuscitation. Circulation. 2000;102(8 Suppl):I-204-I-216.

Coull AJ, Lovett JK, Rothwell PM. Population based study of early risk of stroke after transient ischaemic attack or minor stroke: implications for public education and organization of services. BMJ 2004; 328:326.