LOUISIANA EMERGENCY RESPONSE NETWORK

# Stroke Video Test Question Explanations

1. What is the Ideal recommended head of bed position during intracranial hemorrhage transfer?

The American Heart Association/American Stroke Association 2015
Guidelines for the Management of Spontaneous Intracerebral Hemorrhage
Recommends 30 degrees as the optimal head of bed position for patients with ICH.

2. Patients having an ischemic stroke are at an increased risk for neurologic deterioration if they have which of the following risk factors?

Advanced age, large vessel occlusion, and tPA use, in addition to hyperglycemia and fever are predictors of neurological deterioration of patients with ischemic stroke.

3. At what rate should normal saline be infused after TPA administration?

Since the maximum rate of IV tPA administration is 81cc/hour, continuation of normal saline at the same rate is expected to be safe and reduces the need to change the infusion rate on the IV pump.

4. During ischemic stroke transfer the position of the head of the stretcher that promotes the most cerebral blood flow is __.

Ultrasound has demonstrated improvement in cerebral blood flow with the head of bed position flat in patients with ischemic stroke. Safety, however, comes first. If the patient has depressed level of consciousness and/or reduced ability to control oral secretions, the head of bed may be raised to 30 degrees to reduce the chance of aspiration.

5. Patient's lips and tongue should be examined every ___ minutes for signs of angioedema.

Angioedema occurs in about 3% of patients who are treated with tPA, increasing to about 10% of patients who are taking angiotensin converting enzyme (ACE) inhibitors. Typically, one side of the tongue is affected (hemiorolingual angioedema), but occasionally, the lips and airway can be affected. tPA should be discontinued if it is still infusing. The receiving physician should be called when first noted. For simplicity sake, the lips and tongue should be examined with the VS and mini-NIHSS every 15 minutes or with a patient's complaint of swelling, worsening of speech, or with tongue biting.

6. What is the approximate half-life of TPA?

The half-life of tPA is 4.5 minutes. This means that there is very little activity within 15 minutes of discontinuation of tPA infusion. tPA is a fibrinolytic, therefore, fibrinogen is consumed and hemostasis is prevented while tPA is active and until fibrinogen is synthesized. In patients with healthy liver function, fibrinogen can be repleted within a couple of hours. Prolongation of bleeding diathesis can occur in patients with poor nutrition, liver disease, or inherited deficiency in fibrinogen production.

7. Neurological checks (Mini- NIHSS) should be done every ___ minutes.

The American Heart Association/American Stroke Association 2013
Guidelines for the Early Management of Patients With Acute Ischemic Stroke
Recommend monitoring vital signs and neurochecks every 15 minutes for the first 2 hours after tPA administration followed by every 30 minutes for the next 6 hours and then hourly for a full 24 hours. To keep it simple and maximize early identification of neurological deterioration, we recommend assessment of vital signs and mini-NIHSS exam every 15minutes during the interhospital transfer of a patient at high risk for early deterioration, such as the patient with ICH or who received tPA.

8. Raising the head of the bed to 30 degrees is appropriate in the following circumstances except:

While the 30 degree head of bed position is recommended for patients with hemorrhagic stroke, the ischemic stroke patient with trouble managing secretions, and the ischemic stroke patient with suspected high intracranial pressure, it is not recommended for all patients with ischemic stroke

9. If a suspected stroke patient develops angioedema or a new rash in transit, administer epinephrine:

The answer is false, because epinephrine administration is rarely necessary to manage allergic reactions to tPA and has the potential to raise the blood pressure to levels associated with high risk for brain hemorrhage. If angioedema or rash develops during or after tPA, tPA should be discontinued and the receiving physician should be notified.

10. During transport to a comprehensive stroke center, a tPA patient suddenly develops nausea, a new headache and in increase in the mini NIHSS by 3 points. What is the best action to take?

A post-tPA patient who develops new nausea, headache, and neuroworsening is most likely to be developing a brain hemorrhage. The accepting physician needs to be alerted immediately for suspected brain hemorrhage. If tPA is running, it should be stopped. The rate should never be increased. Hyperventilation may be appropriate if the ICP is suspected to be elevated, but a decision to intubate and hyperventilate should be made by a physician. Since the BP was not provided, it would be inappropriate to arbitrarily lower the BP.

11. For a stroke patient in transit, treat nausea with:

A large proportion of patients with stroke have dysphagia, or problems with safe swallowing. This is a major reason why patients with stroke are made NPO until a swallowing screen is passed. Nausea should be treated to reduce the chance of emesis and risk of aspiration, but treatment should be with a nonoral route of administration of an antiemetic. Ondansetron (Zofran) is preferred over promethazine (Phenergan) since ondansetron does not promote sleepiness and reduce the ability to detect a true change in neurological condition like promethazine does.

12. Just following tPA infusion, your patient's BP is 192/108 with a HR of 59. If available, which is the preferred treatment to reduce the blood pressure?

Labetalol is a beta blocker which reduces the heart rate. Labetalol is contraindicated in patients with bradycardia. Nitropaste, nicardipine, and hydralazine are all acceptable blood pressure lowering medications for a patient with bradycardia, but the preferred medication is nicardipine, if available.

13. During transport, your ischemic stroke patient's BP drops from 140/84 to 88/60? What is the best course of action?

Low blood pressure is associated with poor outcome from stroke. A sudden drop in blood pressure should be treated and a reason sought. Elevation of the HOB in the hypotensive patient can reduce the cerebral perfusion pressure and is an incorrect choice. Because a patient with stroke may be susceptible to volume overload, initial treatment with a full liter of IV fluids is not recommended. Furthermore, dextrose containing fluids can promote hyperglycemia and increase the risk of hemorrhage in patients with ischemic stroke. Administration of epinephrine could result in a sudden rise in blood pressure and should only be administered at the direction of the receiving physician. Small boluses of normal saline are recommended. Notifying the receiving physician for failure to respond to 2 boluses of 250cc normal saline is recommended.

14. You are picking up a patient with tPA infusing at a level 3 hospital for transport to a level 1. What do you expect to receive?

As part of the collaborative agreement between hubs (receiving hospitals) and spokes (sending hospitals), spoke centers should have access to the Acute Ischemic Stroke/Post- Thrombolysis for EMS Inter-hospital Transfer form and have this prepared with the receiving facility, MD name and phone # as well as the time tPA was initiated (and terminated, if complete prior to the handoff). If the patient has been treated with antihypertensive medication in the sending hospital, you should be supplied with adequate medication to maintain blood pressure control during transport. The handoff between sending facility and receiving paramedic team should include verbal report and co-performance (sending RN and receiving paramedic) of the mini-NIHSS so that there is agreement and understanding of the patient's condition at the time the patient leaves the sending facility. Without this handoff procedure, confidence in what constitutes a neurological deterioration is reduced.

15. During your initial assessment, the patient is alert and gives their correct age and current month. On command, they open and close both eyes and can make a fist and open with the nonparetic hand. They are able to hold their RUE and RLE outstretched for 10 and 5 seconds respectively without drift. They can only wiggle the fingers of their LUE without lifting their arm off the stretcher and lift their LLE off the bed, but drift down and hit the bed at 3 seconds. What is their MINI-NIHSS score?

| | |
|---|---|
| LOC 1a | 0 |
| LOC 1b | 0 |
| LOC 1c | 0 |
| Motor RUE | 0 |

| | |
|---|---|
| Motor LUE | 3 |
| Motor RLE | 0 |
| Motor LLE | 2 |
| Total mini-NIHSS | 5 |

The patient is alert, oriented, and following commands. The right side has sustained antigravity. The left arm has no antigravity, but has some detectable movement, scoring 3 points. The left leg has antigravity, but cannot sustain this for the full 5 seconds, scoring 2 points. The total score is 5.

16. You perform the Mini-NIHSS and find that your patient does not initially respond to you until you speak loudly and you nudge him. He is able to tell you the current month and age. He did not follow the two commands given with the first request and fell asleep when you attempted to demonstrate the actions. After shaking the patient's shoulder, he is able to lift each extremity to gravity, but all limbs drift down and touch the stretcher prior to 5 seconds. What is the score?

| | |
|---|---|
| LOC 1a | 1 |
| LOC 1b | 0 |
| LOC 1c | 2 |
| Motor RUE | 2 |
| Motor LUE | 2 |
| Motor RLE | 2 |
| Motor LLE | 2 |
| Total mini-NIHSS | 11 |

The patient scores as drowsy rather than stuporous, because he is able to do more than respond reflexively and he is following commands.

17. You perform the Mini-NIHSS and find that your patient is awake and alert, with a left gaze preference. She is unable able to tell you the current month and her age. She did not follow the two commands given verbal command, but could mimic close and open eyes when you demonstrated the action. She did not close and open either fist despite demonstration of the action. She mimics your request to hold her left arm and leg up without drift for 10 and 5 seconds, respectively. She has some antigravity in the right arm, but the arm hits the bed at the count of 8. She has a subtle drift in the left leg by the count of 5. What is the score?

| | |
|---|---|
| LOC 1a | 0 |
| LOC 1b | 2 |
| LOC 1c | 1 |
| Motor RUE | 2 |
| Motor LUE | 0 |
| Motor RLE | 1 |
| Motor LLE | 0 |
| Total mini-NIHSS | 6 |

This patient is alert, scoring 0 points. She cannot answer questions of orientation, scoring 2 points. She was able to follow one command, scoring 1 point. It is ok to demonstrate the action requested in a patient with aphasia or hearing loss. She had some antigravity in the right arm, but could not sustain antigravity for the full count, scoring 2 points. She has some drift in the right leg, but the leg did not hit the stretcher before the count of 5, scoring 1 point. The total mini-NIHSS score is 6.

18. The receiving physician should be called to notify of all of the following except:

When transporting a stroke patient between facilities, the receiving physician should be contacted for an concerns with patient safey, including a neuroworsening (increase in NIHSS by 2 or more points), serious bleeding which cannot be controlled with application of pressue, and refractory hypotension. Minor bleeding from skin or mucosa, which is controllable by application of pressure, does not require emergent communication.

19. The current month of the year should be asked before asking the patient's age?

The current month of the year should be asked before asking the patient's age. This is because many patients with cognitive or attentional deficits will give the month of their birth after being asked about their age. It is not acceptable to coach patients. It is not acceptable to substitute questions.

20. The educational video has improved your understanding of the post-tPA for stroke evaluation and management?

No correct answer.