Coastal Bend Regional Advisory Council
Trauma Service Area - U

STROKE SYSTEM PLAN

Reviewed/Revised/Approved: June 2024

BYPASS PROTOCOL FOR THE SUSPECTED STROKE PATIENT

GOAL: Rapidly identify and assess; using a pre-hospital stroke scale, and transport patients suspected of an acute stroke to the nearest stroke accredited hospital in an expeditious manner.

Decision Criteria: This bypass protocol is intended to ensure that patients with signs and symptoms of acute stroke be transported to an **accredited stroke center**. *Exceptions to the bypass protocol requiring the patient to be transported to the NEAREST facility are:* Inability to establish and/or maintain an airway or in the event of a cardiac arrest.

- Rural:
  - LVO Suspected: Is Comprehensive (CSC/L1) OR facility seeking (L1) designation within 60 minutes max transport time?
    - YES - Transport to Comprehensive Stroke Center (CSC/L1) OR facility seeking (L1) designation NO - Transport to nearest Stroke Center
    - **If no stroke centers available within 60 minutes consider air medical transport per regional point of entry plan**
- Urban:
  - LVO Suspected: Is Comprehensive (CSC/L1) OR facility seeking (L1) designation within 30 min max transport time?
    - YES – Transport to Comprehensive Stroke Center (CSC/L1) OR facility seeking (L1) designation
    - NO – Transport to nearest stroke center
- Suburban:
  - LVO Suspected: is Comprehensive (CSC/L1) OR facility seeking (L1) designation within 45 minutes max transport time?
    - YES – Is Comprehensive Stroke Center (CSC/L1) OR facility seeking (L1) designation within 45 minutes max transport time?
      - YES – Transport to Comprehensive Stroke Center (CSC/L1) OR facility seeking (L1) designation.

- NO – Transport to nearest stroke center

Patient Criteria for Activation of Bypass Protocol for the Confirmed Witnessed Acute Stroke Patient:
The activation of the Bypass Protocol for the symptomatic acute stroke patient should be initiated upon the recognition of confirmed witnessed changes in patient condition as to **"Last Known Well"** in less than 24 hours.
If "Last Known Well" temporarily unknown due to patient's inability to talk or the lack of a witness, activate a stroke alert via Pulsara

Air Ambulance/Hand-Off:
Hand off of the acute stroke patient to advanced life support, mobile intensive care unit or air transport will be initiated in the following circumstances:

- Basic life support unit is first responder only and unable to leave service area
- If air transport/pick-up total time is less than ground transport time.

Notes:

- If there should be any questions regarding activation of treatment protocol, the receiving facility should be contacted regarding a decision for treatment.
- The receiving facility should be notified at the earliest possible time via Pulsara by EMS to provide the facility with the ability to activate a stroke alert.
- Patient's rights, choices and best interest will be respected in the determination of hospital destination.

Recommended Pre-hospital Stroke Assessment Scale:

Cincinnati Prehospital Stroke Scale (CPSS)

Facial Droop (have patient smile)
Normal: Both sides of the face move equally
Abnormal: One side of face does not move as well

Arm Drift (have patient hold arms out for 10 seconds)
Normal: Both arms move equally or not at all
Abnormal: One arm drifts compared to the other, or does not move at all

Speech (have patient speak a simple sentence)
Normal: Patient uses correct words with no slurring
Abnormal: Slurred or inappropriate words, or mute

VAN Assessment Tool

If patient has **any weakness PLUS** any one of the below:

- Visual Disturbance (field cut, double, or blind vision)
- Aphasia (inability to speak or understand)
- Neglect (gaze to one side or ignoring one side)

This is likely an LVO (large vessel occlusion) = VAN Positive

Thrombolytic (IV-tPA/TNK) Screening Exclusion Criteria in the Field:

- **Clearly defined onset of stroke symptoms 4.5 hours or greater or patient awakens with stroke symptoms**
- **History of intracranial hemorrhage, neoplasm, arteriovenous malformation, or aneurysm**
- **Recent (within 3 months) intracranial or intraspinal surgery or serious head trauma**
- **Active internal bleeding**

(***If all exclusion criteria "NO" the patient is a potential candidate for IV-tPA***)

EMS Treatment Guidelines:

Refer to CBRAC Stroke Algorithm

Hospital Treatment Guidelines for the Stroke Alert Patient:

- **Door to Triage by Doctor – 10 minutes**
- **Door to CT Scan – 20 minutes**
- **Door to CT Read/Lab Results – 45 minutes**
- **Door to Thrombolytic – 30 minutes**
- **Door to Puncture for LVO –**
    - **90 minutes from field**
    - **60 minutes for facility transfer patients**

EMS Post-IV Alteplase (t-PA)/Tenecteplase (TNK) Transfer Protocol:

All post t-PA/TNK patients should be sent by Critical Care Transport (MICU)

- **Document vital signs prior to transport and verify that SBP <180, DBP <105.** ***If BP above limits, sending hospital should stabilize prior to transport***
- **Obtain contact method for family or caregiver (preferably cell phone) to allow contact during transport or upon patientarrival**
- **Obtain and record Vital Signs and Neurological checks (CPSS) every 15 minutes via CBRAC EMS Inter-facility Transfer Thrombolytics Protocol form**
    - **Notify the receiving facility for any worsening changes in neuro checks or vital signs**
- **Perform and record baseline GCS**
- **Continuous cardiac monitoring**
- **Strict NPO – this includes all *PO* medications**
- **Verify total dose and time of IV t-PA/TNK bolus**
- **If IV Alteplase (t-PA) dose administration will continue en route:**

-Verify estimated time of completion.
-Verify with the sending hospital that the excess t-PA has been withdrawn and discarded (for example, if the total dose of t-PA to be given is 70mg, then verify the remaining 30cc has been wasted since a 100mg bottle of t-PA contains 100cc of fluid)

- **If Alteplase (t-PA) dose completed en route, attach 50 ml Normal Saline and continue at the same rate of the Alteplase (t-PA) drip**

- **If SBP >180 or DBP >105, and if antihypertensive medication started at sending facility, then adjust as follows:**
    - **If Labetalol IV drip started at the sending hospital, increase by 2mg/min every 10 minutes (to a maximum of 5mg/min) until SBP <180 and DBP <105; If SBP <150 or DBP <80 or HR <60, turn off drip and call receiving hospital for furtherinstructions.**
    - **If Nicardipine IV drip was started at the sending hospital, may increase dose by 2.5mg/hr every 5 minutes. To a maximum of 15mg/hr until SBP <180 and DBP <105; If SBP <150 or DBP <80 or HR <60, turn off drip and call receiving hospital for further instructions.**

- **For any acute worsening of neurologic condition, if patient develops severe headache, acute hypertension or vomiting (suggestive of intracerebral hemorrhage), profuse bleeding not controlled by pressure, OR angioedema:**
    - **Discontinue t-PA infusion (if still being administered)**
    - **Call receiving facility for further instructions including decision to adjust blood pressure medication and/or divert to nearest hospital.**
    - **Continue to monitor vitals and neuro checks every 15 mins.**

Reference:

Jauch, E. C., Schwamm, L. H., Panagos, P. D., Barbazzeni, J., Dickson, R., Dunne, R., . . . Yallapragada, A. (2021). Recommendations for regional stroke destination plans in rural, suburban, and urban communities from the Prehospital Stroke System of Care Consensus Conference: A Consensus Statement from the American Academy of Neurology, American Heart Association/American Stroke Association, American Society of Neuroradiology, National Association of EMS Physicians, National Association of State EMS officials, Society of Neurointerventional Surgery, and society of vascular and Interventional Neurology: Endorsed by the Neurocritical Care Society. *Stroke, 52*(5). doi:10.1161/strokeaha.120.033228