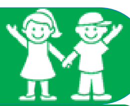

SIGNS /SYMPTOMS CONCERNING FOR STROKE

- **Use FASTER to evaluate for Stroke**
  - **F**acial droop • **A**rm and/or leg weakness or tingling • **S**tability-ataxia or coordination • **T**alking-aphasia, inability to speak and/or comprehend • **E**ye/Vision abnormality • **R**eact
- Consider Stroke for any **acute onset altered mental status** or **new onset focal seizure without a return to baseline**

GOALS:
- Time from Stroke Alert to Imaging Start: ≤45 mins

INITIAL PROVIDER ASSESSMENT

- Assess & document time of patient's last known normal
- History/Risk factors[1]
- Physical assessment (reference NIH Stroke scale)
- Assess MRI eligibility[2]
  - Safety (i.e. pacemaker, VAD, metal implants, dental hardware, etc...)
  - Assess need for sedation for imaging

INCLUSIONS

- ≥2 years of age

[1]RISK FACTORS

- Sickle Cell Disease
- Congenital Heart Disease
- Previous Stroke
- **NOTE:** Lack of risk factors does NOT exclude patients from following this Guideline

≥ 72 hours since last seen normal?

Yes:
- Consult Neurology to discuss plan-of-care
- No need for stroke alert

No:

LABS

- CMP
- CBC-Diff
- DIC panel
- Urine Pregnancy Test (for girls of reproductive age) & Drug Screen
- Type & Screen
- CG8
  - BG Target 60 – 150 mg/dl

Activate Stroke Alert By Calling 5-7778

STROKE ALERT CALL TIER I

GOAL OF STROKE ALERT CALL: DETERMINE IMAGING PLAN[2]

- Patient's **Attending** calls Transfer Center with Stroke Alert
- Transfer Center conferences in (in this order):

Mon-Fri	Sat-Sun
• Neurology Attending On Call • Neuroradiologist On Call (7a-10p) • Radiologist On Call (10p-7a) • CT Technologist • MRI Technologist (7a-7p only)	• Neurology Attending On Call • Neuroradiologist On Call (7a-7p) • Radiologist On Call (7p-7a) • CT Technologist • MRI Technologist (7a-7p only)

Neurology resident to assess patient at the bedside within 30 mins and will determine need for Stroke Neurologist involvement.

INTERVENTIONS

- Manage ABCs
- Cardio-Respiratory Monitoring
- Neuro checks w. vital signs q30 min
- O_2 PRN to maintain SpO_2≥93%
- NPO
- Place 20g IV in AC
- Treat Hypoglycemia

STROKE ALERT TIER II

- **Transfer center to send Voalte alert to the following departments/clinicians to notify them that a patient is being worked up for Stroke:**
  - CT Team lead, CT Techs, Pharmacist(s), ED Charge RN, ED ANM, PICU Charge RN, PICU Admitting, CICU Float/Call Attending, Hematology Attending On-Call, Neurology Resident on call, Stroke Neurologist, CICU Charge RN, Rapid Response Team, and the House Supervisor
  - Cardiac patients to be admitted to CICU instead of PICU

[2]IMAGING GUIDANCE

PREFERRED (if immediately available):
MRI Brain (Acute Stroke Protocol)
Contraindications for MRI:
- Patient requires intubation and/or sedation
- Patient does not pass MRI Safety Screening

ALTERNATE (if MRI contraindicated or Unavailable): Order CT Head w/o contrast + CTA Head and CTA Neck.

MRI Unavailable or Contraindications Present[2]?

Yes:

CT

Order:
- CT Head w/o contrast
- CTA Head & CTA Neck[2]

No:

MRI

Order MRI Brain (Acute Stroke Protocol)[2]

Radiologist to notify on-call Neurology Attending of results

Neurology Attending to call patient's Attending with Results

ACUTE ISCHEMIC STROKE

- Alert Hematology
- Alert CICU Attending (for Cardiac patients) or PICU Admitting (for non-Cardiac patients)
- Neurology to assess tPA eligibility
  - If tPA candidate, activate Massive Transfusion Protocol.
- Patient's Attending to collaborate with Hematology and Neurology to determine treatment plan.

HEMORRHAGIC STROKE

- Alert Hematology
- Alert Neurosurgery
- Patient's Attending to collaborate with Hematology, Neurosurgery, and Neurology to determine treatment plan

NEGATIVE FOR STROKE

- Consider common Stroke mimics:
  - Migraine
  - Focal seizure with Todd's paralysis
  - Meningitis
  - Encephalitis
  - Demyelinating Disorder
  - Brain tumor

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Exclusion Criteria for tPA therapy - patient must have NO answered for ALL criteria, if ANY Question is "YES" , further assessment is required before tPA.	Yes	No
Patient received IV tPA at referring hospital		
Intracranial hemorrhage of any type seen on neuroimaging (including parachymal, subarachnoid, other)		
Clinical presentation suggestive of subarachnoid hemorrhage or arotic arch dissection		
Neuroimaging supports multilobar involvement or large volume infarct involving >1/3 of a complete arterial territory		
Head trauma, intracranial or spinal surgery, or prior stroke in the previous 3 months		
History of previous intracranial hemorrhage, cerebral AVM, aneurysm, neoplasm, or dissection		
Previous diagnosis of vasculitis of the CNS. *Focal cerebral arteriopathy of childhood (FCA) is NOT a contraindication.*		
Persistent systolic blood pressure >15% over the 95th percentile ?1hr and unresponsive to treatment; OR systolic BP ?20% over the 95th percentile at any time		
Myocardial infarction in the previous 3 months. Clinical presentation consistent with acute MI or post-MI pericarditis that requires evaluation by cardiology prior to treatment.		
Evidence of active bleeding or acute trauma (fracture) on examination		
Internal bleeding, GI, or urinary tract hemorrhage in the previous 21 days		
Major surgery, major trauma not involving the head, or parenchymal biopsy in the previous 14 days		
Arterial puncture at a noncompressible site or lumbar puncture in the previous 7 days *(Patients who have had a cardiac catheterization via a compressible artery are NOT excluded)*		
Known current malignancy and/or within 1 month of completion of treatment for cancer		
Pregnant		
Stroke associated with any of the following: intracranial arterial dissection; endocarditis; moyamoya; sickle cell disease; CNS vasculitis; meningitis; bone marrow, air, or fat embolism		
Anticoagulation Issues: - Platelets <100,000 - INR >1.4, PT >15s, or apTT >38s - Current anticoagulation use (warfarin or heparin) and abnormal INR >1.4, PT <15s, aPTT >38s - Full treatment LMWH within last 24h (does not include prophylactic dose - Current use of direct thrombin or direct xa inhibitors within the last 48h (Rivaroxaban, Apixaban, Dabigatran, Argatroban, Bivalirudin) - Bleeding diathesis		
Blood Glucose concentration is < 50mg/dl or >400mg/dL (*ok if it can be corrected and exam reassessment unchanged*)		
Allergy to tPA		
Patient will refuse blood transfusion if indicated		
Patient and family refuse to sign consent based on known risks and benefits of treatment of stroke with IV tPA		

Eligibility Determined
Patient must have NO answered for ALL criteria, if ANY Question is "YES" , tPA is contraindicated UNTIL further assessment is completed.

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