Acute Stroke Care Guideline – Recognition and Evaluation

**Inclusion Criteria:** child of any age in any location with suspected acute stroke with or without imaging confirmation

**Immediate Assessment:**
- Assess for stable airway, adequate ventilation/oxygenation, and intact circulation
- Cardiorespiratory monitoring, oximetry
- Pediatric NIH Stroke Scale (PedNIHSS) assessment by physician before CT scan.
- Vital signs q. 1 hr and neuro checks q. 15 min.

**Interventions:**
- Accucheck – treat if BG < 60
- O2 to maintain SaO2 > 95%
- NPO
- IV normal saline maintenance rate
- Accept mild hypertension (ischemic stroke only)
- Keep normothermic
- Anticonvulsant loading for acute seizure
- 12 lead EKG
- Lab Studies - Stat
  - CBC, BMP, type and hold
  - DIC panel
  - Urine toxicology
  - Urine HCG
- Imaging
  - CT Head without contrast (obtain and interpret within 30-45 mins of arrival)
- Contact Neurosurgery for acute hemorrhage, cerebral edema, midline shift
- Neurologist to inform Interventional Radiology, validate Hematology aware
- Obtain MR brain without contrast – limited acute stroke series – DWI/FLAIR/T1 only – based on Neurologist’s recommendations; attending Neurologist to call Radiologist

**Emergency Department:**
Immediately Call “Code Stroke” to activate Stroke Team (internal to ED)
- Neurology on-call Pager
- Hematology on-call Pager
- Radiology – CT Tech / ASCOM phone/pager
- PICU Attending via PICU Charge RN ASCOM Phone
- ED Charge RN via ASCOM
- Nursing Supervisor via pager/iphone

**Medical Surgical, NSI, Oncology:** Call RRT

**PICU Team notify Neurology and Hematology on-call**

**Low clinical concern for stroke**
- Normal
- Continue to seek and treat cause of presenting symptoms

**HIGH clinical concern for stroke**
- Obtain MR brain without contrast – limited acute stroke series – DWI/FLAIR/T1 only – based on Neurologist’s recommendations; attending Neurologist to call Radiologist

**Evidence of Hemorrhage**
- Contact Neurosurgery for acute hemorrhage, cerebral edema, midline shift

**Evidence Ischemic Stroke**
- Urgent brain MRI, brain & cervical MRA and MRV as indicated based on Neurologist’s recommendation; attending Neurologist to call Radiologist

**Disposition**
- Admit/transfer to PICU when stabilized
- Await further recommendations from Neurology and Hematology
- Patients who present at outside ED should transfer to CHOC ED
- Transfers from other hospital acute units w/ hx stroke/stroke symptoms (up to 1 week) should be admitted to PICU for at least 24 hrs

**Supplemental Investigation**
- Echocardiography
- EEG

Reassess the appropriateness of Care Guidelines as condition changes and 24 hrs after admission. This guideline is a tool to aid in clinical decision making. It is not a standard of care. The physician should deviate from the guideline when clinical judgment so indicates.

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Acute Stroke Care Guideline

Stroke Symptoms in Children
- Numbness, tingling or weakness of the face, arm, or leg, especially on one side of the body
- Acute difficulty in speaking and/or swallowing
- Acute difficulty walking
- Visual changes in one or both eyes
- Complaints of dizziness, loss of balance, or coordination
- Sudden severe headache of unknown cause
- Sudden confusion and trouble understanding

Findings on Exam
- Hemiparesis of new onset
- Facial "droop" on one side
- One sided neglect (ignoring weaker side)
- Aphasia—difficulty with speech or language
- Decreased field of vision on one side
- Cognitive change involving memory, judgment, problem solving

Statistics
- Stroke syndromes affect 6-13/100,000 children per year, an incidence which is comparable to childhood brain tumors.
- Stroke is one of the top 10 causes of death among children in the United States.
- The mean interval to diagnosis is 24 hrs after symptom onset in children with ischemic stroke, longer for venous thrombosis.

Imaging
- CT is specific and sensitive for hemorrhagic lesions and may provide clues to other diagnoses. It is insensitive and nonspecific for ischemic injury and for many stroke look-alikes such as tumors or de-myelinating disease.
- Brain MRI is usually required, including diffusion-weighted sequences. In case of a suspicion of stroke, a brain and cervical MRA should also be obtained.
Stroke References


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