Inpatient Subacute Ischemic Stroke Management

Location

1. Stroke units have been shown to have improved outcomes over other medical/surgical units.
2. A stroke patient should be in the stroke unit (4AS) or the NICU at admission if being admitted by neurology.
3. If already on another service, the extent and severity of the stroke has to be weighed against the patient's other comorbidities that lead to their admission to the other service.
   a. The decision to move a patient from another ward to 4A, 4AS or the NICU must be discussed with the inpatient attending (and NICU attending if going to the NICU).
   b. If a patient is being placed in the stroke unit or 4A, the neurology team and the primary team need to discuss if the patient is to remain under the care of the primary team or if the patient is being transferred to neurology. Location in a neurology ward does not necessarily mean that neurology is the primary service.

General Post-stroke care

- BP goals
  - Within the first few days to a week, treat only BP > 220/120 unless other evidence of end-organ damage
  - Start normal saline unless there is a clear contra-indication to not do so (e.g. Congestive Heart Failure).
  - Consider holding BP meds or cutting in half. Use judgement before acutely stopping beta blockers, particularly in patients with cardiac disease.
  - If treating blood pressure acutely, use small doses of short acting meds
    - Labetalol 10-20 mg IV
    - Hydralazine 5-10 mg IV
- Activity
  - If fluctuating, focal neurological symptoms, consider bed rest with HOB flat
  - If concern for elevated ICP, then HOB > 30 degrees. See the ICP management page.
  - Mobilize the patient as soon as possible, but be careful in patients with hemodynamically dependent symptoms.
  - PT/OT/PMR/Speech consults right away. They may not be able to do many intervention, especially if the patient is in the NICU, but they need to know about these patients ASAP since early intervention is best.
- Temperature
  - Goal of 38.0 of less.
  - Acetaminophen is easy to use and doubles as pain management.
  - Use cooling blankets and other active means of cooling if needed.
- Glucose control
  - High serum glucose leads to poorer outcomes.
  - Every stroke patient should be on an insulin sliding scale insulin even if the patient is not a known diabetic.
  - Check fingerstick glucose qAC and qHS for at least 24-48 hours.
  - If the patient requires no insulin in 24-48 hours, frequent fingersticks and the insulin sliding scale can be stopped.
  - Aim for low, but not strict control. A range of 100-150 is ideal.
- Nursing
  - Fall precautions
  - Telemetry
  - Aspiration precautions
  - Bedside swallow study (house staff or nursing can perform this, an SLP consult is not needed to do this, but you still need an SLP consult (see above).
  - Neurochecks at least every 4 hours
  - Tobacco cessation consult

Antiplatelet therapy

- Everybody should be on one agent unless they are being anti-coagulated for another reason (i.e. dissection, PE, etc).
- There is no good evidence for combining agents.
- Choose one of the following based on comorbidities, cost, and compliance factors:
  - Aspirin 81 mg daily
  - Clopidogrel (Plavix) 75 mg daily
  - Aspirin/Dipyridamole (Aggrenox) 25/100 mg twice a day

Anticoagulation

- If a patient has atrial fibrillation, they need anticoagulation for secondary stroke prevention.
- There are no set rules on when to start anticoagulation. In general though:
  - The bigger the stroke, the longer you wait.
  - The more severe the symptoms/deficits, the longer you wait.
  - If there are other reasons to anticoagulate (e.g. PE, atrial thrombus), the decision is more difficult, but should be based on the factors most likely to cause immediate morbidity or mortality. For example, the benefits of anticoagulation outweigh the risks in a patient with a large pulmonary embolism and a small lacunar stroke.
Workup

- Labs
  - CBC, coags, electrolytes, Hgb A1c, CHD, TSH, cardiac enzymes, fasting blood glucose
  - Hypercoaguable panel in select cases (very rare: young patients or suspected venous infarct)
- 12 lead EKG and telemetry to monitor for arrhythmia
- Echocardiogram: TTE vs. TEE to rule out intracardiac shunt or cardiac source of embolus. TEE is ideal, but you will often need the TTE before you are allowed to get a TEE.
- Brain imaging: MRI versus repeat CT; the choice is based on clinical context.
- Vascular imaging:
  - If getting a brain MRI, it is often easiest to get head and neck MRAs at the same time.
  - If the patient is a possible carotid endarterectomy (CEA) candidate, CT angiogram (CTA) is likely your imaging study of choice.
  - If there is concern for stuttering symptoms that might require emergent CEA, get a CTA or Doppler immediately as they can be done faster than MRI.