

NEURO INTENSIVE CARE MANAGEMENT OF THE STROKE PATIENT

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SUSPICION OF LVO VS ICH

- obtain immediate NIHSS en route to STAT CTH (preferably CTP with CTA H/N)
- be aware of "dense vessel sign" especially if coming from OSH with only noncon CTH
- if no hemorrhage and LKW <4.5hrs, consider IV-TPA, ensure BP <185/110 and glucose >50, review other exclusion criteria
- if LVO and LKW <24hrs, consider mechanical thrombectomy: ensure favorable NIHSS, ASPECTS score, and perfusion mismatch profile (RAPIDS software)
- if ICH, ensure SBP <140, reverse any anticoagulation with appropriate agent, consult neurosurgery, check CBC and coags, see following slides

INITIAL MANAGEMENT: ACUTE ISCHEMIC STROKE

- whether after IV thrombolytics, endovascular intervention, or no specific treatment
- neuro checks q15min for 2 hrs, q30min for 6hrs, hourly thereafter
- IV-tPA: BP <180/105, MER: dependent on result, no tx: <220/110
- preferred agents: IV labetalol/hydralazine, nicardipine if gtt needed, avoid nitroprusside (risk of elevated ICP)
- s/p IV-tPA: avoid NGT/arterial lines for 24 hours, **repeat MRI/CTH at 24 hrs post TPA**
- large cerebral infarctions: consult neurosurgery and keep HOB 30deg+, consider hyperosmotic therapy

CHANGE IN EXAM AFTER TPA ADMINISTRATION

- stop TPA infusion immediately if not already complete
- obtain STAT CT head- looking for intracranial hemorrhage
- monitor closely for airway compromise and need for intubation
- if worsening infarct or new hemorrhage: consult neurosurgery
- send STAT labs: PT/PTT/**fibrinogen**/platelets/type and cross
- give 10u cryoprecipitate IV over 10-30min
- repeat fibrinogen, consider additional cryoprecipitate if still <150

MALIGNANT HEMISPHERIC STROKE

- prioritize ABCs- consider intubation for airway protection
- consult neurosurgery, may need decompressive craniectomy
- ICP management: HOB 30deg, head midline to facilitate venous drainage, consider hyperosmotic therapy (either 3% to target serum Na 145-155, 23% boluses or mannitol for exam changes)
- arterial line for tight blood pressure control given risk of hemorrhagic transformation
- q1h neuro checks/STAT head CT for any neurologic changes
- steroids not indicated for cytotoxic edema in stroke

ANTICOAGULATION, LARGE HEMISPHERIC STROKE

- neurosurgical consultation always recommended when starting anticoagulation/antiplatelet in those at high risk of intracerebral hemorrhage
- recommend starting anticoagulation 2-4 weeks post stroke for those at high risk
- consider starting sooner (with expert consultation and close monitoring) for those with acute PE, prosthetic valve, intracardiac thrombus, acute DVT (consider IVC filter)
- can consider using aspirin in interim for those at increased thromboembolic risk (i.e.- a-fib)

STROKE: MISC CONSIDERATIONS

- basilar artery occlusion can have atypical presentation (i.e.- lacking MCA syndrome symptoms) and even mimic seizure with decreased mental status/repetitive myoclonic movements, be aware of any anisocoria and look for "dense basilar sign" on dry CT or obtain CTA to rule out
- patients who initially present with low NIHSS (<6) are still eligible for thrombectomy up to 24 hrs from LKW if there is extension of initial stroke, consult neuro interventionalist for consideration

HEMORRHAGIC STROKE

- STAT non-contrast CT head (should already be done based on symptoms)
- neurosurgery consultation for possible clot removal/hemicraniectomy
- obtain info about antithrombotics and reverse with appropriate agent
- control SBP <140 (<160 in some situations), obtaining control and MINIMIZING SBP variations in first few hours
- q1h neuro checks, ABCs, assess need for intubation
- repeat CTH at 6 hours and then based on results
- assess need for hyperosmotic therapy, EVD for ICP, etc.

ICH PEARLS

- in patient's on vit K antagonists, correct INR to 1.4 or less
- rapid neurologic deterioration (i.e.- GCS below 8, stops following commands), or >3cm posterior fossa lesion are strong indications for surgery
- "spot sign" on CT- sign of hyperacute and potentially rapidly expanding bleed
- calculating hematoma volume- use 5mm cuts on CT, $A \times B \times C/2$
- lower GCS, >30mL volume, IVH, infratentorial lesion, age >80 all indicate worse prognosis (also make up ICH score for provider to use)