History:

1) Last Known Well (the last time the patient was seen normal)
2) Vital Signs
3) Physical Exam – NIH Stroke Scale
4) Glucose (POC every time!)
5) Medication List (Anticoagulation?)
6) History of Stroke?

Imaging:

NCHCT and CT Angio:
-Get BOTH for patient with Acute stroke and recent last known normal

MRI or CT Perfusion Scan:
- Get EITHER if patient is outside of window for thrombolytics based on last known normal time

Mnemonic for MRI:
-DWI: White area is ischemic
-ADC: Dark area is ischemic

*****Thrombolytic Contraindications:**

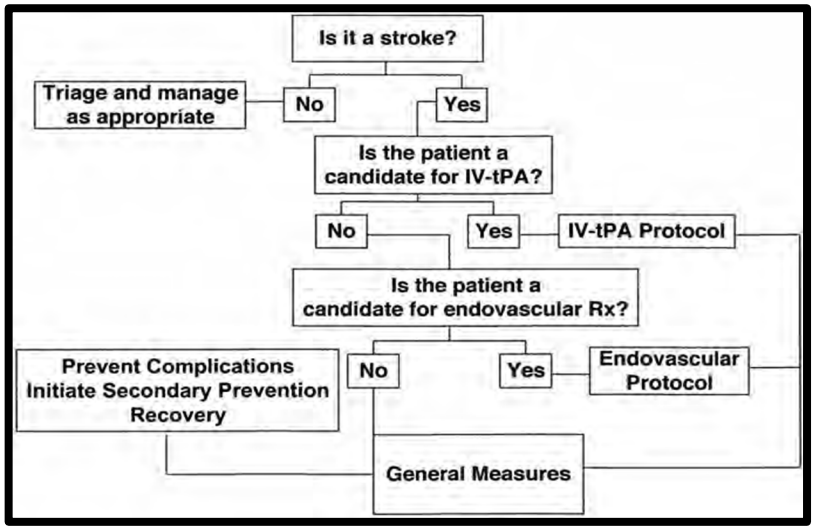
NIHSS 0-5
Extensive severe hypoattenuation
Prior ischemic stroke within 3mo
Intracranial/Intraspinal surgery within 3mo
Recent severe head trauma (3 mo)
Acute ICH, ?prior ICH, Suspicion of SAH (even if negative HCT)
GI malignancy or recent bleed(within 21 days)
Intraaxial intracranial neoplasm
Plt <100, INR >1.7, aPTT>40s, PT >15s
SYSTEMIC Anticoag
LMWH within 24hrs
DTIs or FXa Inhibitors within 48hrs
Infective endocarditis
Aortic Arch Dissection
Glc <50

Relative Contraindications:

Major surgery/procedure (within 14 days)
Elevated BP
High likelihood of L heart thrombus
Acute pericarditis
Pregnancy
Hemostatic deficits (renal, liver disease)
Septic thrombophlebitis

Blood Pressure Goals:

- No intervention:
  - Permissive HTN: SBP < 220 & DBP <120
  - Reduce by 15% in first 24hrs if over goal
- Thrombolytics Administered:
  - SBP < 180 & DBP < 105 – for 24 hrs
- Endovascular Therapy:
  - ?? – Most recommend SBP 140-180



IV Fibrinolytic Therapy - Timing:

- Everyone <3hrs
- 3 – 4.5 hr if <80yo, no DM, no prior CVA, and NIHSS <25
- Wake-up Stroke: within 4.5 hour of stroke recognition dependent upon perfusion defect

***Surgical Interventions**

- Decompressive Hemicraniectomy:
  - <60 years old
  - Neurologic deterioration within 48 hours (if due to unilateral MCA infarct with edema)
  - Edema with brainstem compression (Suboccipital Craniectomy)
- Ventriculostomy
  - Obstructive hydrocephalous (after cerebellar infarct)

Endovascular Therapy Timing:

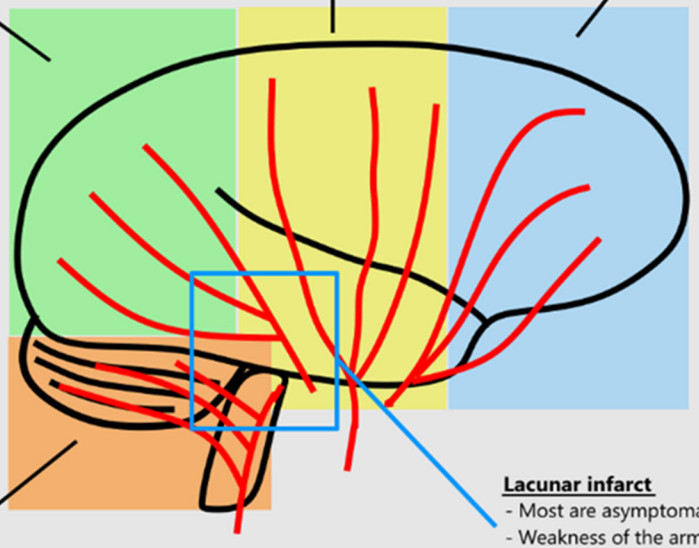
- 6 hours [MR CLEAN, HERMES]
- 6-16 hrs - DEFUSE 3 Trial
6- 24 hrs - DAWN Trial, AURORA
(After 6hrs; perfusion study must show a large enough perfusion deficit and penumbra)

STROKE SYMPTOM ILLUSTRATION

Middle cerebral artery
- Contralateral face and arm weakness and sensory loss
- Mild or no leg weakness
- Head and eyes deviated toward the side of stroke
- If left-sided may produce aphasia
- If right-sided may cause deficits in spatial perception, hemineglect, and apraxia

Posterior cerebral artery
- Visual problems
- Prosopagnosia
- Alexia
- Aphasia

Anterior cerebral artery
- Contralateral leg weakness and sensory loss
- Mild or no upper extremity involvement
- Balance problems
- May produce aphasia if left-sided



TERMS

Alexia - inability to read
Anhidrosis - loss of sweating
Aphasia - inability to understand or express speech
Apraxia - difficulty completing skilled movements
Ataxia - impaired balance or coordination
Contralateral - opposite side
Ipsilateral - same side
Miosis - pupillary constriction
Prosopagnosia - inability to recognize faces
Ptosis - upper eyelid drooping

Vertebrobasilar system
- Vertigo (dizziness)
- Nystagmus
- Vision problems
- Facial weakness
- Dysphagia (trouble swallowing)
- Dysarthria (trouble speaking)
- Loss of pain and temperature sensation
- Ipsilateral Horner's syndrome: ptosis, miosis, and anhidrosis

Lacunar infarct
- Most are asymptomatic
- Weakness of the arm, leg, or face that is not accompanied by sensory loss (pure motor stroke), or sensory loss not accompanied by weakness (pure sensory stroke)
- Ataxia and leg weakness
- Clumsy hand syndrome
- Absence of higher cortical symptoms (e.g. language, vision, speech)

- NINDS (1995) – tPA for ischemic stroke
  - tPA within 3 hrs improved 3month outcome, despite increased ICH risk
- MR CLEAN (2015)
  - Thrombectomy with 6hrs effective and safe
- HERMES (2016) – pooled meta-analysis
  - Benefit of endovascular thrombectomy for prox anterior circulation occlusion (regardless of severity)
- WAKE- UP (2018) –
  - MRI FLAIR to allow admin of tPA within 4.5 hrs of stroke recognition
- DAWN & DEFUSE 3 (2018)
  - extended thrombectomy window to >6hrs using imaging for patient selection
- AURORA (2021) –pooled meta-analysis
  - Thrombectomy for pts with evidence of reversible cerebral ischemia → higher rates of independence in AoDL
- ENHANCED2/MT (2022) – multicenter RCT
  - EVT BP goals – More intensive BP control had more early neuro deterioration

Time	0-3hr	3-4.5 hr	4.5-6hr	6-16 hr	6-24 hr
Tx	tPA MT	tPA MT	MT	MT	MT
Pt selection	NIHSS >6	Age <80 NIHSS <25 No DM+CVA			
Trials	NINDS	ECASS III [WAKE-UP – pending images]	MR CLEAN HERMES	DEFUSE3	DAWN AURORA