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**ED Stroke Patient Management:**  
*What must we be able to do in order to provide tPA in the ED (mimickers, stroke scales, and CT interpretation)?*

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**EMRA /FERNE Case Conference:**  
*The ED Management of Acute Ischemic Stroke Patients*

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**ACEP Scientific Assembly**

**Seattle, WA**  
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## Key Clinical Questions

- You are obliged to be able to give tPA...
- What diagnostic skills?
- What use of stroke scales?
- What CT interpretation skills?
- What IV tPA use skills?

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## Diagnostic Skills

- Identify a stroke
- Start with the Cincinnati stroke scale
- Identify speech and language deficit
- Identify hemiparesis
- Identify CN deficits c/w stroke
- Consider mental status changes

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## Diagnostic Skills

- Exclude toxic/metabolic causes
- Exclude seizure syndromes
- Exclude TIAs
- Is the deficit significantly improving during the time that you are preparing to give IV tPA?

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## Stroke Scales Use

- Estimate the severity of the stroke
- Know what patients were treated in the NINDS clinical trials
- Be able to identify significant or moderate stroke
- Consider use in elderly pts with severe stroke (NIHSS > 20) and AFib

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## NIHSS: LOC

- LOC overall 0-3 pts
- LOC questions 0-2 pts
- LOC commands 0-2 pts
- LOC: 7 points total

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## NIHSS: Cranial Nerves

- Gaze palsy 0-2 pts
- Visual field deficit 0-3 pts
- Facial motor 0-3 pts
  
- Gaze/Vision/  
Cranial nerves: 8 points total

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## NIHSS: Motor

- Each arm 0-4 pts
- Each leg 0-4 pts
  
- Motor: 8 points total  
(8 right, 8 left)

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## NIHSS: Cerebellar

- Limb ataxia 0-2 pts
  
- Cerebellar: 2 points total

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## NIHSS: Sensory

- Pain, noxious stimuli 0-2 pts
  
- Sensory: 2 points total

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## NIHSS: Language

- Aphasia 0-3 pts
- Dysarthria 0-2 pts
  
- Language: 5 points total

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## NIHSS: Inattention


- Inattention 0-2 pts
  
- Inattention: 2 points total

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### NIHSS Composite


- CN (visual): 8
- Unilateral motor: 8
- LOC: 7
- Language: 5
- Ataxia: 2
- Sensory: 2
- Inattention: 2

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### Four Main NIHSS Areas

- CN/Visual: Facial palsy, gaze palsy, visual field deficit
- Unilateral motor: Hemiparesis
- LOC: Depressed LOC, poorly responsive
- Language: Aphasia, dysarthria, neglect


- 28 total points

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### NIHSS ED Estimate

- CN (visual): 8
- Unilateral motor: 8
- LOC: 8
- Language/Neglect: 8


- Mild: 2, Moderate: 4, Severe: 8
- +/- Incorporates other elements

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### NIHSS Patient Estimate


- CN/Visual: R vision loss, no fixed gaze 4
- Unilateral motor: hemiparesis 8
- LOC: mild decreased LOC 2
- Language: speech def, neglect 4

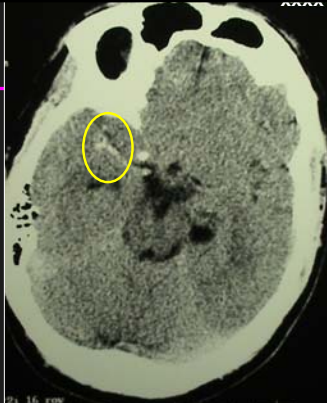
- Approx 18 points total
- Moderate to severe stroke range

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### CT Interpretation Skills

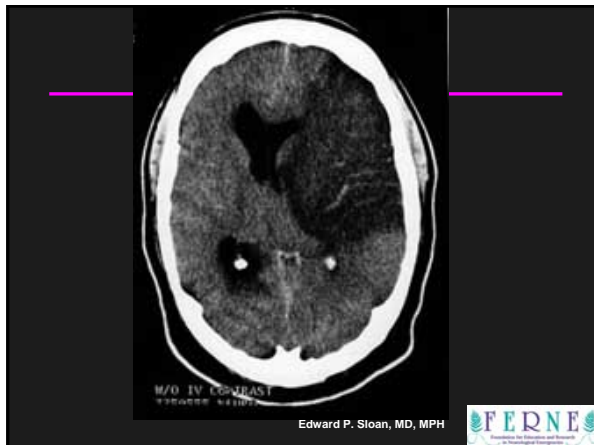
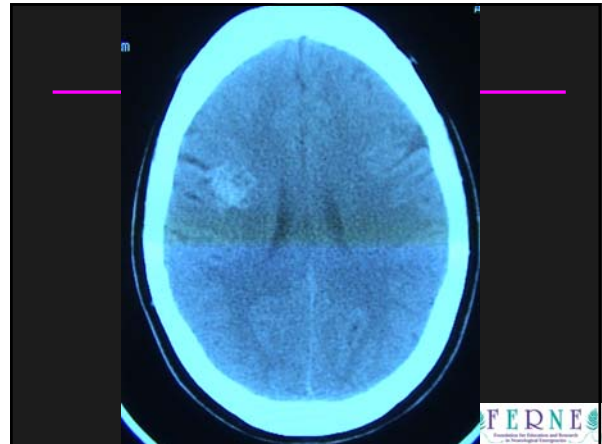
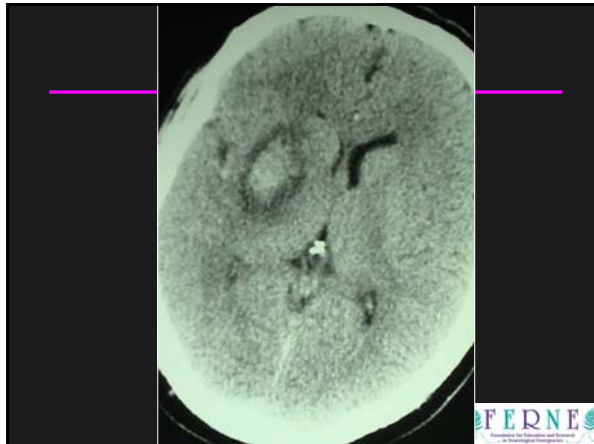
- No insular ribbon or MCA sign
- No detailed assessment
- Identify asymmetry and edema
- Identify blood, mass lesion
- Identify any area of hypodensity c/w a recent stroke of many hours duration that precludes IV tPA use

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Hyperdense MCA Sign





## IV tPA Use Skills

- Identify indications, contraindications
- Quickly get the tests and consults
- Communicate with the neurologist
- Obtain consent with family and know what statistics are relevant
- Document the interaction
- Maintain BP below 185/110 range
- Follow the NINDS protocol closely

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## ED tPA Documentation

- With tPA, there is a 30% greater chance of a good outcome at 3 months
- With tPA use, there is 10x greater risk of a symptomatic ICH (severe bleeding stroke)
- Mortality rates at 3 months are the same regardless of whether tPA is used
- What was the rationale, risk/benefit assessment for using or not using tPA?
- What was done to expedite Rx, consult neurology and radiology early on?

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## Conclusions

- The IV tPA skill set is identified, limited, and manageable
- It is possible to provide quality emergency services with IV tPA
- Identify good patient candidates
- Make it happen quickly
- Document the ED management

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**FERNE / EMRA 2007 Ischemic Stroke Panel:  
IV tPA Use ED Skills  
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**Questions?**

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