Using a Case-based Approach to Defining a Complex Stroke Patient

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Abstract and Objectives

Abstract

With the designation of Comprehensive Stroke Centers there is emphasis on patients being triaged to the appropriate level of care. As stroke treatment is time sensitive, it is imperative for comprehensive stroke centers to partner with regional resources to expedite patient care. Understanding the treatment capabilities of area stroke centers enables providers to make informed decisions.

What sets comprehensive stroke centers apart is the breadth of experience and treatments available to patients. One way to differentiate between primary and comprehensive stroke centers is through a case-based approach. This presentation will demonstrate a variety of interventions for acute stroke as well as highlight the speed which the complexity of care changes, necessitating alternative treatment plans.

Specific discussion points include young stroke patients, treatment decision-making, multiple strokes in the same patient, and internal stroke response.

Objectives

- List 2 treatments used to prevent cerebral edema in acute stroke management
- Discuss the role of nursing assessment to decrease complications associated with aggressive therapy
- List 2 treatments used to reduce intracranial pressure

Complex Case #1

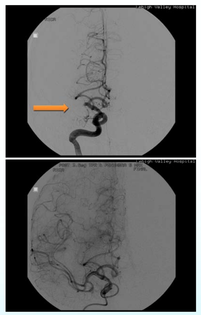
Bilateral Strokes During the Same Admission

Case Presentation

- 69 yo male presents to ED after developing right facial droop and global aphasia, NIHSS 7.
- New diagnosis of Afib with rapid ventricular response. Started on diltiazem and phenylephrine.
- No hyperdensity on CT or large vessel occlusion on CTA. Diagnosed with **left MCA stroke** and treated with IV tPA.
- Admitted to Neuroscience ICU for monitoring. Stable for 34.5 hours.

What's Different About This Case?

- At change of shift, patient returned to Afib with rapid ventricular response
  - Change in patient exam: now aphasic with left sided weakness. NIHSS was 4-now 25.
  - Repeat CT consistent with **new right MCA** stroke. To IR for advanced endovascular intervention
- **Astute neurovascular assessment** connected change in exam and rhythm change. Expedited work-up and treatment through activation of **in-patient stroke alert.**



Top Image: abrupt cutoff of right MCA
Bottom Image: blood flow re-established

Complex Case #2

Multiple Strokes and Transition in Goals of Care

Case Presentation

- 56 yo male, wake-up stroke. NIHSS 4. Diagnosed with right MCA stroke.
- Admitted to ICU for neuro monitoring and cerebral edema management. 18 hours later the patient had a change in neuro exam (NIHSS 4 to 23) with cerebral edema and hemorrhagic conversion necessitating hemicraniectomy and placement of external ventricular device.
- 12 day ICU stay. Exam on discharge to rehab: left sided weakness, arm >leg, and left sided neglect (NIHSS 13).
- Three weeks after discharge patient visited NSICU ambulating independently with cane-almost complete recovery.

Second Stroke

- The second event
  - 1 month after discharge patient presented to ED with new onset seizure-like activity; intubated for airway protection. Now with right sided weakness, NIHSS 17. Imaging demonstrated new left MCA stroke.
  - Neurosurgery consulted but due to size of dominant hemisphere stroke, recent contralateral stroke, and living will stating he would not want to be disabled and living in a nursing home, decision was made to withdraw aggressive measures and make patient comfortable

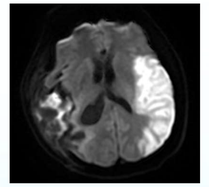


Image: MRI demonstrates previous right MCA stroke as well as acute left MCA stroke

- **Compassionate and expert care** by the same nursing staff that rallied around the **patient and family** with his first stay provided **comfort and guidance** during this difficult period of diagnosis and change in goals of care.

Complex Case #3

Grade V SAH

Case Presentation

- 27 yo male c/o H/A for 1 week
- Witnessed seizure activity at bus stop
- Activated Stroke Alert on arrival to ED
- Hunt/Hess Grade 5
- R MCA aneurysm coiled

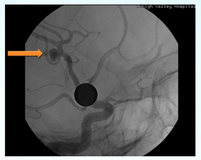


Image: Arrow points to an 8mm right MCA aneurysm in comparison to known 12.5mm marker

Providing Complex Stroke Care

- Advanced nursing skillset in the NSICU
  - An external ventricular device was placed for ICP monitoring as well as CSF diversion.
  - Systemic and intracranial hemodynamic monitoring
  - Cerebral edema management via hypertonic saline infusion
  - Neuroprotection via thermoregulation protocol with a target temp of 33 degrees and associated multisystem nursing considerations with use of hypothermia
  - SAH protocol: daily CT, daily TCD, nimodopine, seizure precautions
  - D/C day 26 to acute rehab. 4 months after discharge: speech slow but appropriate, ambulates with a 4 point cane, left arm remains plegic, mRS 3
- **NSICU nursing staff** routinely manage multisystem sequlae of neurologic injury and prevent further complications, such as DVT, PE, aspiration, pneumonia, skin breakdown, bowel/bladder issues, joint abnormalities, and falls.

American Heart Association
American Stroke Association
CERTIFICATION
Meets standards for
Comprehensive Stroke Center

MAGNET RECOGNITION

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