Safe Emergency Management of Acute Ischemic Stroke: An Academic Community Hospital Decade Experience

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Background

- Team-based early reperfusion therapy has been shown to be efficacious in a selected subset of patients reducing long-term death and disability from acute ischemic stroke
- Less than 2% receive drug nationally because of care delivery system barriers
- Stroke care delivery models hinge on Emergency Physician response to presenting brain insults

- We created an effective stroke team by developing partnerships between ED, Neurology, & Neuroradiology physicians which improved the initiation of reperfusion therapy

Methods

- Stroke care protocols developed in 1998 (refined in 2000)
- Defined roles were established (Table 1)
- Emergency Physicians identified patients for potential reperfusion therapy (Diagram 1)
- The neurologist, available 24/7 by cell phone, would respond and direct the reperfusion intervention at the bedside
- Monitoring:
  - Oversight by a dedicated stroke coordinator
  - Monthly meetings: focused process improvement projects, and ongoing data monitoring supported system improvements
  - Ongoing staff education and training

Results

- Ongoing EMS outreach - Acute Stroke Class
- Physician champion clinical oversight, strategic planning
- Interventional Radiology Lab
- Partners in Care
- Stroke Coordinator, Stroke Data Nurse, Medical Director
- Expediting & standardizing care promotes timely reperfusion (Table 3)
- Door to Drug (35-165 min)
- NIHSS (3-31)
- Glucose <50 mg/dL or >400 mg/dL
- Laboratory Turnaround
- Triage of Acute Stroke

Discussion

- Improving Access to Intervention:
  - Since implementation, 25% of patients arriving <8 hours from symptom onset received an acute intervention
- Process Improvement:
  - Expediting & standardizing care promotes timely reperfusion (Table 3)
  - An ED-driven protocol is both feasible, effective, and sustainable
  - Strategically developing clinical partnerships facilitates lasting changes that impact patient care
- Strict adherence to protocol is possible with standardized screening for IPA eligibility
- Outcomes:
  - 3% SICH in IV treated with a 6% AICH rate (Table 4)
  - 90 day mortality of 11% (Figure 3)

- Due to small number of patients with SICH after IPA in study (n=5) ability to draw strong conclusions is limited

Conclusions

- Consistent and sustained safe utilization of IV tPA over 10 year period is achievable with a protocol driven team approach at a community hospital Emergency Department
- Emergency Physicians can partner with Neurologists in evaluating and co-managing the resuscitation of stroke patients, screening for reperfusion therapies and thereby safely reducing delays in drug administration