

Southeast Pilot Stroke System

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Faculty

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Stroke Statistics

- **Leading cause of serious long-term disability in the United States**
- **Fourth leading cause of death**
 - **795,000 strokes each year**
 - **600,000 are first attacks**
 - **143,579 die**

Stroke Statistics

- **Three-fourths of all strokes occur in people over age 65**
 - **Risk doubles every decade after age 55**
 - **Strokes can, and do, occur at any age**
 - **More so in the South**
 - **Smoking doubles risk of ischemic stroke**

Stroke Statistics

- **Each year 55,000 more women than men have strokes**
- **87% of strokes are ischemic**
 - **10% are intracerebral hemorrhage**
 - **3% are subarachnoid hemorrhage**

Why Do We Need a Stroke System?

- **Ischemic strokes can be treated and sometimes completely reversed by use of the thrombolytic agent tissue plasminogen activator**
 - **tPA, activase / alteplase**

Why Do We Need a Stroke System?

- This treatment must be given within 4.5 hours of the onset of symptoms
 - Is “Time Dependent”

Why Do We Need a Stroke System?

- Patients with stroke symptoms must be rapidly transported to a hospital capable of immediately performing a rapid exam to determine type of stroke and then be able to treat with tPA if the stroke is ischemic and within the treatment window
 - Neuroimaging and interpretation is key

Stroke vs. Trauma

- Both are “Time Dependent”
- Most smaller hospitals don’t have resources to treat trauma so patients need to be taken directly to a trauma center

Stroke vs. Trauma

- Patients with stroke symptoms must be rapidly transported to a hospital capable of immediately performing a rapid exam to determine the type of stroke and then be able to treat with tPA if the stroke is ischemic and within the treatment window

Stroke vs. Trauma

- Often there is not time to take the patient directly to a Level I or Level II stroke hospital and still be within the treatment window

Stroke vs. Trauma

- Most smaller hospitals do have the capability to evaluate and begin initial (thrombolytic) treatment of stroke
 - The patient can be transferred to a higher level of stroke hospital after treatment is begun

What Are the Qualities of a Good Stroke System?

- Network of hospitals with the commitment and the resources to care for stroke patients
- Organized plan to route patients with signs of stroke to the right hospital that is ready to care for them

What Are the Qualities of a Good Stroke System?

- Constant monitoring of the system to correct problems, improve the system, and validate the quality of care provided

Southeast Pilot Stroke Plan

- Voluntary participation by hospitals
 - Hospitals will be inspected and designated for the level of services they request and can provide

Southeast Pilot Stroke Plan

- Stroke system patient routing is by a single high-tech communication center (Alabama Trauma/Stroke Communications Center) that coordinates patient transport to the appropriate facility initially and facilitates transfer of patients that require a higher level of care after initial treatment

Southeast Pilot Stroke Plan

- Done with computer intranet system and 24/7 staff that maintain up-to-the-minute status of all hospitals and resources
- This allows hospitals to always be in control of when they are available to accept a new patient
- Everything is monitored by Quality-Improvement process

Who Is Entered into the Stroke System?

- In the field, patients are evaluated by the EMS personnel (EMSP) and, if they meet criteria for a possible stroke (treatment protocol 3.32), they are entered into the stroke system by calling the Alabama Trauma / Stroke Communications Center (ATCC)

Who Is Entered into the Stroke System?

- The patient will then be routed to the nearest appropriate stroke system hospital

Protocol for Entering Patient into the Stroke System

- Patient should have an acute episode of neurologic deficit without any evidence of trauma
- There should be an acute abnormality in the FAST stroke scale

EMSP Discretion

- If the EMSP is convinced that the patient is likely to have a stroke, which is not yet obvious, the patient may be entered into the system

EMSP Discretion

- The following factors should raise suspicion:
 - Symptoms of stroke occurred and disappeared within a few minutes (TIA)
 - Patient is awake but cannot remember or understand what is said or able to express himself

Participating Hospitals

- Hospitals can voluntarily join the stroke system
 - No hospital will be forced to join
 - Administration and staff must agree

Participating Hospitals

- Participating hospitals will be surveyed to certify the level of trauma care they can provide
 - If not TJC certified

Participating Hospitals

- Each participating hospital will determine when they are available to take a trauma patient
 - Each decides when red or green
 - Communication Center cannot override this
 - The patient can override the system

Three Level System

- **Level III: Acute Stroke Ready Hospital**
 - There are 11 Level III Stroke Centers
- **Level II: Primary Stroke Center Hospital**
 - There are 4 Level II Stroke Centers

Three Level System

- **Level I: Comprehensive Stroke Center**
 - There are no Level I Stroke Centers

Level III: Acute Stroke Ready Hospital

- Physician medical director for stroke services
- 24/7/365 ED availability
- 24/7/365 CT scan availability with final CT reading and report to treating physician done within 45 minutes

Level III: Acute Stroke Ready Hospital

- Professional personnel with ability to rapidly triage and evaluate stroke patients to determine appropriateness of treatment with tPA

Level III: Acute Stroke Ready Hospital

- Ability and willingness to administer tPA to all eligible patients
 - tPA stocked by pharmacy
 - Stroke protocols in place
- 24/7 neurology availability “on call” or by telephone / Telemedicine

Level III: Acute Stroke Ready Hospital

- **Written plan for those who require a higher level of stroke care**
 - Post tPA
- **Performance improvement and community education participation**

Level II: Primary Stroke Center Hospital

- **Must be TJC certified as a primary stroke center or have available the following minimum resources:**
 - Stroke services, medical director, and coordinator
 - Department of Neurology or Telemedicine system MOU

Level II: Primary Stroke Center Hospital

- Vascular neurosurgery or transfer plan
- Stroke treatment protocols in place

Level II: Primary Stroke Center Hospital

- **Specialty availability upon notification of patient need:**
 - Emergency medicine (10 minutes)
 - Neurology (within 15 minutes), a physician with experience and expertise in diagnosing and treating stroke, or Telemedicine contact with neurology

Level II: Primary Stroke Center Hospital

- Vascular neurosurgery (or transfer plan)
- Consultants available (on call):
 - Internal medicine
 - Critical care
 - Cardiology
 - Neuroimaging

Level II: Primary Stroke Center Hospital

- **Resources**
 - Ability / willingness to administer tPA to all eligible patients
 - tPA stocked by pharmacy
 - Stroke protocols in place
 - Plan for transfer of patients requiring it

Level II: Primary Stroke Center Hospital

- Operating suites staffed and ready within 30 minutes of stroke alert
- Recovery room
- ICU bed for stroke patients

Level II: Primary Stroke Center Hospital

- Neuromanaging (interpretation immediately available)
 - In-house technician for CT imaging
 - Angiography (at least CTA, MRA)
 - Neurovascular sonography
 - CT
 - MRI

Level II: Primary Stroke Center Hospital

- 24 hour on-call neurology or by telemedicine
- Rehabilitation services
 - Speech, physical, and occupational therapy
- Appropriate clinical lab services

Level II: Primary Stroke Center Hospital

- CME
 - 8 hours, stroke related, provided annually for staff physicians, nurses, allied health personnel, community physicians
- Stroke prevention coordinator
- Performance improvement program

Level I: Comprehensive Stroke Center

- Must be certified by The Joint Commission or meet the minimum personnel, resources, and plans as recommended by the Brain Attack Coalition for Comprehensive Stroke Centers

Timeline for Activation of Southeast Pilot Stroke System

- All hospitals have been inspected
- System should be activated by April 1, 2013
- Plan to pilot system for 9-12 months before expanding
- All EMS personnel must be trained

Timeline for Activation of Southeast Pilot Stroke System

- All Stroke Hospital Personnel must be trained on:
 - How to manage the computer resource monitor
 - How to manage the acute stroke patient

Timeline for Activation of Southeast Pilot Stroke System

- How to transfer patients for whom they cannot provide further care
- How to put patients who do not come by ambulance into the system

Timeline for Activation of Southeast Pilot Stroke System

- All non-participating hospital emergency personnel must be trained how to enter patients into the system for transfer

What About Patients that Don't Come by EMS?

- They can be entered into the system by the Emergency Department staff
- Hospitals not participating in the stroke system can transfer patients with criteria for stroke by simply calling the ATCC

Stroke System Patient Routing

- Each participating hospital will be connected to the Alabama Trauma Communications Center so that there is a constant monitoring of the status of all hospitals

Stroke System Patient Routing

- When a patient meets criteria for the stroke system (protocol 3.32) the EMT will call the ATCC who will route the patient to the correct ready hospital
- During transport they will complete the thrombolytic checklist (protocol 8.04)

Stroke System Patient Routing

- Transportation (air or ground) can be arranged by the ATCC if needed
- Transfer of patients from local hospitals to the correct stroke center can also be coordinated by the ATCC

Computer Display

- Numbers are color-coded
 - Green: available
 - Yellow: resource unavailable (but still accepting some patients)
 - Red: not available

Computer Display

- Hospital abbreviations are automatically color-coded for online status
 - Green: active
 - Yellow: resource unavailable (but still accepting some patients)
 - Red: unavailable

Role of the ATCC

- When a patient is put into the system and the ATCC is called, the patient is given a number and the patient is routed to the nearest appropriate ready stroke hospital

Role of the ATCC

- The ATCC will take information on the patient and fax to the receiving hospital
 - An alarm will sound “Incoming Patient”
- The ATCC will also call the hospital and notify them the patient is coming

ATCC ID Number

- Patient’s names will not be placed on the stroke reports
- Each patient will be given an ATCC ID number
 - Number should be placed on pre-hospital patient care report and the hospital record
 - How we track stroke patients

QA / QI

- Eventually there will be a stroke registry but until funding is available the QA depends on the data placed on the stroke report by the receiving hospital
- 95% compliance is required for this data

QA / QI

- Fax the report back to the ATCC within 48 hours
- The information will then be entered into your computer by the ATCC

Questions?

Contact:

Office of Emergency Medical Services

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