Focus on Quality

heart.org/quality
Presenter Disclosure Information

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Together to End Stroke-Ideas for Stroke Community

FINANCIAL DISCLOSURE: No Financial Disclosures

UNLABELED/UNAPPROVED USES DISCLOSURE: None
Where are we today?

• World wide stroke is the 2\textsuperscript{nd} leading cause of death
• Stroke is 4th cause of death in the USA
• Stroke is leading cause of disability in the USA
• Stroke is approximately 25\% higher in men than in women
• 80\% of SAH occur in women

Stroke Statistics  Stroke Association  January 2013
Key Messages about stroke

• HTN is the most important risk factor for stroke contributing to about 50% of all strokes

• One in five strokes are fatal.
  – 7% deaths in men
  – 10% death in women

• For every 1,000 patients who receive thrombolysis, 80 will live independently
Incidences of Stroke

• Stroke Incidence decreased by about 18% in men and 24% in women between 1995-96 and 2003-04
• Stroke mortality rates have halved over the last 20 years
• Approximately 25% of strokes occur in people aged under 65 years.
Stroke Survival rates

• 10% of stroke victims recover almost completely
• 25% of stroke victims recover w/ minor impairments
• 40% of stroke victims experience moderate to severe impairments requiring special care
• 10% of stroke victims require NH or L-TACH

Stroke Statistics  Stroke Association  January 2013
Gender and Ethnicity

• White
  • Males
    – 62.8/100,000
    – 26.3% death rate
  • Females
    – 59/100,000
    – 39.2% death rate

• Blacks
  • Males
    – 93/100,000
    – 51% death rate
  • Females
    – 79/100,000
    – 39.2% death rate
Treatment Time and tPA

• NINDS trials demonstrated beneficial treatment times within 3 hours of symptom onset

• Analysis of 6 large randomized controlled trials (RCT) indicated that optimal administration time is within 90 minutes of symptom onset

*Time is Brain*

Comparison of tPA in 3 vs. 4.5 hr. Window for all Texas Hospitals from 2008 through 2013 from GWTG
Arrival Mode

Patients grouped by how they arrived at your hospital

Time Period: 01/2008 - 12/2013

Arrival Mode

Percent of Patients

EMS from home/scene
Private transport/taxi/other from home/scene
Transfer from other hospital
ND or Unknown
Blank (Missing Arrival Information)

Time Period

Legend:
All TX Hospitals-2008
All TX Hospitals-2009
All TX Hospitals-2010
All TX Hospitals-2011
All TX Hospitals-2012
All TX Hospitals-2013
Why does delay in treatment still exist?

• Delay Phases
  – Symptom onset to the decision to seek medical attention
  – From the decision to seek medical attention to the first medical contact
  – From the first medical contact to hospital arrival

• The longest phase of delay continues to be the time from symptom recognition to the decision to seek care.

Moser, etal. 2006 Reducing Delay in Seeking Treatment by Patients with ACS and Stroke: A Scientific Statement from the American Heart Association Council on Cardiovascular Nursing and Stroke Council Circulation 2006;114:168-182
Reasons for Delays

• Failure to recognize stroke symptoms
  – 62 to 95% of EMS calls are made by family, friends or bystanders
  – Failure to activate EMS
  – Lack of pain
  – Unable to activate 2/2
    • speech alterations,
    • motor or visual alterations
  – Mild Symptoms or Resolution
  – Some areas not well supported by 911

Mazzucco, etal  2013 What is still missing in acute-phase treatment of stroke: a prospective observational study
Neuro Sci (2013) 34:499-455
In Hospital tPA treatment Delays

• CT scan delayed 2/2 lab draws and ECG test
  – Cultural knowledge deficit as cardiac and other acute therapies have much longer tradition
  – Hesitancy of physicians to administer tPA before coagulation panel is resulted.
  – Extended 3-4.5 treatment window
• Walk in strokes have longer in hospital times versus patient who arrive by EMS
  – Failure of triage to recognize stroke

EMS Sensitivity to Stroke

• Failure of EMS personnel to recognize stroke risk and occurrence.
  – On average, each EMS provider encounters b/t 4-10 stroke patients/year.
  • Challenges development of stroke expertise
  • Turnover among EMS personnel makes repeated training necessary
  • Rural areas EMS may be volunteers

• Failure of EMS dispatch to prioritize stroke

Failure of EMS Dispatch to prioritize stroke

- Critical Prehospital Interval
  - Time from dispatch to scene

- EMS dispatchers often code stroke patient responses as < code 3 (lights and sirens)
  - Only 31%-52% of stroke calls are accurately identified
  - Stroke has symptoms in common with other clinical conditions leading to confusion in a 911 call

EMS Dispatch Educational Opportunities

• Dispatcher recognition could be improved by examining specific words and phrases.
  – Stroke, facial droop, weakness/fall and impaired communication.

• 5 most common symptoms mentioned by the caller
  – Altered Mental Status, trouble walking, impaired speech, abnormal breathing, and falling or dizziness
  – Stroke specifically mentioned in 45% of calls

Reginall, et al. 2005, Predictors of Stroke During 9-1-1 Calls: Opportunities for Improving EMS Response
Prehospital Emergency Care July/Sept 2006 Vol 10: 3
Interventions to reduce Prehospital Delay in Stroke: Future Directions

• 4 Challenges
  – 1. Address and understand social, cognitive, and emotional factors that contribute to delay
  – 2. Testing new interventions that target high risk populations
  – 3. Systematic application of research to date to educate patients at risk
  – 4. Focus on previously understudied and underserved populations.

Systematic application of What is Known

- Messages of benefit versus fear-based messages have been shown to be more effective
  - Emphasizing Urgency in immediate EMS transport and treatment within context of benefit
  - Emphasize the benefit of helping patient make 911 call rather than provide transportation

Public Education Strategies

• Blacks
  – Recognize stroke less readily than whites
  – Delay longer in seeking treatment
  – Less likely to activate EMS
  – Have a greater risk of death
• Efforts to improve awareness of signs and symptoms
• Teach patients and families how to manage the social, cognitive and emotional manifestations that accompany the symptoms contributing to delay

Older Women and Stroke

• Mortality occurs in 52% of older women before EMS arrives.

• Why
  – Healthcare providers may not appreciate the risk
  – Women not as convinced they are at risk

• Education targeted at public campaigns to emphasize the risk

Education targeted at Work Force

• EMS activated for only 38% of stroke cases at work sites.
  – Patients whose onset occurred at work were transported by coworkers in a private car

• Education targeted at work sites to increase public education on symptom awareness and urgency to activate EMS

Recognition and Management of Stroke in Young to Middle Age Adults.

• 18 to 44 y/o
  – 532,000 to 852,00 have had a stroke
  – This is 2x the prevalence of Multiple Sclerosis
  – African Americans incidence being 2 fold higher for Ischemic strokes.
  – High incidence of modifiable risk factors that contributes to a nearly 12% risk of recurrence and increases 5-year mortality

Singhal, etal, 2013 Recognition and Management of Stroke in Young Adults and Adolescents. American Academy of Neurology
Social Issues

• Longer survival compared to elderly
• Significant stress related to primary responsibility for income or child care
• High Functional independence (78% to 94%)
• High rate of post stroke depression (28 to 46%)
• Fatigue (54%)
• 23% of those returning to work required adjustments in their occupation
  – More research is needed to study other social consequences

Delays in this Population

- Less likely to activate 911
  - Do not appreciate their risk of stroke
- ER delays attributed to
  - Missed diagnosis
    - Right hemisphere strokes missed as language is preserved
    - Non localizing symptoms may be the presenting features
    - Stroke still considered a disease of the elderly

Stroke in the Young to Middle Age Adult

• Caveat:
  
  – Early MRI can reduce the rate of misdiagnosis

  – Young patients w stroke (including mimics) treated with thrombolytics did not have an increased risk of ICH
Raising Awareness

• Social Media Networking
• World Stroke Day Runs, Walks, and Family Events
• Work Place Information about Stroke Risk
• Community/Employee Health Fairs
• Schools
Future Directions: Promoting Self Efficacy

• **Challenge**
  – Prevent subsequent stroke by finding ways to promote and sustain appropriate behaviors

• **Educational Intervention**
  – Paramount to equip those at risk with relevant knowledge and self care strategies for secondary stroke prevention.
Community-based stroke prevention programme for clients with minor stroke

• Quasi-experimental study
  – China
  – Goal
    • Improve knowledge about stroke
    • Improve self-health monitoring
    • Maintain behavioral changes in adopting a healthy lifestyle for stroke prevention.
Design/Method

• 190 subjects randomized to an intervention group or control
  – Intervention Group
    • Nurse Led focusing on modifiable risk factors
    • 8 Weekly/ 2 hour sessions
  – Data obtained at 3 time point
    – Baseline
    – One week
    – Three months
Data Collection

- Structured Questionnaire
  - 4 sections
    - Demographic profile
    - Lifestyle habits
      - Smoking, drinking, self health monitoring, exercise and dietary habits
    - Medication compliance
    - Stroke knowledge
Health Behaviors

• Specific components
  – Medication compliance scale
  – Self reported questions to determine cigarette and ETOH use
    • Subjects were asked to respond on a nominal scale
  – Exercise scale to assess exercise patterns
    • Type and frequency of activity on an ordinal scale
  – Self reported dietary assessments
    • Previous 2 week diary of type and frequency of foo
    • Specific attention to cooking methods, processed foods, eating times, extra servings, etc.
The Intervention

• 8-2 hour sessions held once week
• 10 – 12 participants
• Each session opened with 15 min experience sharing
• Each session closed with a word of commitment from each participant
• Adult learning strategies were employed by having participants select the risk behaviors on which they wanted to focus
  – Set practical short term goals
  – Identify actions to attain goals (Group and facilitator led)
  – Personal log sheets, pedometers to track daily goal achievement
Subsequent weeks

• Participants reported out if goals had been attained

• Feedback

• Experience sharing
The Control Group

• Received conventional treatment
• Health Promotion Pamphlets on stroke and stroke prevention

• Both Groups continued to be exposed to routine treatment, and casual information from health care professionals, mass media etc.
Outcomes

• Statistically significant improvement in Intervention Group
  – Knowledge stroke signs and emergency treatment response
  – Health maintenance behaviors including medication compliance and daily self BP and record keeping
  – Improved dietary habits

• No significant changes were found in the control group
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