Agenda

• Welcome

• About the 2015 Focused Update of the 2013 Guidelines for the Early Management of Patients With Acute Ischemic Stroke
  ➢ Key takeaways and implications
    ➢ IV tPA and Endovascular Therapy
    ➢ Patient Eligibility
    ➢ Systems of Care/ Fast Track for Transfer
    ➢ Protocol Updates/ Educational Initiatives

• Review acute ischemic stroke case study 1 & 2

• About the acute ischemic stroke treatment toolkit

• Q & A
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Stroke Neurology Director UCLA Health
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Recent clinical trials confirm that rapid restoration of blood flow in eligible patients with acute ischemic stroke is highly effective in reducing long-term morbidity.

- Alteplase (IV r-tPA) within 4.5 hours of stroke onset remains the standard of care for most eligible ischemic stroke patients, providing the opportunity for more favorable outcomes.
- Concurrent with r-tPA, or in tPA ineligible patients, early mechanical thrombectomy using stent retrievers within 6 hours of stroke onset may lead to faster and more complete reperfusion.
Regional systems of early stroke care should be developed that coordinate first-contact services with local and regional hospitals to achieve minimum delay time from symptom onset to definitive treatment.

- Time from symptom onset to intravenous r-tPA should be as quickly as possible and within 4.5 hours of symptom onset.
- Time from first symptom to endovascular therapy should be as quickly as possible and within 6 hours of symptom onset.
- To achieve expedited care, public awareness of the signs of stroke and need to call 911 immediately by the community is needed.

The path to achieve these goals can be found on the flowchart on the next slide
Key Takeaways From The Focused Update

[Flowchart image showing the process from Out of Hospital to Early Acute Ischemic Stroke Care Management Flow Chart.]

Featured in the Acute Ischemic Stroke Guidelines Quicksheet
Critical To Success Outcomes For Acute Ischemic Stroke Patients

SYSTEMS OF CARE

1. rapid identification of a stroke

2. immediate EMS transport to closest appropriate stroke center

3. Standard of Care:
   Alteplase (IV r-tPA) within 4.5 hrs of onset

   1.9 times as likely to have a more favorable outcome

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Critical To Success Outcomes For Acute Ischemic Stroke Patients

4

Mechanical thrombectomy with patients with large vessel occlusion (after IV r-tPA) within 6 hrs of onset

- 70% improvement with patients. *
- Improved early neurological recovery
- Improved functional outcome at 3 months
- No significant safety concerns

Decision Making Criteria For Endovascular Therapy
Class IA AHA/ASA Recommendations

• Patients eligible for intravenous r-tPA should receive intravenous r-tPA even if endovascular treatments are being considered

• Criteria for Endovascular Therapy
  • Pre-stroke modified Rankin Score (mRs 0-1)
  • Acute ischemic stroke receiving alteplase (IV r-tPA) within 4.5 hours of onset according to guidelines from professional medical societies
  • Causative occlusion of internal carotid artery or proximal middle cerebral artery (M1)
  • Age 18 years or older
  • National Institutes of Health Stroke Scale (NIHSS) score of 6 or greater
  • Alberta Stroke Program Early Computed Tomography Score (ASPECTS) ≥ 6

Treatment can be initiated (groin puncture) within 6 hours of symptom onset
Decision Making Criteria For Endovascular Therapy

Select Lower Grade AHA/ASA Recommendations

- Endovascular therapy <6 hours
  - Is reasonable for select patients with:
    - Contraindications to alteplase (IV t-PA)
  - May be reasonable for select patients with:
    - Occlusions of M2/3 MCA, ACA, PCA, VA, BA
    - < 18 years old
    - Prestroke mRS>1, ASPECTS<6, NIHSS<6

- Not recommended to observe for clinical response to alteplase (IV t-PA) before pursuing endovascular therapy

- Type of intervention
  - Stent retrievers recommended with highest evidence
  - Other mechanical thrombectomy devices may be reasonable
  - Devices recommended over intra-arterial fibrinolysis as first-line
AHA/ASA Imaging Recommendations
For Alteplase and Endovascular Therapy

• Emergency brain imaging (nonenhanced CT or MRI) is recommended before any specific treatment for acute stroke

• Noninvasive intracranial vascular imaging (e.g. CTA, MRA) is recommended during the initial imaging evaluation, but should not delay intravenous r-tPA
  – If intravenous r-tPA started before noninvasive vascular imaging, obtain noninvasive vessel imaging as quickly as possible after r-tPA start

• Randomized trials should be done to evaluate if advanced imaging paradigms (e.g perfusion CT, perfusion MR) can select patients who will benefit from acute reperfusion therapy more than 6h after onset

AHA/ASA Recommendations for Stroke Care Systems

- Regional systems of stroke care should be developed, including primary stroke centers, comprehensive stroke centers, and other facilities

- Patients should be transported rapidly to the closest available certified primary stroke center or comprehensive stroke center
  - Unchanged from 2013 Guideline (but Mission Lifeline – Stroke Policy Statement may refine)

- It may be useful for PSCs and r-tPA-providing facilities to develop capability to perform emergency noninvasive intracranial vascular imaging to most appropriately select patients for transfer for endovascular intervention

- Within endovascular stroke centers
  - Systems should be designed, executed and monitored to emphasize expeditious assessment and thrombectomy treatment
  - To ensure benefit, reperfusion to TICI 2b/3 should be achieved as early as possible and ≤6h of onset
  - Outcomes on all patients should be tracked

Benefit of Endovascular Treatment

- Pooled analysis of 1287 patients from 5 recent trials
- Functional independence (mRS 0-2) at 3 months, 46% vs 26%
- For every 100 patients treated with endovascular therapy
  - 38 patients will have less disabled outcome
  - Including 20 more functionally independent

NNTs for Cerebral and Cardiac Ischemia Binary Outcomes

**Thrombectomy**
- for AIS (vs Lysis)
  - Independence
  - NNT: (4)

**IV Lytics**
- for AIS (vs ASA)
  - Nondisability
  - NNT: (10)

**PCI**
- for STEMI (vs Lysis)
  - Mortality
  - NNT: (29)


UCLA Stroke Center
Risks Associated With Endovascular Treatment With Stent Retriever

• Intracranial hemorrhage
  • Mechanisms
    – Anticoagulation, mechanical perforation, reperfusion
  • Types
    – Intracerebral, subarachnoid, intraventricular
  • Symptomatic intracranial ICH
    – Endovascular 4.4% vs Medical 4.3%

• Infarct in new territory
  • Mechanism – clot fragmentation during withdrawal
  • 0-4%

Post-Guideline Data on Time to Endovascular Treatment

- Benefit of thrombectomy extends beyond onset to puncture of 6h
  - Through 7.3h (7h 18m) after onset
  - Earlier much better than later
    - Every 4 minute delay in reperfusion, 1 out of 100 patients has increased 3 month disability
    - Every 6 minute delay in reperfusion, 1 more out of 100 patients is functionally dependent at 3 months

Information For Patients and Their Families

The following information can help support conversations with patients and their families about acute ischemic stroke treatment.

• Current recommendations include reperfusion therapies for eligible patients with acute ischemic stroke that have proved highly beneficial with acceptable risk.

• Early IV r-tPA followed by endovascular thrombectomy is the new standard of care for eligible patients with large vessel occlusions (LVO)
  • For patients with distal and penetrator occlusions, early IV r-tPA continues as standard of care for eligible patients
  • For LVO patients ineligible for IV r-tPA, endovascular thrombectomy alone is likely beneficial

• Rapid intervention is critical to successful treatment.

• Systems of care are being organized to facilitate the delivery of this care.

See the AIS Patient Education Presentations to supplement your conversations with your patients.
Case Study 1

- 69 M Spanish speaking
- LSW ~12 noon, developed acute onset left sided weakness and right gaze preference
- Family called 911, taken to OSH, NCCT head negative for blood
- Received IV tPA at 14:10, continued left sided weakness, right gaze preference
- IV labetalol for BP 200s, NIHSS 17
- Transferred to CSC ~17:20 (5 hrs, 20 minutes from ictus) for possible IA thrombolysis
- NIHSS 15 for R MCA syndrome
Case Study 1

Shift Overlay from 63 to 7F ED
Case Study 2

- 71 yo woman with sudden left weakness and hemineglect
  - History of HTN, DM
- ED arrival 65m after onset
- In atrial fibrillation (no prior hx) on arrival
- NIHSS 14
  - Severe L hemiparesis, neglect, hemianopia, and sensory loss
Case Study 2

- 71 yo woman with sudden left weakness and hemineglect
  - History of HTN, DM
- ED arrival 65m after onset
- In atrial fibrillation (no prior hx) on arrival
- NIHSS 14
  - Severe L hemiparesis, neglect, hemianopia, and sensory loss
- CT shows hyperdense R MCA sign
  - CTA confirms MCA occlusion
- TPA started 50m after arrival (115m after onset)
Case Study 2 - continued

- To angio suite with IV rt-PA running
- DTPunct 87m (OTPunct 152m)
- DSA shows persisting M1 MCA occlusion
Case Study 2 - continued

- To angio suite with IV rt-PA running
- DTPunct 87m (OTPunct 152m)
- DSA shows persisting M1 MCA occlusion
- Stent retriever deployed
- Substantial clot extracted
Case Study 2 - continued

• To angio suite with IV rt-PA running
• DTPunct 87m (OTPunct 152m)
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• Stent retriever deployed
• Substantial clot extracted

• After 2 passes, TICI 2C reperfusion
• 24h MRI - 2 cm right basal ganglia and internal capsule
• 3 months
  • Mild right hemiparesis
  • mRS 2
Patient Education: Best Practices

- Variety of educational opportunities
- EMS
- Follow up stroke clinic
- Implementing f/u phone calls
- Community stroke education
- Stroke camp
- Support group both educational and stroke support
About The Acute Ischemic Stroke Treatment Toolkit

To help professionals know how to adapt in the changing clinical environment and support the best treatment outcomes for stroke patients, the American Stroke Association has developed an Acute Ischemic Stroke Treatment Kit, sponsored by Medtronic. The toolkit includes:

- Treatment recommendations
- Decision making criteria
- AIS case study library

THE UPDATED AIS GUIDELINES CAN HELP REDUCE DISABILITY AND MORTALITY.

DOWNLOAD OUR NEW ACUTE ISCHEMIC STROKE TOOLKIT NOW.

NEW AIS CASE STUDY LIBRARY

Multiple Scenarios. Multiple Approaches. Multiple Specialties.
Tools For Professionals

Find numerous tools to assist you with implementing the updated AIS guidelines in your facility at StrokeAssociation.org/AISToolkit.

- AIS Toolkit Introductory Letter
- AIS 2015 Guidelines Update
- AIS Guidelines Quick Sheet
- AIS Professional Education Presentation
- AIS Treatment Case Studies
- AIS Toolkit Postcard
- Mission Lifeline: AIS EMS Algorithm (coming soon)
Tools For Patients

Share these tools with your patients who are experiencing (or are at risk of experiencing) an acute ischemic stroke to better help them understand their treatment options and risk. Download for FREE today at StrokeAssociation.org/AISToolkit.

- AIS Patient Presentation (in-hospital, bedside situations)
- AIS Patient Presentation (at risk of acute ischemic stroke)

For additional tools to share with your patients, visit our STROKE RESOURCE CENTER
AANN Membership Benefits

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- *Neuroscience News*
- *Clinical Practice Guidelines* (CPG)

Education:
- Annual Educational Meeting
- Educational Products
- CE Opportunities
- CNRN and SCRN Certification Prep
- Exclusive members-only content on AANN.org

Networking:
- Special Focus Groups (SFG)
- Local chapters
- Volunteer opportunities
- Advocacy that strengthens our voice

Professional Resources:
- AANN Membership includes ANA e-membership
- Neuroscience Nurses Week
- Career Center
- Scholarships, grants, and awards
SAVE THE DATE!

Registration opens in November 2016

Register 5 nurses, get 1 free!

Email info@aann.org for more information!
QUESTIONS?

THANK YOU

For more information on acute ischemic stroke, go to StrokeAssociation.org/AISToolkit

For additional tools to share with your patients, visit our Stroke Resource Center