

Thrombectomy Education

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August 2019

Overview

- Greenwich Hospital is a Joint Commission Certified Primary Stroke Center. American Heart Association (AHA) and American Stroke Association (ASA) supports thrombectomy as an intervention for the treatment of large vessel strokes that present outside the four and a half hour window for Alteplase (TPA). The standard of care by AHA/ASA extends treatment for certain stroke patients up to 24 hours post symptom onset for better clinical outcomes.

Background

- Treatment for AIS is time sensitive
- A stat head CT is done prior to TPA
- IV TPA should be administered to eligible AIS patients within 3 hours of last known well. (select patients 4.5 hours)
- TPA can still be given even if mechanical thrombectomy is being considered.
- We now do an CT and CTA for stroke codes.
- A CT angiogram is done for Patients being considered for Mechanical Thrombectomy (looking for Large Vessel Occlusion)
- Select AIS patients with evidence of LVO in anterior circulation thrombectomy is a potential treatment.
- Thrombectomy can potentially extend the acute treatment window to 24 hours.

New Procedure

Mechanical thrombectomy is a procedure performed by a Neurointerventional specialist. A catheter is inserted through the femoral artery to the blood vessel with the clot. The clot is then removed. This is done under special imaging. While this procedure is already in place at YNHH, it will be a new practice at Greenwich Hospital. To provide this new advanced surgical intervention we will educate our staff and expand our neurovascular services.

New Imaging

- A Biplane is a combined CT and mobile C-arm X-ray device. It provides a detailed three dimensional view of blood vessels leading to the brain and deep within the brain. Post procedure these patients require diligent monitoring of neurological, and neurovascular status, as well as strict monitoring of blood pressure, glucose and temperature.

Most common vessels

- The Middle Cerebral Artery (MCA) is divided into four segments:
- M1 from the origin to the bifurcation/trifurcation; also known as horizontal or sphenoid segment.
- M2 Insular segment, from bifurcation to circular sulcus of insular where it bends to continue M3.
- M3 Opercular branches.
- M4 Branches emerging from Sylvian fissure onto the convex surface of the hemisphere; also known as cortical segment

Scales and Scores

TICI, Perfusion post intervention

TICI Grade	Original TICI	Modified TICI	Modified TICI With 2c
0/1	No/minimal reperfusion	No/minimal reperfusion	No/minimal reperfusion
2a	Partial filling <2/3 territory	Partial filling <50% territory	Partial filling <50% territory
2b	Partial filling ≥2/3 territory	Partial filling ≥50% territory	Partial filling ≥50% territory
2c			Near complete perfusion except slow flow or low distal cortical emboli
3	Complete perfusion	Complete perfusion	Complete perfusion

TICI indicates thrombolysis in cerebral infarction.

Scales and Scores

Aspects Score

- The Alberta stroke program early CT score (ASPECTS) 1 is a 10-point quantitative topographic CT scan score used in patients with middle cerebral artery (MCA) stroke.
- It was developed to offer the reliability and utility of a standard CT examination with a reproducible grading system to assess early ischemic changes on pretreatment CT studies in patients with AIS of anterior circulation.
- It has also been adapted for the posterior circulation.

Scales to know

Modified Rankin Scale

Score	Definition
0	No symptoms
1	No significant disability. Able to carry out all usual activities, despite some symptoms
2	Slight disability. Able to look after own affairs without assistance, but unable to carry out all previous activities
3	Moderate disability. Requires some help, but able to walk unassisted
4	Moderately severe disability. Unable to attend to own bodily needs without assistance, and unable to walk unassisted
5	Severe disability. Requires constant nursing care and attention, bedridden, incontinent
6	Dead

NIHSS

National Institute of Health Stroke Scale

Instructions	Definitions	Score
1a LOC	0 = Alert 1 = Arousable by minor stimulation 2 = Obtunded 3 = Unresponsive or reflex response	
1b LOC questions Month and age	0 = Answers both questions correctly 1 = Answers one question correctly 2 = Answers neither question correctly	
1c LOC commands	0 = Performs both tasks correctly 1 = Performs one task correctly 2 = Performs neither task correctly	
2 Best gaze: Horizontal eye movements	0 = Normal 1 = Partial gaze palsy 2 = Total gaze paralysis	
3 Visual fields	0 = No visual loss 1 = Partial hemianopia 2 = Complete hemianopia 3 = Bilateral hemianopia	
4 Facial palsy	0 = Normal 1 = Minor paralysis 2 = Partial paralysis 3 = Complete paralysis	
5 and 6 Motor arm and leg	0 = No drift 1 = Drift 2 = Some effort against gravity 3 = No effort against gravity 4 = No movement Amputation = N/A	5a LUE _____ 5b RUE _____ 6a LLE _____ 6b RLE _____
7 Limb ataxia	0 = Absent 1 = Present in one limb 2 = Present in both limbs	
8 Sensory	0 = Normal 1 = Mild to moderate loss 2 = Severe loss	
9 Best language	0 = Normal 1 = Mild to moderate aphasia 2 = Severe aphasia 3 = Mute, global aphasia	
10 Dysarthria	0 = Normal 1 = Mild to moderate 2 = Severe Intubated = N/A	
11 Extinction and inattention	0 = No abnormality 1 = One of the sensory modalities 2 = Profound hemi-inattention	

Administration of TPA

- Table 9. Treatment of AIS: IV Administration of Alteplase
- Infuse 0.9 mg/kg (maximum dose 90 mg) over 60 min, with 10% of the
- dose given as a bolus over 1 min.
- Admit the patient to an intensive care or stroke unit for monitoring.
- If the patient develops severe headache, acute hypertension, nausea, or
- vomiting or has a worsening neurological examination, discontinue the infusion
- (if IV alteplase is being administered) and obtain emergency head CT scan.
- Measure BP and perform neurological assessments every 15 min during
- and after IV alteplase infusion for 2 h, then every 30 min for 6 h, then
- hourly until 24 h after IV alteplase treatment.
- Increase the frequency of BP measurements if SBP is >180 mm Hg or if
- DBP is >105 mm Hg; administer antihypertensive medications to maintain
- BP at or below these levels (Table 5).
- Delay placement of nasogastric tubes, indwelling bladder catheters, or intraarterial
- pressure catheters if the patient can be safely managed without them.
- Obtain a follow-up CT or MRI scan at 24 h after IV alteplase before starting
- anticoagulants or antiplatelet agents.
- AIS indicates acute ischemic stroke; BP, blood pressure; CT, computed
- tomography; DBP, diastolic blood pressure; IV, intravenous; MRI, magnetic
- resonance imaging; and SBP, systolic blood pressure.
- Reprinted from Jauch et al.¹ Copyright

Post Procedure Care

Monitor closely for bleeding, changes in NIHSS, including neuro decline, edema.

Require full NIHSS, VS, Groin puncture site checks, distal pulses Q15min x 2 hours, Q 30 min X 6 hours, Q hour x 16 hours.

These guidelines have been adopted from post TPA care, with the addition of groin site and distal pulse checks.

Blood pressure management will be individualized based on reperfusion of the blocked vessel.

Monitor closely for hyperglycemia AHA recommends treating for a target of 140-180 within the first 48 hours.

Attempt to maintain normothermia <99.6

Post Procedure Care

Bedrest 24 hours

Swallow eval prior to PO intake

Be familiar with Medications

B/P management

Cerebral Edema

Incorporate standard stroke care issues

External Ventricular Drains

Ventriculostomies

CSF diversion

ICP monitoring

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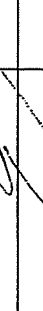




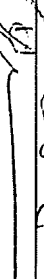



PROGRAM TITLE Neurocritical care DATE 8/5/19

SPEAKER/PRESENTER Alyssa Jandis

SPONSORING UNIT music CONTACT X3533 EXT

PROGRAM START TIME 0700 END TIME 1500 LENGTH 8

NUMBER OF TRAINING SESSIONS PROVIDED

NAME (PLEASE PRINT) (please include credentials i.e., RN, BSN)	SIGNATURE	DEPARTMENT	TITLE
1. <u>Christine Pele</u>		<u>music</u>	<u>Clinical Educator</u>
2. <u>Marie Teravato</u>		<u>music</u>	<u>Clinical Educator</u>
3. <u>Donna Curtis</u>		<u>music</u>	<u>RN</u>
4. <u>Kate Buille</u>		<u>music</u>	<u>RN</u>
5. <u>Amara DiBicari</u>		<u>Teel</u>	<u>RN</u>
6. <u>Shshra Lannone-Costin</u>		<u>MSNU</u>	<u>RN</u>
7. <u>Jessie Hadelician</u>		<u>teel</u>	<u>RN</u>
8. <u>Alison Perrin</u>		<u>Teel</u>	<u>RN</u>
9. <u>Anna DiPaola</u>		<u>music</u>	<u>RN</u>
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1. <u>Kathie Brieska</u>	<u>[Signature]</u>	<u>MSICU</u>	<u>RN</u>
2. <u>[Signature]</u>	<u>[Signature]</u>	<u>MSICU</u>	<u>RN</u>
3. <u>Nickie Rusko</u>	<u>[Signature]</u>	<u>MSICU</u>	<u>RN</u>
4. <u>Victoria Tesko RN, BSN</u>	<u>[Signature]</u>	<u>MSICU</u>	<u>RN</u>
5. <u>KANDI PARKER RN BSN</u>	<u>[Signature]</u>	<u>TRIMETRY</u>	<u>PN</u>
6. <u>Bibbey Malen</u>	<u>[Signature]</u>	<u>MSICU</u>	<u>RN</u>
7. <u>Amey Hernandez</u>	<u>[Signature]</u>	<u>MSICU</u>	<u>RN</u>
8. <u>Bridget Parent</u>	<u>[Signature]</u>	<u>Tele</u>	<u>RN</u>
9. <u>Sally Orsin</u>	<u>[Signature]</u>	<u>Tele</u>	<u>RN</u>
10. <u>TORIE BERG</u>	<u>[Signature]</u>	<u>TELE</u>	<u>RN</u>
11. <u>VIVY CHIKINA</u>	<u>[Signature]</u>	<u>MSICU</u>	<u>PN</u>
12. <u>HEKRIE SMITH</u>	<u>[Signature]</u>	<u>TELE</u>	<u>PN</u>
13. <u>Yolande Johnson</u>	<u>[Signature]</u>	<u>TELE</u>	<u>RN</u>
14. <u>[Signature]</u>	<u>[Signature]</u>	<u>MSICU</u>	<u>RN</u>
15. <u>Sybilias Howard</u>	<u>[Signature]</u>	<u>ICU</u>	<u>RN</u>
16. <u>[Signature]</u>	<u>[Signature]</u>	<u>TELE</u>	<u>PN</u>
17. <u>[Signature]</u>	<u>[Signature]</u>	<u>ICU</u>	<u>PN</u>
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PROGRAM TITLE Neurocritical Care **DATE** 8/29/19

SPEAKER/PRESENTER Alpaca / ANSIS

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PROGRAM START TIME 7 AM **END TIME** 3 pm **LENGTH** _____

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1. Anna Scully Chirackal	<i>[Signature]</i>	Teleg	RN
2. Zachary Harrison	<i>[Signature]</i>	Tele	RN
3. Janelle Einstein	<i>[Signature]</i>	Surgery Res	RN
4. Gina Trivato <small>MSN RN CHRN</small>	<i>[Signature]</i>	Pele	RN
5. Barbara Arman	<i>[Signature]</i>	Tele	RN
6. KATARZYNA WIANOWICZ	<i>[Signature]</i>	Tele	RN
7. ION ZABBAROVA	<i>[Signature]</i>	MSICU	RN
8. G. Arman	<i>[Signature]</i>	MSICU	RN
9. Christina DeVito	<i>[Signature]</i>	Tele	RN
10. Nicole Genovese	<i>[Signature]</i>	MSICU	RN
11. Kaelu Col	<i>[Signature]</i>	Tele	RN
12. Suzanne Steiner	<i>[Signature]</i>	Teleg	RN
13. CAROLINE FARRELL	<i>[Signature]</i>	MSICU	RN
14. Elizabeth Nagarian	<i>[Signature]</i>	Tele	RN
15. Eleanor Conda	<i>[Signature]</i>	Tele	RN
16. Sandra Martinez	<i>[Signature]</i>	MSICU	RN
17. _____	_____	_____	_____
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