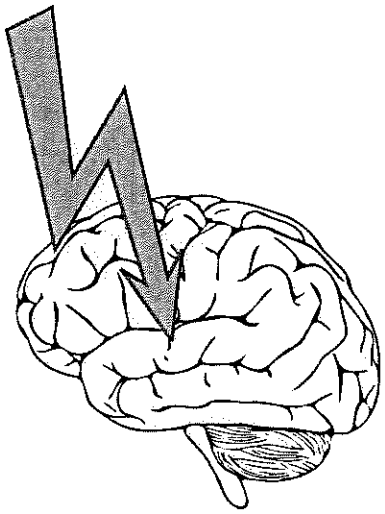
Code Stroke

Goals for Code Stroke Patient



Last Known Well < 24 hours

Door to ED MD: <10 minutes

Door to CT: <25 minutes

Door to CT resulted: <45 minutes

Door to Lab results: <30 minutes

Door to tPA (Alteplase): < 60 minutes (<45 minutes*)

VS documented Q 15 minutes

Neuro assessment Q 15 minutes

NPO until after bedside swallow assessment (.swallow)

ALTEPLASE IV....

for STROKE patient

LESS THAN 100 kg (220 lbs)

Programming the IV Alteplase BOLUS & Drip

1. Push "Channel Select" button
2. Select "Guardrail Drugs"
3. On the right side of the screen select the "A-E" arrow
4. On the right side of the screen select the "A" arrow
5. Page Down
6. Select "Alteplase"
7. Page Down
8. Select "Stroke less 100 kg"
9. Select Yes to confirm drug choice
10. On the pump, program:

Drug Amt:	100 mg
Diluent Vol:	100 ml
Pt wt:	### kg

11. Press NEXT
12. On the pump, program:
    VTBI: Total volume
13. Press BOLUS
14. Press START

- The bolus will infuse for 1 min and then the pump will automatically switch to deliver the infusion over 60 min.

ALTEPLASE IV....

for STROKE patient

100 kg or MORE (220 lbs)

Programming the IV Alteplase BOLUS & Drip

1. Push "Channel Select" button
2. Select "Guardrail Drugs"
3. On the right side of the screen select the "A-E" arrow
4. On the right side of the screen select the "A" arrow
5. Page Down
6. Select "Alteplase"
7. Page Down
8. Select "Stroke 100 kg and up"
9. Select Yes to confirm drug choice
10. Press NEXT
11. On the pump, program:

VTBI:	90 ml

12. Press BOLUS
13. Press START

- The bolus will infuse for 1 min and then the pump will automatically switch to deliver the infusion over 60 min.

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Patient Label

NATIONAL INSTITUTES OF HEALTH (NIH) STROKE SCALE

Administer stroke scale items in the order listed. Record performance in each category after each subscale exam. Do not go back and change scores. Follow directions provided for each exam technique. Scores should reflect what the patient does, not what the clinician thinks the patient can do. The clinician should record answers while administering the exam and work quickly. Except where indicated, the patient would not be coached (i.e., repeated requests to patient to make a special effort).

Category	Description	Score
1a. Level of Consciousness (Is the patient alert, drowsy, etc.)	Alert	0
	Drowsy	1
	Stuporous	2
	Coma	3
1b. LOC Questions (Ask patient the month and their age. Patient must be exactly right.)	Answers both correctly	0
	Answers one correctly	1
	Both incorrect	2
1c. LOC Commands (Ask patient to open/close eyes and then grip/release nonparetic hand.)	Obeys both correctly	0
	Obeys one correctly	1
	Both incorrect	2
2. Best Gaze (Only horizontal movement tested. Oculocephalic reflex is OK, but not calorics. Eyes open – patient follows finger or face.)	Normal	0
	Partial gaze palsy	1
	Forced deviation	2
3. Visual (Test by confrontation. Introduce visual stimulus to patient's upper and lower field quadrants.)	No visual loss	0
	Partial hemianopia	1
	Complete hemianopia	2
	Bilateral hemianopia	3
4. Facial Palsy (Ask patient to show teeth/smile, raise eyebrows and squeeze eyes shut.)	Normal	0
	Minor	1
	Partial	2
	Complete	3
5a. Motor Arm Left (Extend left arm, palm down, to 90 degrees if sitting or 45 degrees if supine.)	No drift	0
	Drift	1
	Can't resist gravity	2
	No effort against gravity	3
	No movement	4
	Amputation, joint fusion	9
5b. Motor Arm Right (Extend left arm, palm down, to 90 degrees if sitting or 45 degrees if supine.)	No drift	0
	Drift	1
	Can't resist gravity	2
	No effort against gravity	3
	No movement	4
	Amputation, joint fusion	9

Category	Description	Score
6a. Motor Leg Left (Elevate left leg to 30 degrees and flex at hip, always supine.)	No drift	0
	Drift	1
	Can't resist gravity	2
	No effort against gravity	3
	No movement	4
	Amputation, joint fusion	9
6a. Motor Leg Right (Elevate left leg to 30 degrees and flex at hip, always supine.)	No drift	0
	Drift	1
	Can't resist gravity	2
	No effort against gravity	3
	No movement	4
	Amputation, joint fusion	9
7. Limb Ataxia (Finger to nose and heel up shin tests done on both right and left.)	Absent	0
	Present in one limb	1
	Present in two limbs	2
8. Sensory (Use a pinprick to face, arm, trunk, and leg – compare side to side. Assess patient's awareness of being touched.)	Normal	0
	Partial loss	1
	Severe loss	2
9. Best Language (Ask patients to name items, describe a picture, read a sentence; intubated patients should write a response.)	No aphasia	0
	Mild to moderate aphasia	1
	Severe aphasia	2
	Mute	3
10. Dysarthria (Evaluate speech clarity by asking patient to repeat listed words.)	Normal articulation	0
	Mild to moderate dysarthria	1
	Near to unintelligible	2
	Intubated or other barrier	9
11. Extinction and Inattention (Use information from prior testing to identify neglect or double simultaneous stimuli testing.)	No neglect	0
	Partial neglect	1
	Complete neglect	2
Total Score		

Physician Signature _____ Date _____ Time _____

Code Stroke Nursing Checklist

Triage Inclusion Criteria BEFAST

***Sudden confusion, trouble speaking or understanding speech**

***Sudden numbness or weakness of face, arm, or leg. Especially on one side of the body.**

***Sudden trouble seeing in one or both eyes.**

***Sudden trouble walking, dizziness, loss of balance or coordination**

***Sudden severe headache with no known cause.**

***Last known well time established to be less than 24 hours prior to triage**

CODE Stroke Activation

_____Notify Unit Clerk to page "Code Stroke"

_____1:1 Nursing Care

_____HOB flat (elevate to 30 degrees if CT shows hemorrhagic stroke)

_____Accucheck (fingerstick if unable to get IV)

_____CTA head and neck ASAP(this includes non-contrast headCT)

_____Manual BP in both arms initially, then NIBP every 15 minutes

_____Neurological assessment every 15 minutes

(LOC, pupils, EOM's, hand grasps, extremity strength, speech)

_____Start 2 IV lines. (18 gauge in RAC)

DO NOT DELAY CT TO START IV (Can insert IV in CT)

_____Labs

_____Cardiac Monitor & Continuous pulse oximetry

_____EKG

_____Weigh Patient on bed scale (Alteplase is weight based drug).

_____NPO, NPO, NPO until swallow eval done and documented

_____Consider foley prior to starting Alteplase

IV tPA Screening Checklist for Acute Ischemic Stroke 0-4.5 hours from time of onset

Inclusion criteria 0-4.5 hrs:

- ☐ Age >/= 18 yrs
- ☐ Acute onset of measurable neurological deficit expected to result in long term disability
- ☐ Non-contrast CT scan showing no hemorrhage or well-established new infarct
- ☐ Acute ischemic stroke symptoms with onset or last known well, clearly defined, less than 4.5 hours before t-PA will be given

- ☐ Potential risks and benefits of IV tPA treatment discussed with patient and/or family members and they have verbalized understanding (to be documented in patient's record). If patient unable to give verbal consent and no family available, IV tPA can be given under Emergency Doctrine. Written informed consent not required for IV tPA when given within 3 hours of symptom onset.

Exclusion Criteria (any of the following):

- ☐ SBP greater than 185 or DBP greater than 110 mmHg refractory to medical management
- ☐ Recent intracranial or spinal surgery, head trauma, or stroke (< 3 months)
- ☐ PMH intracranial hemorrhage or brain aneurysm or vascular malformation or brain tumor (may consider iv tPA in patients with CNS lesions that have a very low likelihood of bleeding such as small unruptured aneurysms, secured aneurysms or benign tumors with low vascularity)
- ☐ Active internal bleeding (< 21 days)
- ☐ Known bleeding diathesis (if related to platelet counts/PTT/INR then check if platelets < 100,000, PTT > 40 sec, or PT < 15 or INR > 1.7 before considering tPA). If no known bleeding diathesis no need to wait for Platelet, PTT and INR results.
- ☐ Current use of novel oral anticoagulants [NOACs] (direct thrombin inhibitors including but not limited to: Argatroban and Dabigatran or, factor Xa inhibitors including but not limited to: rivaroxaban, apixaban, betrixaban, darexaban, edoxaban, otamixaban, letaxaban and eribaxaban) within 48 hours of evaluation or with abnormal labs if >48hrs (for example: ecarin clotting time (ECT), factor Xa essays or RapidTEG activated clotting time test)
- ☐ Suspicion of subarachnoid hemorrhage (by clinical presentation even if CT head is negative)
- ☐ Arterial puncture at non-compressible site <7 days
- ☐ CT findings (ICH, SAH, or major acute infarct signs) (e.g. hypodensity greater than 1/3 cerebral hemisphere)

Relative contraindications (conditions that increase the risk of unfavorable outcomes):

- ☐ Seizure at onset (residual deficits indicative of postictal state)
- ☐ Major surgery/trauma (< 15 days)
- ☐ Recent GI or urinary tract bleeding (< 21 days)
- ☐ Stroke severity - too severe (e.g., NIHSS greater than 22)
- ☐ Glucose < 50 or > 400 mg/dl (residual deficits indicative of altered metabolic state rather than to ischemia. However, if rapid diagnosis of vascular occlusion can be made, treatment may be given).
- ☐ Recent MI (<3 months) and/or Left heart thrombus documented

- ☐ ↑risk of bleeding due to :
  - o Acute pericarditis
  - o Subacute bacterial endocarditis (SBE)
  - o Hemostatic defects including those secondary to severe hepatic or renal disease
  - o Pregnancy
  - o Diabetic hemorrhagic retinopathy, or other hemorrhagic ophthalmic conditions
  - o Septic thrombophlebitis or occluded AV cannula at seriously infected site
  - o Patients currently receiving oral anticoagulants, e.g., Warfarin (& INR > 1.7)
  - o Advanced age
- ☐ Rapid improvement
- ☐ Stroke severity too mild (e.g. anticipate ability to discharge to home with follow-up)
- ☐ Life expectancy less than 1 year or severe co-morbid illness

Additional exclusion criteria for patients treated between 3 -4.5 hours

- ☐ Age > 80
- ☐ History of prior stroke AND diabetes
- ☐ Any anticoagulant use prior to admission (even if INR <1.7)
- ☐ NIHSS >25
- ☐ CT findings involving more than 1/3 of the MCA territory (as evidenced by hypodensity, sulcal effacement or mass effect estimated by visual inspection or ABC/2> 100 cc)

NB[1]:

1. The efficacy of IV rtPA within 3 to 4.5 hours after stroke in patients with additional exclusion criteria is not well established.
2.

Inclusion criteria for endovascular treatment :[2]

- ☐ prestroke mRS score 0 to 1,
- ☐ CTA of head showing occlusion of the internal carotid artery or proximal MCA (M1,M2) or proximal ACA,
- ☐ age ≥18 years,
- ☐ NIHSS score of ≥6,
- ☐ CT head: ASPECTS of ≥6, and
- ☐ treatment can be initiated (groin puncture) within 24 hours of symptom onset

NB: Acute ischemic stroke receiving intravenous r-tPA within 4.5 hours of onset are usually candidates for endovascular treatment if the above inclusion criteria are met

References:

[1] G.J. Del Zoppo, J.L. Saver, E.C. Jauch, H.P. Adams, Jr., C. American Heart Association Stroke, Expansion of the time window for treatment of acute ischemic stroke with intravenous tissue plasminogen activator: a science advisory from the American Heart Association/American Stroke Association, Stroke 40(8) (2009) 2945-8.

[2] W.J. Powers, C.P. Derdeyn, J. Biller, C.S. Coffey, B.L. Hoh, E.C. Jauch, K.C. Johnston, S.C. Johnston, A.A. Khalessi, C.S. Kidwell, J.F. Meschia, B. Ovbiagele, D.R. Yavagal, 2015 AHA/ASA Focused Update of the 2013 Guidelines for the Early Management of Patients With Acute Ischemic Stroke Regarding Endovascular Treatment, A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association (2015).