ED-3321-FRM
REV 4 01.20.17

Conway Medical Center

PHYSICIAN'S ORDERS

Thrombolysis/Stroke

Emergency Department/ ICU

Center Patient Admission Label Here

t-PA Non-Hemorrhagic Stroke Protocol

A. Inclusion Criteria:

- ☐ Diagnosis of ischemic stroke causing measurable neurological deficit
- ☐ Onset of symptoms less than 3 hours before treatment begins
- ☐ Age ≥ 18 y
- ☐ * For REACH program patients, a longer interval may be considered, less than or equal to 4.5 hours, at the discretion of the provider. Intra-arterial t-PA may be considered in cases with onset of symptoms greater than 4.5 hours or less than 6 hours before beginning treatment.

B. Exclusion Criteria:

- ☐ Significant head trauma or prior stroke in the previous 3 mo.
- ☐ Symptoms suggest SAH
- ☐ Arterial puncture in non-compressible site in previous 7 days
- ☐ History of previous intracranial hemorrhage
- ☐ Intracranial neoplasm, AVM, or aneurysm
- ☐ Recent intracranial or intraspinal surgery
- ☐ Elevated blood pressure (systolic greater than 185 mmHg or diastolic greater than 110 mmHg)
- ☐ Active internal bleeding
- ☐ Acute bleeding diathesis, including not limited to
  - Platelet count less than 100000/mm
  - Heparin received within 48 h resulting in abnormally elevated aPTT above the upper limit of normal
  - Current use of anticoagulant with INR greater than 1.7 or PT greater than 15 s
  - Current use of direct thrombin inhibitors or direct factor Xa inhibitors with elevated sensitive laboratory tests (eg, aPTT, INR, platelet count, ECT, TT, or appropriate factor Xa activity assays)
- ☐ Blood glucose concentration less than 50 mg/dL (2.7 mmol/L)
- ☐ CT demonstrates multilobar infarction (hypodensity greater than 1/3 cerebral hemisphere)

C. Relative exclusion criteria:

Recent experience suggests that under some circumstances, with careful consideration and weighing of risks to benefit, patients may receive fibrinolytic therapy despite one or more relative contraindications. Consider risk to benefit of intravenous rtPA administration carefully if any of these relative contraindications is present

- ☐ Only minor or rapidly improving stroke symptoms (clearing spontaneously)
- ☐ Pregnancy
- ☐ Seizure at onset with postictal residual neurological impairments
- ☐ Major surgery or serious trauma within previous 14 days
- ☐ Recent gastroinestinal or urinary tract hemorrhage (within previous 21 days)
- ☐ Recent acute myocardial infarction (within previous 3 mo)

*European Cooperative Acute Stroke Study 3 (treatment for 3 to 4.5 hours) additionally excluded patients ≥ 80 years old with combination of previous stroke and DM or NIHSS score greater than 25. If t-PA is given in cases within onset of symptoms in 3 hours or less, these criteria are not applicable *ECASS 3 = Trial to increase t-PA administration window

Decision:

☐ Patient does NOT meet criteria for t-PA ☐ Patient meets criteria for t-PA (see drug administration order)

Notes: - Refer to MUSC Tele stroke Neurology

The checklist includes some FDA-approved indications and contraindications for administration of intravenous rtPA for acute ischemic stroke. Recent guideline revisions have modified the original FDA-approved indications. A physician with expertise in acute stroke care may modify this list.

Onset time is defined as either the witnessed onset of sym0ptoms or the time last known normal if symptoms onset was not witnessed.

In patients without recent use of OACs or heparin, treatment with intravenous rtPA can be initiated before availability of coagulation test results but should be discontinued if INR is greater than 1.7 or PT is abnormally elevated by local laboratory standards.

In patients without a history of thrombocytopenia, treatment with intravenous rtPA can be initiated before availability of platelet count but should be discontinued if platelet count is less than 100000/mm

Physician Signature	_____ Date _____/_____/_____ Time _____

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Record time of stroke onset (last time patient seen without stroke symptoms) Date: _____ Time: _____ ☐ **Unknown**

☐ CT BRAIN ATTACK without contrast STAT

NIHSS scale _____ (upon arrival)

☐ **STAT** LAB: PT/PTT, CBC, BEDSIDE GLUCOSE (may use EMS result if available), CMP, TROPONIN (For women of childbearing years w/o hysterectomy do UHCG) Call radiologist: There is a STAT READING of a Head CT. Indication: acute CVA and thrombolytic administration

☐ Saline Lock (two 18g IV sites if tPA candidate)

☐ Pulse Oximetry, Cardiac and Blood Pressure monitor

☐ Place on Oxygen at 2 liters: maintain saturation at 94% or greater

☐ EKG STAT

☐ NPO including medications until bedside swallow screen complete

NIHSS scale _____ (prior to tPA)

tPA Should not be used if symptoms are nearing baseline on repeat assessment or clearing spontaneously

Prior to tPA being given: ☒ 2 IV sites in place. (If unable to obtain consider central line placement prior to tPA)

DO NOT EXCEED 90 MG tPA

DO NOT ADMINISTER IF PAST THIS TIME: _____ (3 - 4.5 hrs. post onset) (refer to MUSC Tele stroke)

☐ tPA: Administer 0.9 mg/kg; mix as 1mg/ml: 10% over 1 minute then administer the remaining 90% over 1 hour.

Total Dose - WT/kg X 0.9 = _____

Waste Dose - _____

Bolus Dose - 0.1X = _____

Continuous infusion - 0.9 X = _____ 2 RN verifications _____/_____

IV tPA Blood Pressure Management Guidelines

Pre IV tPA: Goal BP below 185/110 mmHg

During and After IV tPA: Maintain BP below 180/105 mmHg

Step 1 (Select One)

☐ Labetalol 10mg IV over 2 minutes. If not met within 10 minutes, may use 20 mg IV x 1

OR

If beta blockers are contraindicated or heart rate less than 60 bpm:

☐ Hydralazine 10mg IV over 2 minutes x 1

If goal is not met with BP meds in Step 1, then transition to Step 2

Step 2 (Select One)

☐ Nicardipine 5 mg/hr IV, titrate to desired effect by increasing 2.5mg/hr every 5 minutes to a maximum of 15 mg/hr, when desired BP reached, adjust to maintain proper BP limits

OR

☐ Labetalol 2 mg/min IV, titrate to desired effect by increasing 1 mg/min every 5 minutes up to 8 mg/min.

Monitor BP every 15 min. for 2 hours from the start of tPA therapy, then every 30 min. for 6 hours, and then every hour for 16 hours

Notify physician immediately for any neuro changes, bleeding, sudden headache, nausea, vomiting, or BP parameter violations not controlled with ordered meds.

*** If BP is not controlled or diastolic BP > 140 mmHg, consider IV sodium nitroprusside.**

Do not administer ASA or Platelet inhibitors for 24 hours and until a repeat CT Scan demonstrates no intracranial bleeding

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	When to stop IV tPA Infusion **Angioedema – Signs and symptoms include swelling around the mouth, throat, or tongue. Itchy skinn, hives or increased respiratory effort.** ☒ **Give Solu-medrol 125 mg and Benadryl 25 mg IV NOW** Sudden headache Nausea and vomiting Significant blood pressure change (hypotensive or hypertensive) Sudden neurologic deterioration ☒ **Do not restart tPA**
PHYSICIAN SIGNATURE	_____ Date _____/_____/_____ Time _____

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NIH Stroke Scale

DATE: _____ **TIME:** _____ **SIGNATURE:** _____ **TOTAL:** _____

1a. Level of Consciousness (LOC)	Alert	0		6a. Left Leg: Motor (5-second hold-always test supine)	No drift	0	
	Not Alert	1			Drift	1	
	Not Alert, obtunded	2			Drift, some effort against gravity	2	
	Unresponsive	3			No effort against gravity	3	
1b. Level of Consciousness (LOC) (Year & age)	Both	0			No movement	4	
	One	1			Amputation, joint fusion	9	
	Neither	2		6b. Right Let: Motor (5-second hold-always test supine)	No drift	0	
1c. LOC Commands (Open & Closes Eyes/grip)	Both	0			Drift	1	
	One	1			Drift, some effort against gravity	2	
	Neither	2			No effort against gravity	3	
2. Best Gaze (Lateral Gaze Paresis)	Normal	0			No movement	4	
	Partial gaze palsy	1			Amputation, joint fusion	9	
	Forced Deviation	2		7. Limb Ataxia (finger/nose & heel/shine – test with eyes open	Absent	0	
3. Visual Field Loss	No visual loss	0			Present in one limb	1	
	Partial Hemianopia	1			Present in two limbs	2	
	Complete hemianopia	2			Amputation, joint fusion	9	
	Bilateral hemianopia	3		8. Sensory Loss (pinprick arms/legs/face)	Normal	0	
4. Facial Palsy	Normal	0			Mild to moderate loss	1	
	Minor Paralysis	1			Severe to total loss	2	
	Partial Paralysis	2		9. Best Language: Aphasia (description/naming/reading)	No aphasia	0	
	Complete Paralysis	3			Mild to moderate aphasia	1	
5a. Left Arm: Motor (10-second hold)	No drift	0			Severe aphasia	2	
	Drift	1			Mute, global aphasia	3	
	Drift, some effort against gravity	2		10. Dysarthria (speech clarity – read or repeat words)	Normal	0	
	No effort against gravity	3			Mild to moderate	1	
	No movement	4			Severe	2	
	Amputation, joint fusion	9			Intubated, other	9	
5b. Right Arm: Motor (10-second hold)	No drift	0		11. Extinction and Inattention (visual/tactile/auditory/spatial/personal)	No abnormality	0	
	Drift	1			Present	1	
	Drift, some effort against gravity	2			Profound	2	
	No effort against gravity	3					
	No movement	4					
	Amputation, joint fusion	9					

Note untestable areas in progress notes

Alteplase (Activase) Dosing and Administration

Alteplase (Activase) **50 mg** vial (**patients weighing up to 122 lbs or 55.5 kg**)

Weight (lb)	Weight (kg)	Total Dose	Discard Qty	Bolus Dose (over 1 min)	Infusion Dose (over 60 min)
90	40.9	36.8	13.2	3.7	33.1
92	41.8	37.6	12.4	3.8	33.8
94	42.7	38.4	11.6	3.8	34.6
96	43.6	39.2	10.8	3.9	35.3
98	44.5	40.1	9.9	4.0	36.1
100	45.5	41.0	9.0	4.1	36.9
102	46.4	41.8	8.2	4.2	37.6
104	47.3	42.6	7.4	4.3	38.3
106	48.2	43.4	6.6	4.3	39.1
108	49.1	44.2	5.8	4.4	39.8
110	50.0	45.0	5.0	4.5	40.5
112	50.9	45.8	4.2	4.6	41.2
114	51.8	46.6	3.4	4.7	41.9
116	52.7	47.4	2.6	4.7	42.7
118	53.6	48.2	1.8	4.8	43.4
120	54.6	49.1	0.9	4.9	44.2
122	55.5	50.0	0	5.0	45.0

Alteplase (Activase) 100 mg vial dosing chart starts on the following page

Alteplase (Activase) 100 mg vial (patients weighing greater than 122 lbs or 55.5 kg)

Weight (lb)	Weight (kg)	Total Dose	Discard Qty	Bolus Dose (over 1 min)	Infusion Dose (over 60 min)
124	56.4	50.8	49.2	5.1	45.7
126	57.3	51.6	48.4	5.2	46.4
128	58.2	52.4	47.6	5.2	47.2
130	59.1	53.2	46.8	5.3	47.9
132	60.0	54.0	46.0	5.4	48.6
134	60.9	54.8	45.2	5.5	49.3
136	61.8	55.6	44.4	5.6	50.0
138	62.7	56.4	43.6	5.6	50.8
140	63.6	57.2	42.8	5.7	51.5
142	64.5	58.1	41.9	5.8	52.3
144	65.5	59.0	41.0	5.9	53.1
146	66.4	59.8	40.2	6.0	53.8
148	67.3	60.6	39.4	6.1	54.5
150	68.2	61.4	38.6	6.1	55.3
152	69.1	62.2	37.8	6.2	56.0
154	70.0	63.0	37.0	6.3	56.7
156	70.9	63.8	36.2	6.4	57.4
158	71.8	64.6	35.4	6.5	58.1
160	72.7	65.4	34.6	6.5	58.9
162	73.6	66.2	33.8	6.6	59.6
164	74.5	67.1	32.9	6.7	60.4
166	75.5	68.0	32.0	6.8	61.2
168	76.4	68.8	31.2	6.9	61.9
170	77.3	69.6	30.4	7.0	62.6
172	78.2	70.4	29.6	7.0	63.4
174	79.1	71.2	28.8	7.1	64.1
176	80.0	72.0	28.0	7.2	64.8
178	80.9	72.8	27.2	7.3	65.5
180	81.8	73.6	26.4	7.4	66.2
182	82.7	74.4	25.6	7.4	67.0
184	83.6	75.2	24.8	7.5	67.7
186	84.5	76.1	23.9	7.6	68.5
188	85.5	77.0	23.0	7.7	69.3
190	86.4	77.8	22.2	7.8	70.0
192	87.3	78.6	21.4	7.9	70.7
194	88.2	79.4	20.6	7.9	71.5
196	89.1	80.2	19.8	8.0	72.2
198	90.0	81.0	19.0	8.1	72.9
200	90.9	81.8	18.2	8.2	73.6
202	91.8	82.6	17.4	8.3	74.3
204	92.7	83.4	16.6	8.3	75.1
206	93.6	84.2	15.8	8.4	75.8
208	94.5	85.1	14.9	8.5	76.6
210	95.5	86.0	14.0	8.6	77.4
212	96.4	86.8	13.2	8.7	78.1
214	97.3	87.6	12.4	8.8	78.8
216	98.2	88.4	11.6	8.8	79.6
218	99.1	89.2	10.8	8.9	80.3
≥220	≥100.0	90.0	10.0	9.0	81.0

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Protocol Guidelines

Management of intracrainial hemorrhage following the start of t-PA infusion: if there is any acute neurological deterioration, new headache, acute hypertension, or nausea and vomiting then:

<u>If hemorrhage is suspected then do the following</u>:

- Discontinue t-PA infusion unless other causes of neurological deterioration are apparent
- Immediate CT scan or other diagnostic imaging method sensitive to the presence of hemorrhage
- Draw blood for PT, aPTT, platelet count, fibrinogen and type and cross (may wait to do actual type and cross)
- Prepare for administration of 6-8 units of platelets

<u>If Intracranial hemorrhage is present:</u>

- Obtain fibrinogen results
- Consider administering cryoprecipatate or platelets if needed
- Consider altering and consulting a hematologist or neurosurgeon
- Consider decision regarding further medical and/or surgical therapy
- Consider second CT to assess progression of intracrainal hemorrhage

A plan for access to emergent neurosurgical consultation is highly recommended

Other orders: _____

_____

_____

_____

_____

PHYSICIAN SIGNATURE	_____ Date _____/_____/_____ Time _____