



California Pacific
Medical Center

A Sutter Health Affiliate

Section: T	Manual: Nursing Protocols Protocol No.: NP-T-23 Approved By: VP & CNO, Nursing Services
Subject: Thrombolytic Therapy in Acute Ischemic Stroke	Effective Date: 3/97 Revised Date: 4/06 Reviewed Date: 4/07
<p>PURPOSE To outline the nursing management of the acute stroke patient entered in the Thrombolytic Therapy in Acute Ischemic Stroke Trial.</p> <p>LEVEL Interdependent</p> <p>SUPPORTIVE DATA Recombinant human tissue-type plasminogen activator (Activase TM or rt-PA) is a thrombolytic agent with properties that make it relatively clot specific. This clot specificity should theoretically minimize the risk of hemorrhage. The drug can be given intravenously with rapid achievement of therapeutic levels and clot lysis can be affected within minutes. A recent study, sponsored by the National Institutes of Health and published in the December 14, 1995 New England Journal of Medicine, clearly demonstrated that treatment of selected patients within three hours of onset with t-PA improved patient outcome. Overall, patients treated with t-PA had a 30% greater chance of having minimal or no disability three months after the stroke when compared with patients treated who received placebo. These benefits were seen despite the fact that 6% the patients treated with t-PA had a serious brain hemorrhage caused by the medication. About half of those patients who had a hemorrhage went on to die. This study was pivotal in the ultimate approval of t-PA for acute stroke by the Food and Drug Administration in June, 1996.</p>	
Emergency Department	<ol style="list-style-type: none"> 1. <u>Assess</u> the following upon patient's arrival to ED. <ul style="list-style-type: none"> • Vital signs Q 15 min x 4, Q 30 min x 2, then per ED routine and prn • Neurological status (along with VS) including but not limited to Glasgow Coma Scale (GCS), sensory and motor assessment, and pupillary assessment. 2. <u>Ascertain</u> symptom onset time. 3. <u>Confirm</u> that patient meets inclusion criteria and none of the exclusion criteria. 4. <u>Notify</u> Radiology by phone that stroke patient, who may be eligible for t-PA, has arrived in Emergency Department.

	<p>5. <u>Obtain</u> actual or estimated body weight in Kg.</p> <p>6. <u>Start</u> one IV with normal saline at 60 ml/hr and one saline loc (18 g needles).</p> <p>7. <u>Notify</u> pharmacy of possibility of giving t-PA and inform them of the weight of the patient.</p> <p>8. <u>Obtain</u> EKG and chest x-ray as ordered.</p> <p>9. <u>Insert</u> a foley catheter, if necessary, prior to infusion of t-PA.</p> <p>10. <u>Obtain</u> the following lab results prior to infusion of t-PA.</p> <ul style="list-style-type: none"> • CBC • PT, PTT • ER panel • Urine dipstick for heme <p>11. <u>Monitor</u> blood pressure very closely and <u>inform</u> MD of any BP > 185 systolic and/or > 105 diastolic.</p> <p>12. Apply Oxygen 2-10 l/min via nasal cannula or mask prn to keep O₂ Saturation >92%</p>
Drug Administration	<p>13. Pharmacy <u>calculates</u> total t-PA dose to be given based on 0.9 mg/Kg body weight (maximum dose 90mg).</p> <p>14. <u>Give</u> 10% of total dose as a bolus over one minute in the ED.</p> <p>15. <u>Give</u> the remaining dose over 60 minutes IV regulated by an infusion pump. Record start and finish times.</p> <p>16. <u>Arrange</u> admission to MSICU.</p>
Assessment	<p>17. <u>Do</u> neuro assessment of patient together when transfer of care from one caregiver to another occurs.</p> <p>18. <u>Assess</u> neuro status and vital signs every 15 min x 2 hrs, every 30 min x 6 hrs, every 1 hr x 16 hrs after initiation of drug, then every 2 - 4 hrs based on unit protocol.</p> <p>19. <u>Assess</u> for bleeding:</p> <ul style="list-style-type: none"> • monitor peripheral IV sites and gums for oozing (for minor bleeding, apply pressure over the sight), • monitor for hematuria, • hemocult test suspected emesis and stool, • monitor for hallmark signs and symptoms of intracerebral hemorrhage; neurological deterioration, new onset of headache, acute hypertension and/or nausea and vomiting.
Safety	<p>20. Bedrest x 24 hours.</p> <p>21. No antithrombotics/anticoagulants for 24 hours: Aspirin, Aggrenox, Plavix, Heparin, Low Molecular Weight Heparin, or other</p>

	<p>antithrombotic agents</p> <p>22. No instrumentation for 24 hours: arterial line insertion, foley catheter (if not already placed) or other instrumentation</p> <p>23. Avoid if at all possible IM injections, NGT placement, CVP lines insertion, and arterial punctures for 24 hours after tPA infusion.</p> <p>24. When discontinue an IV or saline loc, or after venipuncture, <u>hold</u> site for 15 min or until hemostasis, and <u>recheck</u> periodically.</p>
<p>Emergency Measures: Intracerebral Hemorrhage (ICH) Management During or After tPA Infusion</p>	<p>25. Call MD/Stroke Team STAT if clinical suspicion of ICH (neurological deterioration, new neurological deficits, new onset of headache, acute hypertension and/or nausea and vomiting.</p> <p>26. tPA infusion may be stopped or discontinued as ordered.</p> <p>27. STAT CT scan for any neurological deterioration as ordered.</p> <p>28. STAT labs as ordered:</p> <ul style="list-style-type: none"> • PT, PTT, CBC, Platelets, and fibrinogen. • T & S: 4 PRBCs, 4 cryoprecipitated fibrinogen, 2 units FFP. <p>29. If CT shows hemorrhage and clinical situation justifies then:</p> <ul style="list-style-type: none"> • If Fibrinogen <50, give 4 units of cryoprecipitated fibrinogen (98% of bleed) as ordered. • If PT >24, or PTT >50, and Fibrinogen >80mg%, give 2 units FFP as ordered. • If platelets <50,000, give 6 units random platelets or 1 unit of single donor platelets as ordered. • If any blood product given, check PT, PTT, Fibrinogen and platelets count at 30-60 minutes after infusion as ordered.
<p>Reportable Conditions</p>	<p>30. <u>Notify</u> MD of the following:</p> <ul style="list-style-type: none"> • Abnormal vital signs: <ul style="list-style-type: none"> - BP: - SBP >180 or <110; DBP >105 or <60; - SBP >140 or DBP >80 if pt has ICH related to tPA - HR >120 or <50 - R >30 or O2 sat <92% - T >37.5°C (99.5°F) despites treatment with Tylenol and cooling blanket as ordered • Neurological deterioration including but not limited to: <ul style="list-style-type: none"> - Nausea, vomiting, severe new onset headache - Sudden increase in blood pressure (≥40mmHg) - Worsening neurological status (i.e., ↑ weakness, confusion, papillary dilatation, ect.) • Any evidence of other bleeding (ie; hematuria, oozing gums, etc.). • Any other sign and symptom that is unexpected based on present diagnosis

Documentation	31. <u>Document</u> t-PA bolus and initiation of the t-PA infusion on appropriate nursing/medication record forms 32. <u>Document</u> any adverse events or notifications to MD. 33. <u>Document</u> any teaching related to this protocol. 34. <u>Document</u> implementation and discontinuation of this protocol.
References	Thrombolytic Therapy in Acute Ischemic Stroke Protocol Mercy Healthcare Sacramento Massachusetts General Hospital
<p>Author: Cindy Chao, MS, RN, CNRN, CS</p> <p>Revised: Jackie Phan, RN, MSN, CNS, FNP.</p>	

CALIFORNIA PACIFIC MEDICAL CENTER

**T-PA FOR ACUTE ISCHEMIC STROKE
INCLUSION AND EXCLUSION CRITERIA**

TO BE COMPLETED BY EMERGENCY DEPARTMENT ATTENDING:

YES NO

INCLUSION CRITERIA (ALL MUST BE “YES” TO INCLUDE PATIENT IN T-PA PROTOCOL):

- Stroke due to ischemia: CT shows no hemorrhage
- Time of onset less than 3 hours before treatment with t-PA

EXCLUSION CRITERIA (ALL ABSOLUTE CRITERIA MUST BE “NO” TO INCLUDE PATIENT IN T-PA PROTOCOL):

ABSOLUTE EXCLUSIONS:

- CT Scan: Evidence of intracranial bleed
- CT Scan: Evidence of intracranial neoplasm, AVM, or aneurysm
- Major surgery within 14 days
- Uncontrolled hypertension at time tx to begin (SBP >185 or DBP >110 s x 2-3, five minutes apart) after receiving BP med (labetalol 5-10 mg q 5' x 2-3)
- Sx rapidly improving at time of therapy (minor fluctuations do not count)
- History of prior intracranial bleed which would place patient at risk for recurrent bleed
- Clinical presentation suggests subarachnoid hemorrhage despite normal CT scan
- Known allergy to tPA

RELATIVE EXCLUSIONS (CONSULT WITH STROKE TEAM):

- GI or urinary tract bleeding within past 21 days
- Recent stroke (within 1-3 months; relative contraindication, consult with stroke team)
- Serious head trauma/intracranial surgery within 3 months
- Seizure at onset (relative contraindication, consult with stroke team)
- Arterial puncture at non-compressible site within 7 days
- Blood glucose <50 or >400 mg/dl
- Patient currently on coumadin or PT >15 seconds (INR > 1.7; not req'd if clinical suspicion low)
- PTT > 40 sec (if on heparin therapy; not required if clinical suspicion low)
- Platelets <100,000 (not required before treatment if clinical suspicion low)
- Patient is pregnant, or suspected to be pregnant
- CT Scan: Ischemic injury involves > 1/3 MCA distribution, hyperdense MCA sign, or midline shift.