Use of IV rtPA for Acute Ischemic Stroke: Inclusion and Exclusion Characteristics

Patients Who Could Be Treated With rtPA Within 3 Hours From Symptom Onset*

**Inclusion Criteria**
- Diagnosis of ischemic stroke causing measurable neurologic deficit
- Onset of symptoms <3 hours before beginning treatment
- Age ≥18 years

**Exclusion Criteria**
- Head trauma or prior stroke in previous 3 months
- Symptoms suggest subarachnoid hemorrhage
- Arterial puncture at noncompressible site in previous 7 days
- History of previous intracranial hemorrhage
- Elevated blood pressure (systolic >185 mmHg or diastolic >110 mmHg)
- Evidence of active bleeding on examination
- Acute bleeding diathesis, including but not limited to
  - Platelet count <100,000/mm³
  - Heparin received within 48 hours, resulting in aPTT >upper limit of normal
  - Current use of anticoagulant with INR >1.7 or PT >15 seconds
- Blood glucose concentration <50 mg/dL (2.7 mmol/L)
- CT demonstrates multilobar infarction (hypodensity >1/3 cerebral hemisphere)

**Relative Exclusion Criteria**
Recent experience suggests that under some circumstances—with careful consideration and weighing of risk to benefit—patients may receive fibrinolytic therapy despite 1 or more relative contraindications. Consider risk to benefit of rtPA administration carefully if any one of these relative contraindications is present:
- Only minor or rapidly improving stroke symptoms (clearing spontaneously)
- Seizure at onset with postictal residual neurologic impairments
- Major surgery or serious trauma within previous 14 days
- Recent gastrointestinal or urinary tract hemorrhage (within previous 21 days)
- Recent acute myocardial infarction (within previous 3 months)

Patients Who Could Be Treated With rtPA From 3 to 4.5 Hours From Symptom Onset†

**Inclusion Criteria**
- Diagnosis of ischemic stroke causing measurable neurologic deficit
- Onset of symptoms 3 to 4.5 hours before beginning treatment

**Exclusion Criteria**
- Age >80 years
- Severe stroke (NIHSS >25)
- Taking an oral anticoagulant regardless of INR
- History of both diabetes and prior ischemic stroke

**Notes**
The checklist includes some US FDA-approved indications and contraindications for administration of rtPA for acute ischemic stroke. Recent AHA/ASA guideline revisions may differ slightly from FDA criteria. A physician with expertise in acute stroke care may modify this list.

- Onset time is either witnessed or last known normal.
- In patients without recent use of oral anticoagulants or heparin, treatment with rtPA can be initiated before availability of coagulation study results but should be discontinued if INR is >1.7 or PT is elevated by local laboratory standards.
- In patients without history of thrombocytopenia, treatment with rtPA can be initiated before availability of platelet count but should be discontinued if platelet count is <100,000/mm³.

Abbreviations: aPTT, activated partial thromboplastin time; FDA, Food and Drug Administration; INR, International normalized ratio; NIHSS, National Institutes of Health Stroke Scale; PT, prothrombin time; rtPA, recombinant tissue plasminogen activator.
Potential Approaches to Arterial Hypertension in Acute Ischemic Stroke Patients Who Are Potential Candidates for Acute Reperfusion Therapy*

Patient otherwise eligible for acute reperfusion therapy except that blood pressure is >185/110 mm Hg:
- Labetalol 10-20 mg IV over 1-2 minutes, may repeat × 1, or
- Nicardipine IV 5 mg per hour, titrate up by 2.5 mg per hour every 5-15 minutes, maximum 15 mg per hour; when desired blood pressure is reached, lower to 3 mg per hour, or
- Other agents (hydralazine, enalaprilat, etc) may be considered when appropriate

If blood pressure is not maintained at or below 185/110 mm Hg, do not administer rtPA.

Management of blood pressure during and after rtPA or other acute reperfusion therapy:
- Monitor blood pressure every 15 minutes for 2 hours from the start of rtPA therapy, then every 30 minutes for 6 hours, and then every hour for 16 hours.
- If systolic blood pressure 180-230 mm Hg or diastolic blood pressure 105-120 mm Hg:
  - Labetalol 10 mg IV followed by continuous IV infusion 2-8 mg per minute, or
  - Nicardipine IV 5 mg per hour, titrate up to desired effect by 2.5 mg per hour every 5-15 minutes, maximum 15 mg per hour
  - If blood pressure not controlled or diastolic blood pressure >140 mm Hg, consider sodium nitroprusside.

Approach to Arterial Hypertension in Acute Ischemic Stroke Patients Who Are Not Potential Candidates for Acute Reperfusion Therapy*

Consider lowering blood pressure in patients with acute ischemic stroke if systolic blood pressure >220 mm Hg or diastolic blood pressure >120 mm Hg.

Consider blood pressure reduction as indicated for other concomitant organ system injury:
- Acute myocardial infarction
- Congestive heart failure
- Acute aortic dissection

A reasonable target is to lower blood pressure by 15% to 25% within the first day.