

Alteplase For Pulmonary Embolism (PE)

SUMMARY OF CRITERIA FOR USE (RESTRICTED DRUG LIST):

In the absence of contraindications, alteplase is recommended for patients with:

- **Massive PE:** Diagnostically confirmed PE with profound hypotension without a high bleeding risk

or

- **Submassive PE:** Diagnostically confirmed PE without profound hypotension but with ongoing instability despite starting anticoagulation

or

- Profound hypotension without another clear cause, a high clinical pretest probability of PE and evidence of right ventricular dysfunction on echo when diagnostic imaging cannot be performed

Contraindications

Absolute

- Any history of intracranial hemorrhage (ICH)
- Structural intracranial cerebrovascular disease (arteriovenous malformation, aneurysm)
- Malignant intracranial neoplasm
- Recent ischemic stroke (within 3 months)
- Suspected aortic dissection
- Active bleeding or bleeding diathesis
- Recent surgery involving / around the spinal cord or brain
- Recent significant head trauma with radiographic evidence of fracture or brain injury

Relative

- Age over 75 years
- Traumatic or prolonged cardiopulmonary resuscitation (over 10 minutes)
- Pregnancy
- Non-compressible vascular punctures
- Therapeutic anticoagulation on presentation
- Recent internal bleeding (within 2 to 4 weeks)
- History of chronic, severe, and poorly controlled hypertension
- Severe uncontrolled hypertension on presentation [systolic blood pressure (SBP) over 180 mm Hg or diastolic blood pressure (DBP) over 110 mm Hg]
- Remote ischemic stroke (over 3 months ago)
- Major surgery within 3 weeks
- Dementia

INDICATIONS:

1. Diagnostically confirmed pulmonary embolism with profound hypotension (SBP less than 90 mmHg or a drop of 40 mmHg for at least 15 minutes with evidence of poor perfusion) without a high bleeding risk
2. Diagnostically confirmed pulmonary embolism without profound hypotension but with ongoing instability despite starting anticoagulation and likely to develop hypotension as above based on:
 - a. a significant SBP decrease not meeting the criteria above
 - b. tachycardia
 - c. elevated JVP
 - d. hypoxemia
 - e. poor tissue perfusion
supplemented with:
 - f. elevated troponin I levels
 - g. right bundle-branch block
 - h. S1-Q3-T3 and T wave inversion in leads V1 to V4 on ECG
 - i. RV hypokinesia on echo

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- j. RV enlargement on CTPA
- 3. Profound hypotension without another clear cause, a high clinical pretest probability of PE and evidence of right ventricular dysfunction on echo when diagnostic imaging cannot be performed

DOSAGE AND ADMINISTRATION:

Alteplase 100 mg IV over 2 hours.

Reconstitute alteplase 100 mg vial with preservative-free sterile water 100 mL vial provided using transfer set in same package. Swirl the alteplase vial gently to remove bubbles. Infuse IV over 2 hours. Volumetric pump required to control infusion rate.

Note: Patients being treated for PE with alteplase should also be receiving treatment with IV heparin (via a separate IV line) or subcutaneous low-molecular weight heparin.

Adverse Effects:

Bleeding (including ICH), allergic reactions

Monitoring:

- Baseline CBC, PT, INR, aPTT
- All potential bleeding sites (catheter insertion sites, arterial, venous or needle puncture sites, etc.) should be observed closely
- Vital signs q1h during infusion

References:

Jaff MR, McMurty MS, Archer SL, *et al.* Management of Massive and Submassive Pulmonary Embolism, Illiofemoral Deep Vein Thrombosis, and Chronic Thromboembolic Pulmonary Hypertension: A Scientific Statement From the American Heart Association. *Circulation* 2011;123:1788-1830

Kearon C, Akl EA, Comerota AJ, *et al.* Antithrombotic Therapy and Prevention of Thrombosis 9th ed: American Collage of Chest Physicians Evidence-Based Clinical Practice Guidelines. *CHEST* 2012;141(2)(Suppl):e419S-94S

e-CPS 2013 Activase rt-PA Product Monograph

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Pharmacy & Therapeutics Committee – November 2013

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This information in this Handbook is intended for use by and with experienced physicians and pharmacists. The information is not intended to replace sound professional judgment in individual situations, and should be used in conjunction with other reliable sources of information. Decisions about particular medical treatments should always be made in consultation with a qualified medical practitioner knowledgeable about Cardiovascular illness and the treatments in question.

Due to the rapidly changing nature of cardiovascular treatments and therapies, users are advised to recheck the information contained herein with the original source before applying it to patient care.

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