**reteplase (re-te-plase)**

**Therapeutic Class:** Thrombolytics  
**Pharmacologic Class:** Plasminogen activators

### Indications
- Acute myocardial infarction (MI).

### Action
Directly converts plasminogen to plasmin, which then degrades clot-bound fibrin.

### Therapeutic Effects
- Lysis of thrombi in coronary arteries, with improvement of ventricular function, and reduced risk of heart failure or death. Restoration of catheter or cannula function. Restoration of blood flow following lysis of peripheral venous or arterial thrombi.

### Pharmacokinetics
- **Absorption:** Complete after IV administration. Intracoronary administration or administration into occluded catheters or cannulae has a more localized effect.
- **Distribution:** Unknown.
- **Metabolism and Excretion:** Cleared primarily by the liver and kidneys.
- **Half-life:** 13–16 min.

### Contraindications/Precautions
- **Contraindicated in:** Active internal bleeding; History of cerebrovascular accident; Recent (within 2 mo) intracranial or intraspinal injury or trauma; Intracranial neoplasm, arteriovenous malformation, or aneurysm; Severe uncontrolled hypertension; Known bleeding tendencies; Hypersensitivity.
- **Use Cautiously in:** Recent (within 10 days) major surgery, trauma, GI or GU bleeding; Left heart thrombus; Severe hepatic or renal disease; Hypertensive encephalopathy; Severe uncontrolled hypertension; Previous puncture of a noncompressible vessel; Subarachnoid hemorrhage; Retroorbital bleeding; Seizure; GI bleeding; Severe uncontrolled hypertension; Hematologic abnormalities; Hypersensitivity.
- **Exercise Extreme Caution in:** Patients receiving concurrent anticoagulant therapy (increased risk of intracranial bleeding).

### Adverse Reactions/Side Effects
- **CNS:** Intracranial hemorrhage.
- **EENT:** Epistaxis, gingival bleeding.
- **Resp:** Bronchospasm, hemoptysis.
- **CV:** Reperfusion arrhythmias, hypotension, recurrent ischemia/thromboembolism.
- **GI:** GI bleeding, nausea, retroperitoneal bleeding, vomiting.
- **GU:** Urinary tract bleeding.
- **Derm:** Ecchymoses, flushing, urticaria.
- **Hemat:** Bleeding.
- **Local:** Hemorrhage at injection site, phlebitis at injection site.
- **MS:** Musculoskeletal pain.
- **Misc:** Allergic reactions including anaphylaxis, fever.

### Drug-Drug Interactions
- **Drug-Drug:** Aspirin, other NSAIDs, warfarin, heparin, heparin-like agents, abciximab, eptifibatide, tirofiban, clopidogrel, ticlopidine, or dipyridamole— concurrent use risk of bleeding, although these agents are frequently used together or in sequence. Effects may be by antifibrinolytic agents, including aminocaproic acid or tranexamic acid.

### Contraindicated in: Active internal bleeding. History of cerebrovascular accident, recent (within 2 mo) intracranial or intraspinal injury or trauma, intracranial neoplasm, arteriovenous malformation, or aneurysm; Severe uncontrolled hypertension; Known bleeding tendencies; Hypersensitivity.

### Route/Dosage
- **IV (Adults):** 10 units, followed 30 min later by an additional 10 units.

### Nursing Implications
- **Assessment:**
  - Begin therapy as soon as possible after the onset of symptoms. Monitor vital signs, including temperature, continuously for myocardial infarction and at least every 4 hr during therapy for other indications. Do not use lower extremities to monitor BP. Notify health care professional if systolic BP < 180 mm Hg or diastolic BP < 110 mm Hg. Thrombolytic therapy should not be given if hypertensive encephalopathy is diagnosed.
  - **G** = General Implication; **OPT** = indicate non-trending anticoagulants; **indicates most frequent. **Discontinued.**
tension in uncontrolled, failure to call health care professional if hypotension occurs. Hypotension may result from the drug, hemorrhage, or cardiac shock.

- Assess patient carefully for bleeding every 15 min during the 1st hr of therapy, every 15–30 min during the next 8 hr, and at least every 4 hr for the duration of therapy. Frank bleeding may occur from sites of invasive procedures or from body orifices. Internal bleeding may also occur decreased neurologic status; abdominal pain with coffee-grounds emesis or black, tarry stool; hematoma (joint pain). If uncontrolled bleeding occurs, stop medication and notify health care professional immediately.

- Assess patient for hypersensitivity reaction (rash, dyspnea, fever, changes in facial color, swelling around the eyes, wheezing) if those occur, inform health care professional promptly. Keep epinephrine, an antihistamine, and resuscitation equipment close by in the event of an anaphylactic reaction.

- Assess neurologic status throughout therapy. Altered sensorium or neurologic changes may be indicative of intracranial bleeding.

- Myocardial Infarction: Monitor ECG continuously. Notify health care professional if chest pain is unrelieved or recurs. Obtain type and crossmatch and have blood available at all times in case of hemor- rhage. Monitor cardiac enzymes. Radionuclide myocardial scanning and/or coronary angiography may be ordered 7–10 days after therapy to monitor effectiveness of therapy.

- Assess intensity, character, location, and radiation of chest pain. Note presence of associated symptoms (nausea, vomiting, diaphoresis). Administer analgesics as needed. Notify health care professional if chest pain is unrelieved or recurs.

- Assess neurologic status throughout therapy. Altered sensorium or neurologic changes may be indicative of intracranial bleeding.

- Observe for signs of HF (increased jugular venous pressure; jugular venous distention, relieved CVP).

- Pain: Assess intensity, character, location, and radiation of chest pain. Note presence of associated symptoms (nausea, vomiting, diaphoresis). Administer analgesics as needed. Notify health care professional if chest pain is unrelieved or recurs.

- Stool: Obtain stool for occult blood loss and urine for hematuria periodically.

- Lab Test Considerations: Hematocrit, hemoglobin, platelet count, electrolyte determinations, prothrombin time, partial thromboplastin time, fibrinogen concentration, prothrombin time, thrombin time, and activated partial thromboplastin time may be evaluated before and frequently during therapy. Bleeding time may be assessed before therapy if patient has received platelet aggregation inhibitors.

- Obtain type and crossmatch and have blood available at all times in case of hemor- rhage. Monitor cardiac enzymes. Radionuclide myocardial scanning and/or coronary angiography may be ordered 7–10 days after therapy to monitor effectiveness of therapy.

- Potential nursing diagnoses: Ineffective tissue perfusion (Indications) High alert: Overdosage and underdosage of thrombolytic medications have resulted in patient harm or death. Have second practitioner independently check original order, dosage calculations, and infusion pump settings. Do not confuse the abbreviations, t-PA for alteplase (Activase) with the abbreviations for reteplase (Retevase). Clarify orders that contain any of these abbreviations. Thrombolytic agents should be used only in settings in which hemodynamic instability and clinical response can be adequately monitored.

- Obtain two NG tubes before therapy is recommended for use for the thrombolytic agent, the effect for any additional intravenous fluids. Avoid invasive procedures, such as IM injections or arterial punctures, with this therapy. If such procedures must be performed, apply pressure to all arterial and venous puncture sites for at least 5 min. Avoid venipunctures at noncompressible sites (jugular vein, subclavian site). Administration may be ordered to control fever.

- IV Administration

- pH: 5.7–6.3

- Intermittent Infusion: Diluent: Vials are packaged with sterile water for injection (without preservatives) to be used as diluent. Do not use bacteriostatic

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Water for injection. Reconstitute 16.4 unit vial with 10 mL. Avoid excess agitation during dilution; swirl or invert gently to mix. Solution may foam upon reconstitution. Bubbles will resolve upon standing a few min. Solution should be reconstituted immediately prior to use, but is stable for 4 hr at room temperature. Note: Prior to and after administering reteplase, flush line with normal saline or D5W.

- Two bolus doses are used for myocardial infarction — each administered over 2 minutes.
- Y-site Incompatibility: heparin. No other medication should be infused or injected into line used for reteplase.

Patient/Family Teaching

- Explain purpose of medication and the need for close monitoring to patient and family. Instruct patient to report hypersensitivity reactions (rash, dyspnea) and bleeding or bruising.
- Explain need for bedrest and minimal handling during therapy to avoid injury. Avoid all unnecessary procedures such as shaving and vigorous tooth brushing.

Evaluation/Desired Outcomes

- Lysis of thrombi and restoration of blood flow.

Why was this drug prescribed for your patient?