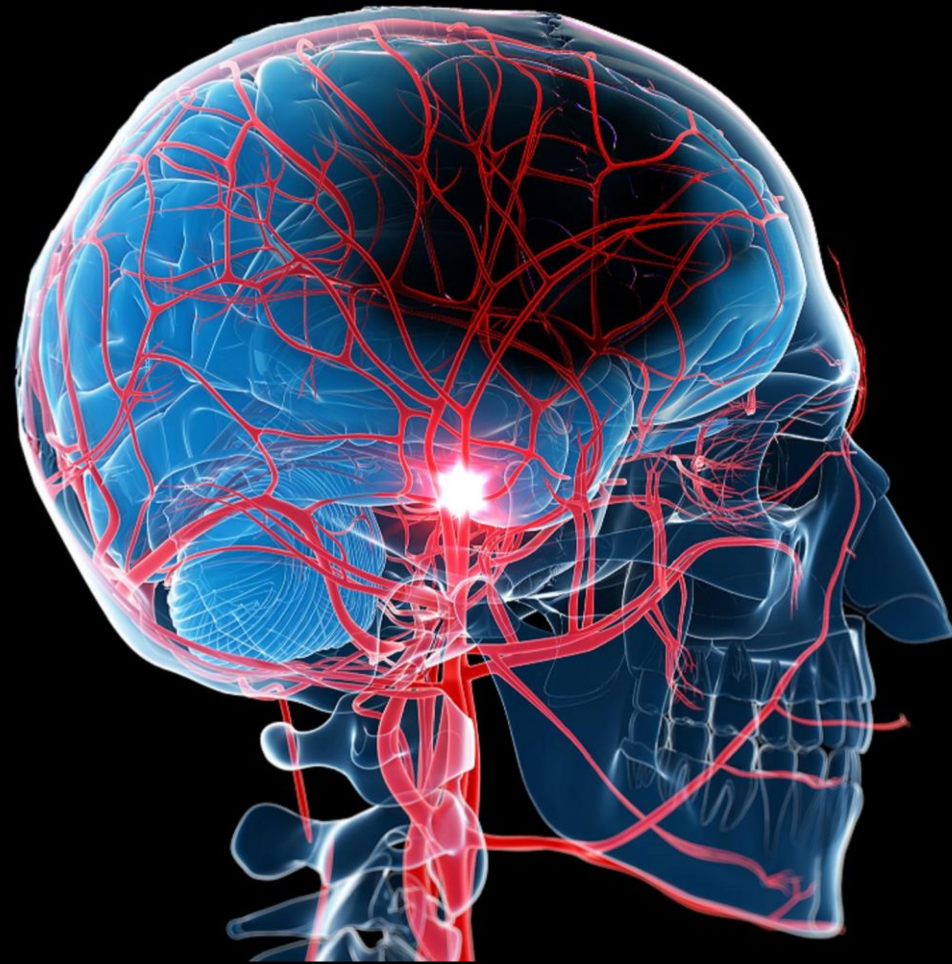


TENECTEPLASE FOR ACUTE ISCHEMIC STROKE

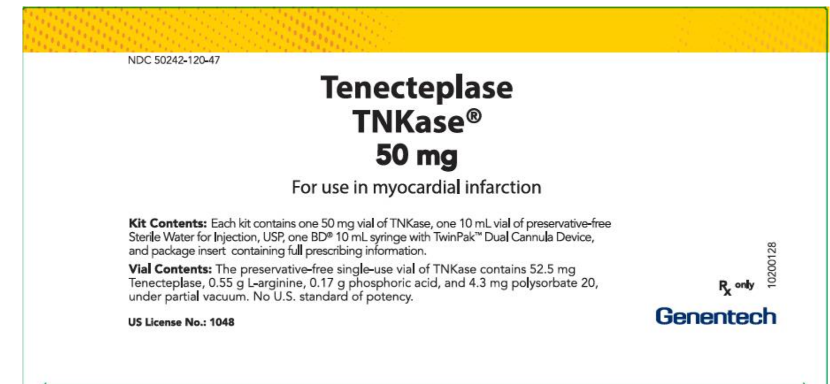
FSLH
April 2022

CONVERSION TO TENECTEPLASE

- MVHS is changing to Tenecteplase as the preferred thrombolytic agent

Why?

- Faster administration time
  - Given IV Push over 5 seconds instead of 60 minute infusion
- Better able to meet time constraints
- Able to transfer patient sooner (if needed)
- Cost savings



CURRENT PRACTICE GUIDELINES

Stroke
Volume 50, Issue 12, December 2019, Pages e344-e418
https://doi.org/10.1161/STR.0000000000000211

AHA/ASA GUIDELINE

Guidelines for the Early Management of Patients With Acute Ischemic Stroke: 2019 Update to the 2018 Guidelines for the Early Management of Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association

See related article, p 3331

William J. Powers, MD, FAHA, Chair, Alejandro A. Rabinstein, MD, FAHA, Vice Chair, Teri Ackerson, BSN, RN, Opeolu M. Adeoye, MD, MS, FAHA, Nicholas C. Bambakidis, MD, FAHA, Kyra Becker, MD, FAHA, José Biller, MD, FAHA, Michael Brown, MD, MSc, Bart M. Demaerschalk, MD, MSc, FAHA, Brian Hoh, MD, FAHA, Edward C. Jauch, MD, MS, FAHA, Chelsea S. Kidwell, MD, FAHA, Thabele M. Leslie-Mazwi, MD, Bruce Ovbiagele, MD, MSc, MAS, MBA, FAHA, Phillip A. Scott, MD, MBA, FAHA, Kevin N. Sheth, MD, FAHA, Andrew M. Southerland, MD, MSc, FAHA, Deborah V. Summers, MSN, RN, FAHA, and David L. Tirschwell, MD, MSc, FAHA

"It may be reasonable to choose **tenecteplase (single IV bolus of 0.25-mg/kg, maximum 25 mg**) over IV alteplase in patients without contraindications for IV fibrinolysis." (Level IIB)

Powers WJ, et al. Stroke. 2019.

TENECTEPLASE (TNKase)

- Mechanism Of Action:
  - Binds to fibrin and converts plasminogen to plasmin to promote the initiation of fibrinolysis to break down blood clots
- Half-Life:
  - 24 minutes
- Indications:
  - Acute myocardial infarction, acute ischemic stroke (off-label), pulmonary embolism (off-label)
- **Acute Ischemic Stroke Dosage (off-label):**
  - 0.25 mg/kg as a single IV bolus over 5 seconds (**Maximum Total Dose: 25 mg**)
  - Administer within 4½ hours of last known well time

Micromedex, information obtained Feb 2022

Inclusion Criteria

- Onset of symptoms < 3 hours from drug administration
- Onset of symptoms 3– 4.5 before treatment being only if the following are true:
  - 80 years old or less
  - NIHSS 25 or less (i.e. stroke not severe)
  - Not taking oral anticoagulants (regardless of INR)
  - Patient not a diabetic with history of prior ischemic stroke
- Age > 18 years old

Exclusion Criteria

- Intracerebral hemorrhage seen on baseline CT
- Severe uncontrolled hypertension (SBP > 185 mmHg, DBP >110 mmHg)
  - Treat with Cleviprex before tenecteplase administration
- Active internal bleeding
- Glucose < 50
  - Treat per hospital protocol

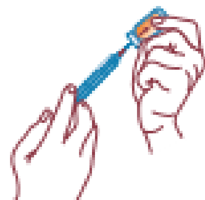
PREPARATION

Reconstitutes to a final concentration of 5mg/ml

Please do not reconstitute until time of administration – there is not a replacement program for this medication.

RECONSTITUTION AND ADMINISTRATION

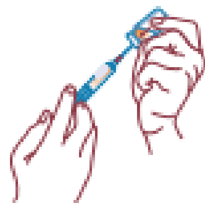
See Prescribing Information for further directions.
(Use aseptic technique throughout.)



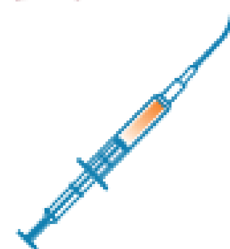
1. **WITHDRAW** 10 mL of Sterile Water for Injection, USP, using the 10 mL BD® Syringe with BD Twinpak™ Dual Cannula Device included in the kit. See TNKase Package Insert for instructions on use of the dual cannula device.

2. **INJECT** entire contents into the TNKase vial, directing the diluent at the powder. Slight foaming upon reconstitution is not uncommon. Let stand undisturbed for several minutes to allow bubbles to dissipate.

3. **GENTLY SWIRL** until contents are completely dissolved. DO NOT SHAKE. Solution should be colorless or pale yellow and transparent. USE UPON RECONSTITUTION. If not used immediately, refrigerate solution at 2°C to 8°C (36°F to 46°F) and use within 8 hours. DO NOT FREEZE.



4. **WITHDRAW** the appropriate volume of solution based on patient weight. (See Dosing Information.) The recommended total dose should not exceed 25 mg. **Any unused solution should be discarded.**



5. **FLUSH** a dextrose-containing line with a saline-containing solution prior to and following administration. (Precipitation may occur when TNKase is administered in an intravenous [IV] line containing dextrose.)
6. **ADMINISTER** as an IV BOLUS over 5 seconds.

TNKase Prescribing Information, obtained Feb 2022

DOSING EXAMPLE FOR A 60 KG PATIENT

Remember

- Acute Ischemic Stroke Dosage (off-label):
  - **0.25 mg/kg** as a single IV bolus over 5 seconds (Maximum Total Dose: 25 mg)
- Dilutes to a final concentration of **5mg/ml**

60 kg x 0.25 mg/kg = 15 mg of Tenecteplase Needed

$$\frac{5\ mg\ of\ TNKase}{1\ mL\ of\ Solution} = \frac{15\ mg\ of\ TNKase}{X\ mL\ of\ Solution}$$

$X = 3$ mL of Final TNKase Solution Needed

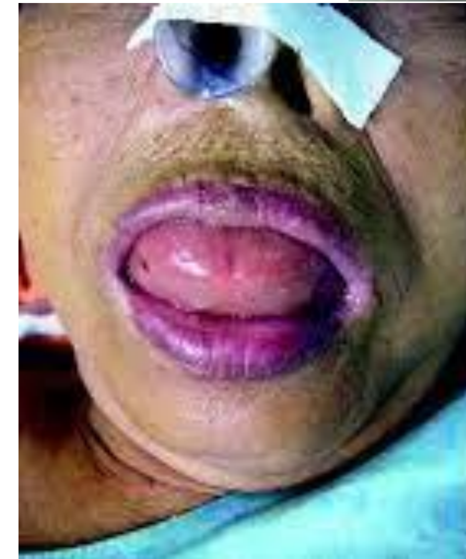
Adverse Effects:

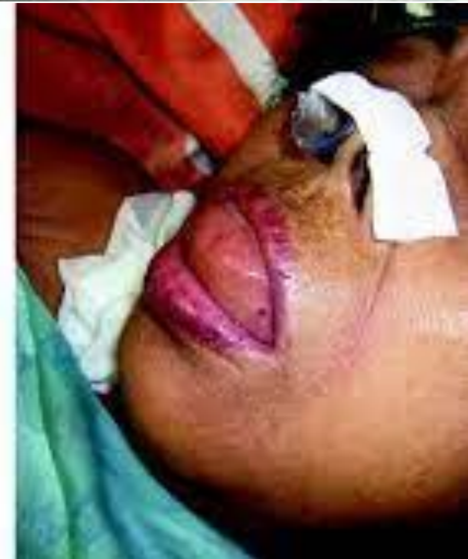
- Bleeding, hematoma
- Epistaxis, GI bleeding, stroke
- Anaphylaxis, **angioedema**, ICH, rash, retroperitoneal bleeding, urticaria
- Contraindications:
  - Aneurysm, AV malformation, bleeding, brain tumor, coagulopathy, head trauma, intracranial mass or bleeding, spinal anesthesia, stroke, surgery

Package Inserts, information obtained Sept 2021

MONITORING

- **Notify the provider and treat per protocol** if any of the following occur:
  - **Angioedema**
  - Nausea
  - Vomiting
  - Headache
  - Change in mental status
  - Difficulty breathing
  - Seizure
  - Other signs of bleeding





ANGIOEDEMA

- Sudden swelling of mouth, tongue, larynx, lips or face and/or difficulty breathing
- Management if Orolingual Angioedema occurs:
  - Hold ACE Inhibitors (if applicable)
  - Administer methylprednisolone (Solu-Medrol) 125mg IV push once
  - Administer diphenhydramine (Benadryl) 50mg IV push once
  - Administer famotidine (Pepcid) 20mg IV piggyback once
- If angioedema is not resolved by these agents:
  - Administer epinephrine (0.1%) 0.3mL subcutaneously once as a **second line** therapy

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