

UNC MEDICAL CENTER GUIDELINE

Tranexamic Acid in Adult Emergency Department Patients

Tranexamic acid (TXA) is an FDA approved antifibrinolytic agent that is used in emergency department patients presenting with major trauma, epistaxis, dental bleeding, non-major hemoptysis, and postpartum hemorrhage. Recommendations provided in this document reflect current guidelines, clinical evidence and institutional initiatives. These recommendations are not intended to replace clinical judgement, but are intended to serve as a tool for decision-making.

TABLE OF CONTENTS

- [Major Trauma \(intravenous route\)](#)
- [Epistaxis and Dental Bleeding \(topical route\)](#)
- [Non-Massive Hemoptysis \(inhaled route\)](#)
- [Postpartum Hemorrhage \(intravenous route\)](#)

MAJOR TRAUMA (INTRAVENOUS ROUTE)

Indications for Use in Trauma

- Patient is > 16 years of age
- Elapsed time since injury < 3 hours
- Meeting one of the following criteria:
 - Patients who have activation of the Massive Transfusion Protocol (MTP) after traumatic injury
 - Systolic blood pressure < 90mmHg
 - At risk for hemorrhage and refractory to crystalloid challenge (i.e. who will likely be receiving transfusions)

Contraindications

- Hypersensitivity to tranexamic acid
- Isolated head injury
- History of renal failure
- Active or recent thromboembolism
- Patient receiving other anticoagulant reversal products (KCentra®, Praxbind®, Andexxa®)

Adverse Effects

- Anaphylaxis
- Thrombosis
- Hypotension (with rapid infusion at rate > 100mg/min)
- Nausea, vomiting, diarrhea
- Visual disturbances (blurred vision, changes in color vision)

Dosing and Administration

- Dosing:
 - Loading dose: tranexamic acid 1g/100 mL (100 mg/mL) normal saline IVPB administered over 10 minutes
 - Add one 1 gram vial of tranexamic acid to 100 mL bag of normal saline
 - Infusion: tranexamic acid 1 gram/250 mL (4 mg/mL) normal saline IVPB administered over 8 hours
 - Add one 1 gram vial of tranexamic acid to 250 mL bag of normal saline
- Ordering:
 - Search “Tranexamic Acid for Use with Massive Transfusion Protocol” in Epic.

- Select order panel. Order bolus and infusion included in order panel.
- Administration:
 - Infusion pump must be used for administration
 - Administer in separate IV site from all blood products
- At the completion of the 8 hour infusion, no further tranexamic acid will be administered

Monitoring Recommendations

- Blood pressure and signs of allergic reaction at: baseline, 5 minutes into loading dose, at the end of the loading dose, every 2 hours during infusion
- Clinical signs of thrombosis (e.g. MI, stroke, PE, DVT) – baseline, daily during hospital stay

EPISTAXIS AND DENTAL BLEEDING (TOPICAL ROUTE)

Indications for Use in Epistaxis

- Patient is ≥ 18 years of age
- Presenting with anterior epistaxis or dental bleeding

Contraindications

- Hypersensitivity to tranexamic acid
- Renal failure

Adverse Effects

- Anaphylaxis
- Thrombosis
- Nausea, vomiting, diarrhea
- Visual disturbances (blurred vision, changes in color vision)

Dosing and Administration

- Dosing:
 - Tranexamic acid 1 gram/10 mL solution applied topically once
- Ordering:
 - Search “Tranexamic acid for topical or inhalation use” in Epic and select order
- Administration:
 - Remove 10 mL of tranexamic acid from vial using a syringe and needle and soak gauze pads with solution
 - Utilize tranexamic acid-soaked gauze to pack site of epistaxis
 - Remove after bleeding cessation based on physician examination

Monitoring Recommendations

- Signs of continued bleeding and allergic reaction

NON-MASSIVE HEMOPTYSIS (INHALED ROUTE)

Indications for Use in Non-Massive Hemoptysis

- Patient is ≥ 18 years of age
- Non-massive hemoptysis (expectorated blood ≤ 200 mL/24 hrs)

Contraindications

- Hypersensitivity to tranexamic acid

- Massive hemoptysis (expectorated blood > 200 mL/24 hrs)
- Respiratory instability
- Renal failure

Adverse Effects

- Bronchospasm
- Anaphylaxis
- Thrombosis
- Nausea, vomiting, diarrhea
- Visual disturbances (blurred vision, changes in color vision)

Dosing and Administration

- Dosing:
 - Tranexamic acid 500 mg/5 mL nebulized 3 times daily for up to 5 days
- Ordering:
 - Search "Tranexamic acid for topical or inhalation use" in Epic and select order
- Administration:
 - Remove 5 mL of tranexamic acid from vial using a syringe and place in standard nebulizer cup undiluted
 - Administer via nebulizer over 2-5 minutes
 - If bronchospasm occurs, stop nebulization and administer albuterol 2.5-5 mg nebulized once
 - Nebulized tranexamic acid should not be given via mechanical ventilator

Monitoring Requirements

- Signs of bronchospasm, continued bleeding, and allergic reactions

POSTPARTUM HEMHORRAGE (INTRAVENOUS ROUTE)

Indications for Use in Postpartum Hemorrhage

- Patient is > 16 years of age
- Time since delivery < 3 hours
- Meeting one of the following criteria:
 - Estimated blood loss > 500 mL after vaginal delivery
 - Estimated blood loss > 1000 mL after caesarean section
 - Hemodynamic instability due to blood loss

Contraindications

- Hypersensitivity to tranexamic acid
- History of renal failure
- Active or recent thromboembolism
- Patient receiving other anticoagulant reversal products (KCentra®, Praxbind®, Andexxa®)

Adverse Effects

- Anaphylaxis
- Thrombosis
- Hypotension (with rapid infusion at rate > 100mg/min)
- Nausea, vomiting, diarrhea
- Visual disturbances (blurred vision, changes in color vision)

Dosing and Administration

- Dosing:
 - Loading dose: tranexamic acid 1 gram/100 mL (100 mg/mL) normal saline IVPB administered over 10 minutes
 - Add one 1 gram vial of tranexamic acid to 100 mL bag of normal saline
 - May repeat loading dose once if bleeding continues after 30 minutes or stops and restarts within 24 hours after first dose
- Ordering:
 - Search “Tranexamic Acid for Use with Massive Transfusion Protocol” in Epic. Select order panel. Order bolus included in order panel.
- Administration:
 - Infusion pump must be used for administration
 - Administer in separate IV site from all blood products

Monitoring Recommendations

- Blood pressure and signs of allergic reaction at: baseline, 5 minutes into loading dose, at the end of the loading dose
- Clinical signs of thrombosis (e.g. MI, stroke, PE, DVT) – baseline, daily during hospital stay

References:

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2. CRASH-2 collaborators. Roberts I. Shakur H. Afolabi A. Brohi K. Coats T. Dewan Y. Gando S. Guyatt G. Hunt BJ. Morales C. Perel P. et al. The importance of early treatment with tranexamic acid in bleeding trauma patients: an exploratory analysis of the CRASH-2 randomised controlled trial. *Lancet*. 2011;377(9771): 1096-101.
3. Birmingham AR, Mah ND, Ran R, et al. Topical tranexamic acid for the treatment of acute epistaxis in the emergency department. *Am J Emerg Med*. 2018;36(7):1242-1245.
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5. Wand O, Guber E, Guber A, et al. Inhaled tranexamic acid for hemoptysis treatment: a randomized controlled trial. *Chest*. 2018;154(6):1379-1384.
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