



Pharmacy Friday

Brief pearls related to acute care pharmacology and evidence-based medicine

Other pearls found at:

- <https://sites.google.com/presby.edu/pharmacy-friday>



Tranexamic Acid (TXA) for Minor Bleeding

Introduction

- Tranexamic acid (TXA) is a synthetic lysine derivative that inhibits fibrinolysis by blocking the lysine binding sites on plasminogen. Plasminogen is an inactive form of plasmin which acts to dissolve fibrin clots.

Pharmacology

Properties	Tranexamic Acid (TXA)
Dose	<ul style="list-style-type: none"> • Epistaxis: 500-1000 mg via topical nasal gauze • Heavy Menstrual Bleeding: 1.3 g PO TID • Hemoptysis: 500 mg via nebulizer
Formulation	<ul style="list-style-type: none"> • IV 1000 mg/ 10 ml vial • 650 mg tablets
PK/PD	<ul style="list-style-type: none"> • Onset IV: 1-5 hours • Time to Peak Concentration PO: 2.5-3 hours; IV: 5 minutes • Duration PO: 24 hours; IV: 17 hours • Excretion: Urine (>95% as unchanged drug)
Adverse Effects	Rapid administration could cause hypotension
Drug Interactions and Warnings	Caution in women taking oral contraceptives, patients with clotting disorders, and those taking chlorpromazine
Compatibility	Compatible with Normal Saline and Dextrose solutions
Location in GHS	<ul style="list-style-type: none"> • IV: Trauma Pyxis, Zone 2, Zone 3, CPR 2 + 3 • Tablet: ED Chest Pyxis

Directions for Administration by Indication

Anterior Epistaxis	Consider using 500-1,000 mg of TXA (5-10 ml) to soak gauze/pledget and insert it into the nasal cavity for ~30 min
Heavy Menstrual Bleeding	Consider administering 1300 mg of oral TXA tablets TID x 7 days
Hemoptysis	Consider mixing 500-1000 mg of TXA (5-10 ml) with 5-10 ml of NS then administer via nebulizer
Dental Bleeding	Consider dissolving 1-2 650 mg TXA tablets in 10 mL distilled water, then swish for two minutes followed by expectoration

Overview of Evidence

Author, year	Indication	Intervention & Comparison	Outcome
Bryant-Smith (Cochrane), 2018	Heavy menstrual bleeding	TXA*	TXA associated with a reduced blood loss of - 53.20 to - 73 ml per cycle and ↑ likelihood of improvement Effective for treating HMB compared to placebo, NSAIDs, oral luteal progestogens
Lukes, 2010	Heavy menstrual bleeding	TXA 1300 mg PO TID x 7 days	TXA had greater ↓ in menstrual blood loss, ↓ menstrual blood loss exceeding 50 mL, and ↑ QOL compared with women receiving placebo
Zirk, 2018	Dental Bleeding	TXA soaked gauze*	TXA provided ↑ chance to stop oral bleeding event by a factor of 1.6 over gauze alone
Nuvvula, 2014	Dental Bleeding	Dissolved 500 mg TXA tablets in 10 mL distilled water	Topical TXA was non-inferior and an effective alternative to factor therapy in controlling gingival hemorrhage.
Zahed, 2018	Anterior Epistaxis	Topical TXA 500 mg soaked gauze	Bleeding was stopped in 73% of the patients in the TXA group , compared with 29% in the ANP group At 1 week, rebleeding was 5% vs 21% in TXA and nasal packing respectively
Zahed, 2013	Anterior Epistaxis	Topical TXA 500 mg soaked gauze	Within 10 minutes of treatment, bleeding stopped in 71% of the patients in the tranexamic acid group, compared with 31.2% in the anterior nasal packing group
Wand, 2018	Hemoptysis	Nebulized TXA 500 mg/ 5 ml	↑ Rate of complete resolution of hemoptysis during first 5 days , ↓ LOS, and ↓ daily volume of expectorated blood
Solomonov, 2009	Hemoptysis	Nebulized TXA 500 mg/ 5 ml	In all cases, the bleeding stopped with the first dose of TXA and was well tolerated without adverse events

* Dose not recorded

References

1. Tranexamic acid. Micromedex [Electronic version]. Greenwood Village, CO: Truven Health Analytics. Retrieved September 6, 2018, from <http://www.micromedexsolutions.com/>
2. Bryant-Smith AC et al. Antifibrinolytics for heavy menstrual bleeding. Cochrane Database Syst Rev. 2018 Apr 15;4. PMID: 29656433.
3. Lukes AS et al. Tranexamic acid treatment for heavy menstrual bleeding: a randomized controlled trial. Obstet Gynecol. 2010 Oct;116(4):865-75. PMID: 20859150
4. Zirk M et al. Supportive topical tranexamic acid application for hemostasis in oral bleeding events - Retrospective cohort study of 542 patients. J Craniomaxillofac Surg. 2018 Jun;46(6):932-936. PMID: 29627368
5. Nuvvula S et al. Efficacy of tranexamic acid mouthwash as an alternative for factor replacement in gingival bleeding during dental scaling in cases of hemophilia: A randomized clinical trial. Contemp Clin Dent. 2014 Jan-Mar; 5(1): 49-53. PMID: 24808695
6. Zahed R et al. A New and Rapid Method for Epistaxis Treatment Using Injectable arm of Tranexamic Acid Topically: A Randomized Controlled Trial Am J Emerg Med 2013. PMID: 23911102
7. Zahed R et al. Topical Tranexamic Acid Compared With Anterior Nasal Packing for Treatment of Epistaxis in Patients Taking Antiplatelet Drugs: Randomized Controlled Trial. Acad Emerg Med. 2018 Mar;25(3):261-266. PMID: 29125679
8. Wand O et al. Inhaled Tranexamic Acid for Hemoptysis Treatment: A Randomized Controlled Trial. CHEST 2018. PMID: 30321510
9. Solomonov A et al. Pulmonary hemorrhage: A novel mode of therapy. Respir Med. 2009 Aug;103(8):1196-200.
10. How To Place An Epistaxis TXA Pack. <https://www.youtube.com/watch?v=ekGsM9CZSpY>