

Guideline



CCHMC Trauma Services Guidelines

Title: Tranexamic Acid (TXA) Usage in Trauma

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1.0 SCOPE

1.1. Hemorrhagic shock is the most preventable cause of death in trauma. In adult patients with hemodynamic instability and ongoing bleeding, tranexamic acid (TXA) has proven effective if administered within the first three hours of the trauma.^{1,2} TXA is an antifibrinolytic that reversibly binds to plasminogen at the lysine binding site, preventing the binding of plasmin to fibrin and the subsequent fibrin clot degradation.³ The Royal College of Paediatrics and Child Health developed an evidence statement in 2012 on the use of tranexamic acid in children based on the CRASH-2 trial and implemented in the United Kingdom and Canada.⁴ TIC-TOC feasibility trial in 31 pediatric patients <18yo using low dose TXA, high dose TXA and placebo did not show a clinical difference between groups in blood product transfusion or CT head hemorrhage progression; no patients had acute thromboses identified after randomization.⁹ CRASH-3 trial showed that TXA is safe in patients with TBI and that early (within 3 hours) TXA treatment reduces head injury deaths for patients with reactive pupils with mild or moderate TBI without increase in vascular occlusive events or seizures.

2.0 DEFINITIONS

- 2.1. Hemoglobin – Hgb
- 2.2. Systolic blood pressure - SBP
- 2.3. Tranexamic acid – TXA
- 2.4. Traumatic Brain Injury - TBI

*Age-Appropriate Vital Signs (VS)
Modified from PALS 2016 American Heart Association

3.0 GUIDELINE

- 3.1. Consider TXA for children with *evidence of severe internal or non-compressible external hemorrhage* as evidenced by 3 or more of the following:
 - 3.1.1. SBP < 80 mmHg in children <5 years or <90 if ≥5 years of age
 - 3.1.2. Sustained tachycardia for age
 - 3.1.3. Tachypnea for age
 - 3.1.4. Cool pale skin with cap refill >2 seconds
 - 3.1.5. Hgb <11
- 3.2. Contraindications to TXA include:
 - 3.2.1. Time of injury to TXA administration is ≥ 3 hours
 - 3.2.2. Patients presenting with blown pupil(s)
 - 3.2.3. Patients with a known history of venous or arterial thrombosis
- 3.3. In children <12
 - 3.3.1. The loading dose is 15 mg/kg IV (max 1g) given over 10 minutes
 - 3.3.1.1. The maintenance infusion of 2 mg/kg/hour for at least 8 hours or until bleeding stops
- 3.4. In children ≥ 12 years
 - 3.4.1. The loading dose is 1 g IV over 10 minutes (max 1 g)
 - 3.4.1.1. Maintenance infusion 1 g over 8 hours

	Heart Rate	Respiratory Rate	Systolic Blood Pressure
Infant (1 – 12 month)	90 – 180	30 – 53	>70
Toddler (1 – 2 years)	80 – 140	22 – 37	>70
Preschool (3 – 5 years)	65 – 120	20 – 28	>80
School-Age (6 – 12 years)	58 – 118	18 – 25	>85
Adolescent (12+ years)	50 - 100	12 - 20	>90

4.0 REFERENCES

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5.0 APPROVALS

All revisions of this guideline are approved by the Trauma Service. This guideline is reviewed every three years or sooner if deemed necessary. Authority for this document resides with the Trauma Service. This guideline is approved by the Trauma Services Manager and the Director of Trauma Services.

HISTORY	
Original Date	07/2017
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