



Tranexamic Acid The Magic Bullet?





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Trauma

- Kills millions each year world wide
- Hemorrhagic Shock remains a major cause of death in trauma patients
- Stopping hemorrhage remains a mainstay of trauma care
 - We know that works
 - Data from Iraq and Afghan Combat and Tourniquets
- What about bleeding we cannot control in Civilian EMS?



What if there was something:

- That helps to stop bleeding?
- Reduces the number of massive transfusions?
- Improves mortality?
- Has little side effects?
- Can be given in the Field?
- Is inexpensive?

Would You Use It?

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Tranexamic Acid

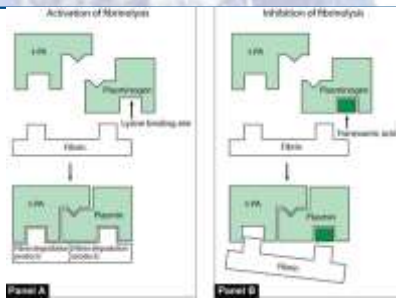
- Has been used for 50 years to decrease bleeding in surgery¹ and OB cases²
- Prevents breakdown of clots (fibrinolysis)
 - Blocks the plasminogen binding sites

1 - BMJ 2012; 344:e3054
 2 - [http://www.obgmanagement.com/index.php?id=20667&tx_ttnews\[tt_news\]=175428](http://www.obgmanagement.com/index.php?id=20667&tx_ttnews[tt_news]=175428)

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TXA and Fibrin



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Does It Work in Trauma?



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Clinical Randomisation of an Antifibrinolytic in Significant Hemorrhage -2

- > 20000 patients
- 274 Hospitals
- 47 Countries
 - Including Canada, UK and Australia
- Blinded and Randomized
 - 99% follow up
- Control and Treatment Groups with similar demographics

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Key Results

- Reduced need for transfusion by 1/3
- 15% reduction in risk of death from bleeding
- No difference in development of thrombotic events (CVA, PE, MI) or multisystem organ failure
- ALL CAUSE MORTALITY REDUCED BY 9%
- IF GIVEN AFTER 3 HOURS, NO BENEFIT and Increased mortality

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MATTERS

Archives of Surgery 2012:147, 113-119

- Military Application of Tranexamic Acid in Trauma Emergency Resuscitation Study
- Combat Casualties from NATO forces
- Retrospective Analysis
 - Compared TXA to No TXA in patients getting at least one unit PRBC
 - Subgroup analysis of Massive (>10 uPRBC) transfusion
- Outcome is mortality at 24h, 48h and 30D
 - Post operative coagulopathy and thromboembolism





- 896 casualties at Camp Bastion
 - 296 received TXA 603 no TXA
 - 125 TXA and Massive Transfusion
 - 196 No TXA and had Massive Transfusion
- Combat casualties
 - Young Healthy Adults



Outcomes

- At 24 hours less but not statistically significant drop in all cause mortality with TXA which was significant by 48 hours
- Overall all cause in hospital mortality:
 - TXA group had an all cause mortality of 17.4% versus 23.9% for No TXA
 - Massive transfusion group more pronounced
 - 14.4% versus 28.1%
 - TXA group did have higher PE and DVT Rate
- NNT 7!!



So What's the Message?

- WHO considers TXA an essential medication
- Very few side effects or contraindications
- **Best results if given within an hour of injury**
 - > 3 hours may be harmful Lancet 2011:377, 1096-1101
- Cheap and easy to give... in the field.

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Recommended by:

- It is a component of the trauma protocol in the UK
- It is part of C-TECC Tac Med guidelines
- *Tranexamic Acid*
- If casualty is anticipated to need significant blood transfusion (e.g. presents with hemorrhagic shock, one or more amputations, penetrating torso trauma, or evidence of severe bleeding) consider administration of 1 gram of TXA in 100cc NS or LR IV as soon as possible. Do **not** administer later than 3 hours after injury. Begin second infusion of 1 gram of TXA after initial resuscitation.

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