TXA (Tranexamic Acid)

Note: Tranexamic Acid (TXA) is an antifibrinolytic (prevents clot breakdown) amino acid that has been shown to reduce the amount of blood transfusion needed in orthopedic and cardiovascular surgery, when given before surgery starts. It was studied in trauma patients in CRASH 2¹ and MATTERS I & II, which showed reduction in mortality associated with giving TXA. The CRASH 2 trial showed that for every 67 patients receiving TXA, one additional patient survived. The CRASH 2 trial was very large, but had many flaws which have called into question whether the observed survival effect would be applicable to the United States (90% of patients in CRASH 2 were from developing and poor countries and none of the patients were from the US). Multiple other agents that prevent clot breakdown/promote clot formation have been shown not to reduce mortality (aprotinin, aminocaproic acid, factor VIIa)². In addition, CRASH 2 did not show any reduction in blood transfusions. Thus TXA is an allowable medication to be used, but is not mandatory or even encouraged. TXA is not currently on the approved Wisconsin Paramedic Medication list and needs additional training and approval by the state before it can be used on a service.

PARAMEDIC

If a Patient is anticipated to need significant blood transfusion (any one of the following):
- Setting of significant trauma with HR greater than 110
- Setting of significant trauma with SBP less than 90
- One or more major amputations (proximal to wrist or ankle)
- Penetrating torso trauma
- Unstable pelvic fractures
- Evidence of severe bleeding

– Then may administer 1 gram (20 mg/kg with max 1 gm) of tranexamic acid over 10 minutes IV/IO (in 100 cc NS/LR/D5W or at 100 mg/minute) as soon as possible, but NOT later than 3 hours³ after injury. Do not administer as an IV bolus push (may cause hypotension).

CAVEATS
Drug should be first administered as early as possible, but NOT initiated beyond 3 hours from injury.
EMS Provider must be trained in drug use and administration.
Drug must be properly maintained between 15-30°C Celsius / 59-86°F Fahrenheit

² Other antifibrinolytic agents (aprotinin and aminocaproic acid) which had initial reports showing reduction in bleeding, have shown no reduction in mortality. In addition, activated factor VII (factor VIIa) was shown to reduce bleeding, but had no change in mortality.