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Question: Does early TXA administration in pediatric trauma patients result in a decreased mortality rate, and is routine administration safe for pediatric patients?

Article: Matthew J. Eckert, M.D., et al. *Tranexamic acid administration to pediatric trauma patients in a combat setting: The pediatric trauma and tranexamic acid study (PED-TRAX)*; J Trauma Acute Care Surg Volume 77, Number 6. Pp. 852-858.

Methods: A retrospective review of all pediatric trauma admissions to the NATO Role 3 hospital at Camp Bastion, Afghanistan from 2008 to 2012. The standard adult dosing was used for all patients.

Results: There were 766 injured patients 18 years or younger with mean age of 11, 88% of which were male with 73% penetrating injury. Of these patients, 35% required transfusion in the first day, 10% received massive transfusion and 76% required surgery. The overall mortality in the study population was 9%. Of the 766 studied, 9% received TXA. TXA tended to be used in severe abdominal or extremity injury. Those patients who received TXA had greater injury severity, hypotension, acidosis and coagulopathy versus the patients in the no-TXA group. After some correction was employed, “TXA use was found to be independently associated with decreased mortality among all patients and showed similar trends for subgroups of severely injured and transfused patients. There was no significant difference in thromboembolic complications or cardiovascular events.” Also it showed significant improvements in discharge neuro status and ventilator dependence.

Discussion: This is baller. We already knew that TXA is magic trauma juice in adults and it also appears to be efficacious in kids as well. I am sure it wasn't a stretch of the imagination to translate efficacy from the adults to the little ones, but now we have a study, albeit limited, showing us benefit. Granted, this was a retrospective review of the Joint Theater Trauma Registry as opposed to a case-controlled double blinded study, but it's the best we've got at this point, and enough for me to justify throwing it around at the Kiddie Palace or down range (granted the nurses would have a hell of a time finding the stuff I'm sure). The biggest limitation of this study is the lack of power and the need to apply significant propensity analysis to correct for the difference in patient population between those 66 patients that did receive TXA vs the other 700. I look forward to the trial to come regarding TXA use in pediatric patients, though I'm still going to continue using it in the severe pediatric trauma patients in spite of the lack of the ideal trial.

On another note, TXA administration in trauma appears to be relatively cost effective based on a study published shortly after CRASH-II showed that, in the UK at least, the price of administration per “Life Years” was about \$66 (Guerriero 2011). Meaning, it cost about \$66 for each life year gained by trauma patients treated with TXA. This is not all that bad, and I personally wouldn't mind paying \$66 per year for my life after a severe trauma.

Guerriero, et al., Cost-effectiveness analysis of administering tranexamic acid to bleeding trauma patients using evidence from the CRASH-2 trial; [PLoS One](https://doi.org/10.1371/journal.pone.0018987). 2011 May 3;6(5):e18987. doi: 10.1371/journal.pone.0018987
