



Alaska Trauma Systems Review Committee Statement

Prehospital Use of Tranexamic Acid in Head Injured Patients

Approved September 15, 2020

Tranexamic acid (TXA) has become an accepted part of protocols for the treatment of injured patients with hypotension and possible uncontrolled hemorrhage. A number of large prospective studies and retrospective reviews have come out supporting its use.¹ Patients with head injuries had been analyzed as a subgroup to see if there was potential benefit or harm with TXA use in this group. Initial reviews were equivocal and subsequently the question of TXA benefit for head injured patients has been addressed in a number of prospective randomized studies. The CRASH-3 study showed some improvement in survival in patients with mild to moderate head injuries when given within three hours.²

All of the studies on TXA use have shown that the earlier administration the greater the benefit. Preferably, it should be given within one hour and no later than three hours following the injury. Recently the question of prehospital administration of TXA for patients with head injuries has been addressed. Specifically, the initiation of TXA in the prehospital setting has been studied in a randomized prospective manner. These TXA head injury studies were recently reviewed by the Trauma Systems Review Committee and discussed with the neurosurgeons at both Level II Trauma Centers. The studies showed no statistically significant benefit in 30-day mortality but clearly showed that there was no harm in the patients receiving TXA under this protocol.³ In addition, the study looked at two dosing regimens: a single 2 gram dose compared to the standard 1 gram bolus followed by an additional 1gm infused over eight hours. There was no adverse effect of the 2 gram bolus though there was a non-statistically significant increase in seizures (5% vs 2%). There did appear to be a non-statistically significant improvement in mortality for the 2 gram regimen.

The committee agreed that while there was no clear benefit demonstrated in outcomes at 30 days, there is no contraindication to using TXA for head injured patients in the prehospital setting and there may be some potential benefit.

The committee recommends:

1. Head injury is not a contraindication to TXA use in the prehospital setting.
2. TXA should not be initiated more than 3 hours after injury.
3. A TXA protocol using 2 grams over 10 minutes as a one-time dose is the preferred method for administering TXA in the prehospital setting.

REFERENCES:

1. Perel P, Al-Shahi Salman R, Kawahara T, et al. **CRASH-2 (Clinical Randomisation of an Antifibrinolytic in Significant Haemorrhage) intracranial bleeding study: the effect of tranexamic acid in traumatic brain injury, a nested randomised, placebo-controlled trial.** 2012. In: NIHR Health Technology Assessment programme: Executive Summaries. Southampton (UK): NIHR Journals Library; 2003-
2. Crash 3 trial collaborators. **Effects of tranexamic acid on death, disability, vascular occlusive events and other comorbidities in patients with acute traumatic brain injury (CRASH-3): a randomized, placebo-controlled trial.** *The Lancet*. Volume 394, Nov 2019.
3. Rowell SE, Meier EN, McKnight B, et al. **Effect of Out-of-Hospital Tranexamic Acid vs Placebo on 6-Month Functional Neurologic Outcomes in Patients With Moderate or Severe Traumatic Brain Injury.** *JAMA*. 2020;324(10):961–974. doi:10.1001/jama.2020.8958