AAEM/JEM Resident and Student Research Competition Winners

☐ UTILIZATION OF TRANEXAMIC ACID IN CIVILIAN ADULT TRAUMA RESUSCITATION IN THE HOSPITAL SETTING

Funding: No funding was received for this project.

Conflicts of Interest: By the AAEM abstract submission requirements, all authors are required to disclose all affiliations, funding sources and financial or management relationships that could be perceived as potential sources of bias. No author has professional or financial relationships with any companies that are relevant to this study. There are no conflicts of interest or sources of funding to declare.

Objectives: Trauma can pose a severe threat to life and accounts for more than 5.8 million deaths worldwide. Trauma can rapidly lead to coagulopathies causing hemorrhagic shock and death. This study aims to evaluate the safety and efficacy of tranexamic acid (TXA) use in the hospital setting for cases of traumatic hemorrhagic shock.

Methods: Patients from 2 different trauma centers who sustained blunt or penetrating trauma with signs of hemorrhagic shock from March 2015 through June 2018 were considered for TXA treatment. A retrospective control group was formed from patients seen in the past five years who were not administered TXA and matched based on age, gender, ISS, and mechanism of injury. The primary outcome of this study was mortality measured at 24 hours, 48 hours, and 28 days. Secondary outcomes included total blood products, hospital length of stay (LOS), ICU LOS, and adverse events.

Results: Both the hospital TXA and control cohorts consisted of 280 patients. The hospital TXA group had statistically significant lower mortality at 28 days (1.1% vs 5%, p=0.0067); used fewer units of blood products (median of 4 vs 7 units p=0.0005); and had a shorter hospital LOS (median of 7 vs 12 days, p<0.0001). There was no significant difference in adverse effects for TXA versus control. Subgroup analyses were conducted on patients who had and ISS ≥16, and those transfused ≥10 units of blood. The ISS ≥16 subgroup showed a statistically significant lower mortality at 28 days for TXA compared to control. While not significant, those transfused ≥10 units of blood showed a trend towards decreased mortality for TXA versus control.

[Salameh J
Dong F
Mousselli M
Toy J
Massoud R
Chandowani D
O'Bosky K
Luo-Owen X
Wong D
Vara R
Comunale M
Neeki MM
*Department of Emergency Medicine, Arrowhead Regional Medical Center, Colton, CA
†Department of General Surgery, Loma Linda University Medical Center, Loma Linda, CA
‡Department of Surgery, Arrowhead Regional Medical Center, Colton, CA
§Department of Anesthesia, Arrowhead Regional Medical Center, Colton, CA
‖California University of Sciences and Medicine, Colton, CA]

Conclusions: This study identified a statistically significant reduction in mortality at 28 days after TXA administration in trauma patients, and a trend towards decreased mortality at 24 hours, and 48 hours. Our study shows that TXA may be used safely and efficaciously for trauma-induced hemorrhagic shock in the hospital trauma system.

☐ PRE-HOSPITAL INTUBATION OF CARDIAC ARREST PREDICTS DECREASED SURVIVAL IF ED ARRIVAL IS DELAYED

Funding: None.

Relevant Financial Relationships: None.

Objective: Optimal pre-hospital management of cardiac arrest is not known, with recent literature questioning the utility of pre-hospital intubation and epinephrine. Our objective was to characterize, in a retrospective cohort of cardiac arrest patients, the factors associated with survival to hospital discharge, and the potential mechanisms by which they may affect survival.

Methods: We performed a retrospective analysis of 1,644 EMS calls for cardiac arrest in San Mateo County, CA, 2015-18. For each call, we observed patient age, sex, race, ethnicity, and comorbidities, whether arrest was witnessed or unwitnessed, first monitored rhythm, prehospital airway management (e.g., ETT, LMA, or BVM), medications administered, AED use, IV/IO access, and times from 911 call to EMS arrival, defibrillation, and patient arrival to the ED. We estimated a series of logistic regression models of survival to hospital discharge. We stratified patients by prehospital airway strategy, and estimated the effects of delays in transport on survival to hospital discharge.

Results: Patients had a median age of 69. 33.2% were women. 15.0% had witnessed arrest and initial shockable rhythms, and received defibrillation by EMS. 53.9% were intubated by EMS, 8.9% received supraglottic airways, and 37.2% received no advanced prehospital airway. 81.5% received prehospital epinephrine. 8.9% of all arrests survived to hospital discharge. Of witnessed arrests with initial shockable rhythms, 30.5% survived. In a series of logistic regression models of survival to hospital discharge, controlling for patient demographics, comorbidities, initial rhythm, AED and mechanical CPR device use, prehospital airway management, medications, and IV/IO access, significant positive predictors of survival included witnessed arrest (OR 3.01, 95% CI 1.86-4.99), and initial shockable rhythm (OR 9.43, 95% CI 4.66-19.24). Negative predictors of survival included prehospital endotracheal intubation (OR 0.31, 95% CI 0.19-0.50) and prehospital epinephrine (OR 0.26, 95% CI 0.15-0.43). Among patients surviving to ED arrival,