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## Prehospital use of tranexamic Acid for hemorrhagic shock in primary and secondary air medical evacuation.

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### Abstract

**INTRODUCTION:** Major hemorrhage remains a leading cause of death in both military and civilian trauma. We report the use of tranexamic acid (TXA) as part of a trauma exanguination/massive transfusion protocol in the management of hemorrhagic shock in a civilian primary and secondary air medical evacuation (AME) helicopter EMS program.

**METHODS:** TXA was introduced into our CCP flight paramedic program in June 2011. Indications for use include age > 16 years, major trauma (defined a priori based on mechanism of injury or findings on primary survey), and heart rate (HR) > 110 beats per minute (bpm) or systolic blood pressure (SBP) < 90 mmHg. Our protocol, which includes 24-hour online medical oversight, emphasizes rapid initiation of transport, permissive hypotension in select patients, early use of blood products (secondary

AME only), and infusion of TXA while en route to a major trauma center.

**RESULTS:** Over a 4-month period, our CCP flight crews used TXA a total of 13 times. Patients had an average HR of 111 bpm [95% CI 90.71-131.90], SBP of 91 mmHg [95% CI 64.48-118.60], and Glasgow Coma Score of 7 [95% CI 4.65-9.96]. For primary AME, average response time was 33 minutes [95% CI 19.03-47.72], scene time 22 minutes [95% CI 20.23-24.27], and time to TXA administration 32 minutes [95% CI 25.76-38.99] from first patient contact. There were no reported complications with the administration of TXA in any patient.

**CONCLUSION:** We report the successful integration of TXA into a primary and secondary AME program in the setting of major trauma with confirmed or suspected hemorrhagic shock. Further studies are needed to assess the effect of such a protocol in this patient population.

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