Is Tranexamic Acid Administration Associated With Decreased Rates of Heterotopic Ossification in Combat Casualties?

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Purpose: Heterotopic ossification (HO) is common following combat-related extremity trauma and can lead to recalcitrant pain, decreased mobility, skin ulceration, and soft-tissue irritation. Although previous prophylactic modalities for HO prevention have varying effectiveness, tranexamic acid (TXA) administration has demonstrated decreased rates of HO formation with a favorable safety profile.

Methods: Using the Department of Defense Trauma Registry, service members who received TXA or were diagnosed with HO were identified between 2003 and 2023. Demographics and injury characteristics were described using means and counts for categorical groups. We performed unpaired t-tests and $\chi 2$ analysis between the groups to evaluate for an association between TXA administration and the development of HO.

Results: During the study period, 93 patients received TXA and HO developed in 124 patients. Of the patients who received TXA following initial injury, HO developed in none. There were no significant differences between groups aside from higher Injury Severity Scores (ISS) (28 vs 24, $p<0.05$) and more penetrating injuries (89% vs 63%, $p<0.05$) in the TXA group.

Conclusion: HO did not develop in patients who received TXA following combat-related trauma, despite higher ISS scores with more penetrating injuries. These results are promising and align with recent studies demonstrating the effectiveness of TXA in preventing HO formation. A randomized trial evaluating TXA administration and the development of HO is warranted.