

Safety of Tranexamic Acid in Patients with Comorbidities: A National Assessment Using Claims Data from 1.7 Million Hip and Knee Arthroplasties[◇]

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Introduction: With increasing use of tranexamic acid (TXA) in total hip and knee arthroplasties (THA/TKA), safety concerns remain specifically regarding patients with preexisting comorbidities. Therefore, using national claims data, we aimed to study 1) current utilization patterns of TXA in THA/TKA procedures and 2) its impact on complications when used in patients with preexisting comorbidities.

Methods: In this retrospective cohort study we assessed data on n=1,694,795 THA/TKA procedures (Premier Healthcare claims database; 2006-2016). The main effect was TXA use; main outcomes were blood transfusion and complications (including acute renal failure, acute myocardial infarction and thromboembolism). Subgroups of interest were based on comorbidity burden: either by Deyo Charlson comorbidity index (0, 1, 2, >2) or history of thromboembolism, myocardial infarction or renal disease. Mixed effects models measured associations between TXA use and outcomes. We report odds ratios (OR) and 95% confidence intervals (CI).

Results: Overall transfusion rate was 16.9% (n=286,468) while TXA utilization rate was 25.6% (n=433,276); TXA utilization did not differ by patient comorbidity burden. TXA use was associated with decreased odds for blood transfusion while no increased odds for complications were observed. This effect was universal across comorbidity categories (Deyo Charlson 0, 1, 2, >2): blood transfusion OR 0.38 (CI 0.37-0.39), OR 0.39 (CI 0.38-0.40), OR 0.42 (CI 0.40-0.44), OR 0.47 (CI 0.45-0.49) / complications OR 0.68 (CI 0.65-0.72), OR 0.70 (CI 0.66-0.74), OR 0.74 (CI 0.69-0.79), OR 0.69 (CI 0.66-0.74), by comorbidity categories, respectively, all P<0.0001. Similar effects were observed when stratifying TXA use by cases with a history of thromboembolism, myocardial infarction or renal disease.

Conclusions: TXA utilization is similar in patients with and without comorbidities in THA/TKA cohort. While effective in reducing blood transfusions, TXA is not associated with increased complications irrespective of patient comorbidity burden. These findings support routine use of TXA in THA/TKA.

◇ The FDA has not approved tranexamic acid for use in orthopaedics.