Preoperative Tranexamic Acid Use in Free Flap Breast Reconstruction: A Propensity-Matched Analysis of Postoperative Outcomes

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Introduction: Tranexamic acid (TXA), an antifibrinolytic agent, has demonstrated efficacy in reducing perioperative bleeding across multiple surgical interventions. While increasingly utilized in breast reconstruction, evidence regarding its role in free flap procedures remains limited and inconsistent. This study evaluates the impact of preoperative TXA administration on postoperative outcomes in free flap breast reconstruction.

Methods: A retrospective cohort study was performed using the TriNetX research network to identify patients undergoing free flap breast reconstruction. Patients receiving preoperative TXA were compared with those who did not. Propensity score matching was applied to balance demographic and clinical variables. Primary outcomes included hematoma, seroma, bleeding, venous thrombosis, and flap loss.

Results: Among 20,778 patients, 524 (2.5%) received preoperative TXA. After 1:1 propensity score matching, 524 TXA patients were compared with 524 controls. Hematoma rates were significantly higher in the TXA group (21.2% vs. 15.3%, RR 0.72, 95% CI 0.55–0.94, $p = 0.01$). Seroma occurred more frequently in TXA patients (23.2% vs. 18.9%) but was not statistically significant ($p > 0.05$). Postoperative bleeding, venous thrombosis, and flap loss rates were comparable. Intraoperative hemorrhage occurred exclusively in the non-TXA group (≤ 1.9% vs. 0%, $p = 0.001$).

Conclusions: Contrary to prior reports, preoperative TXA use in free flap breast reconstruction was associated with a higher incidence of hematoma, without significant reduction in the rate of other complications.