Preoperative Thrombocytosis is Associated with Adverse Postoperative Outcomes after Hip Fracture Surgery

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INTRODUCTION: Low platelet counts have been shown to have clinically relevant effects on patient outcomes after hip fracture surgery, however the relationship between abnormally high platelet counts and postoperative outcomes in the hip fracture population is unknown.

METHODS: The ACS-NSQIP database was queried for patients who underwent hip fracture surgery between 2015 and 2019. Patients were grouped by their preoperative platelet counts: thrombocytopenia (<150,000/μL), normal (150,000-400,000/μL), and thrombocytosis (>400,000/μL). Chi squared and multivariate regression that controlled for comorbidities were used to compare outcomes between patients with normal platelet counts and thrombocytosis.

RESULTS: In total, 86,311 hip fracture patients were identified, of which 2,010 (2.3%) had preoperative thrombocytosis. Compared to patients with normal platelets counts, patients with preoperative thrombocytosis had significantly increased rates and odds of 30 day mortality (3.9% vs. 2.8%, p<0.001, OR 1.25 [95% CI 1.03-1.53], p=0.027), unplanned reoperation (4.2% vs. 2.8%, p<0.001, OR 1.47 [95% CI 1.13-1.91], p=0.004), readmission (3.7% vs. 2.7%, p<0.001, OR 1.28 [95% CI 1.09-1.49], p=0.002), VTE (3.8% vs. 2.8%, p=0.040, OR 1.43 [95% CI 1.04-1.95], p=0.026), and any infection (8.0% vs. 5.0%, p<0.001, OR 1.41 [95% CI 1.18-1.68], p<0.001).

DISCUSSION AND CONCLUSION: This study provides the first report of preoperative thrombocytosis in the orthopaedic trauma literature. Our findings suggest that hip fracture patients with preoperative thrombocytosis have an increased risk of mortality, unplanned reoperation, readmission, VTE, and postoperative infections. A patient with abnormally elevated preoperative platelet counts may benefit from close postoperative surveillance, consideration of possible concomitant infectious conditions, and proper VTE prophylaxis. Future prospective studies are needed to confirm any causal role and assess the potential benefit of thromboprophylaxis in order to improve outcomes after hip fracture surgery.