Risk Factors Associated with Venous Thromboembolism Following Total Hip Arthroplasty

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INTRODUCTION: Venous thromboembolism (VTE) following elective total hip arthroplasty (THA) remains to be a serious complication in the early postoperative period despite advances in prophylactic measures. Identification of risk factors that can guide postoperative prophylaxis decisions may enhance safety and efficacy. This study aims to identify risk factors for developing VTE following THA.

METHODS: The Premier Database was queried for all patients who underwent primary, elective THA from 2015-2020. Patients who developed pulmonary embolism (PE) or deep vein thrombosis (DVT) within 90 days of their index THA were identified and compared to patients who did not. Univariate analysis of patient demographics, comorbidities, hospital factors, perioperative medications (i.e. dexamethasone, tranexamic acid [TXA], and opioids), DVT prophylaxis agents, allogeneic blood transfusion was performed to identify factors that approached a significant difference between cohorts ($p<0.100$). These factors were then fitted into a multivariate model to identify independent risk factors for VTE.

RESULTS: In total, 474,707 THAs were identified, of which 2,513 (0.53%) developed VTE within 90 days (39.2% PE, 63.7% DVT). Age (OR 1.02 per year, $p<0.001$), and African American race (OR 1.29, $p<0.001$) were associated with an increased risk of VTE. Among the comorbidities assessed, obesity (OR 1.21, $p<0.001$), $p<0.001$), and metastatic cancer (OR 3.43, $p=0.003$) were associated with an increased risk of VTE. Furthermore, allogeneic blood transfusion (OR 1.62, $p<0.001$) was associated with an increased risk of VTE while dexamethasone utilization was associated with a reduced risk (OR 0.89, $p=0.004$). TXA was not associated with increased risk of VTE (OR 0.91, $p=0.039$).

DISCUSSION AND CONCLUSION:

Increasing age, African American race, allogeneic blood transfusion, and comorbidities, including obesity and metastatic cancer were identified as independent risk factors for VTE following THA. These factors should be considered during the selection of a VTE regimen in patients undergoing THA.