

## **Aspirin for Venous Thromboembolism Prophylaxis Decreases Mortality After Primary Total Joint Arthroplasty**

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**Introduction:** Aspirin has increased in popularity as prophylaxis for venous thromboembolism (VTE) following total joint arthroplasty (TJA). However, the potential cardioprotective effects of aspirin when administered for VTE prophylaxis remains unknown. This study aimed to investigate the influence of VTE prophylaxis, including aspirin, with respect to mortality following primary TJA.

**Methods:** A retrospective review of 31,113 primary TJA patients from 2000-2017 was conducted. Patient demographics, BMI, and comorbidities were obtained through an additional electronic chart query. Patients were allocated into two cohorts based on the VTE prophylaxis administered: aspirin (25.9%, 8,061) and non-aspirin (74.1%, 23,072). Mortality was assessed through an institutional mortality database (updated biannually and externally validated). Univariate and multivariate regression analyses were performed.

**Results:** Overall, the mortality rate was 0.22% and 0.56% at 30-days and 1-year following TJA. The use of aspirin was independently associated with lower risk for death at both 30-days (OR 0.37,  $p=0.016$ ) and 1-year (OR 0.52,  $p=0.006$ ). Patients in the non-aspirin cohort demonstrated a 3-fold increased risk for death at 30-days (0.3% vs. 0.1%,  $p=0.004$ ) and 2-fold increased risk of death at 1-year (0.7% vs. 0.3%,  $p<0.001$ ) compared to aspirin. At 1-year, the primary cause of death in the non-aspirin group was cardiac (46/23,072, 0.20%). In the aspirin cohort, the rate of death due to cardiac cause was almost 5-fold lower (3/8,061, 0.04%,  $p=0.005$ ). Risk factors for mortality at 1-year included higher mean age ( $p<0.001$ ), male gender ( $p=0.024$ ), pre-existent congestive heart failure ( $p=0.009$ ), cerebrovascular disease ( $p=0.001$ ), malignancy ( $p<0.001$ ) and history of myocardial infarction ( $p<0.001$ ).

**Conclusions:** This study demonstrates that administration of aspirin as a VTE prophylaxis reduces the risk of mortality following primary TJA. Given the numerous options available and permitted by the current guidelines, surgeons should be aware of this added benefit of aspirin when selecting VTE prophylaxis.