# Optimal Timing of Total Hip and Knee Arthroplasty Following Percutaneous Coronary Intervention

Zachary Fuller, Manjot Singh, Thomas Christensen, Jeremiah Joseph Thomas, Alan H Daniels, Zuhdi Abdo

INTRODUCTION: Patients with a history of percutaneous coronary intervention (PCI) may face increased risks following total hip (THA) and knee (TKA) arthroplasties, but the optimal timing of total joint arthroplasty (TJA) after PCI remains unclear.

METHODS: Adult patients undergoing THA (n=888,921; mean age 65.0, 56.4% female, mean CCI 1.5) or TKA (n=1,653,849; mean age 66.0, 63% female, mean CCI 1.5) between 2010–2022 were identified from a national claims database. Patients were stratified by PCI timing: no PCI, < 6 months, 6–12 months, and 12–24 months before arthroplasty. Groups were propensity score-matched 1:1 by age, sex, CCI, diabetes, obesity, CAD, and tobacco use. Outcomes included 90-day medical/surgical and 2-year mechanical complications, assessed via chi-square and multivariate regression relative to the no PCI group.

RESULTS: Among THA recipients, cardiac arrest rates rose with longer PCI-to-surgery intervals (No PCI: 0.4%, < 6M: 0.8%, 6–12M: 0.8%, 12–24M: 2.5%), while transfusion rates declined (5.8%, 3.3%, 1.2%, 0.4%). The < 6M group had lower odds of site complications (OR=0.2) and transfusion (OR=0.5), but higher odds of revision (OR=3.6). The 6–12M group had reduced odds of DVT, PE, hematoma, and transfusion (all OR=0.2), while the 12–24M group had the lowest transfusion odds (OR=0.1) but the highest for cardiac arrest (OR=7.4). For TKA, complications varied significantly: site-related (2.7%, 1.4%, 0.9%, 0.0%), transfusion (2.9%, 2.3%, 0.5%, 1.4%), infection (2.1%, 3.2%, 3.3%, 0.9%), and revision (2.5%, 2.1%, 1.4%, 0.5%). The 6–12M group had lower odds of site complications (OR=0.3) and transfusion (OR=0.2), while the 12–24M group had lower odds of transfusion (OR=0.4), infection (OR=0.4), and revision (OR=0.2) (all p< 0.05).

DISCUSSION AND CONCLUSION: Delaying THA 6–12 months and TKA 12–24 months after PCI may reduce perioperative risk while balancing cardiac optimization and procedural burden.