Optimal Timing of Total Hip and Knee Arthroplasty Following Coronary Artery Bypass Grafting

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INTRODUCTION: Prior coronary artery bypass grafting (CABG) may increase the risk of complications after total hip (THA) or knee arthroplasty (TKA), but the optimal timing of surgery following CABG remains unclear.

METHODS: A national insurance claims database was queried for adult patients undergoing THA (n=891,081; mean age 65.0; 56.4% female; mean CCI 1.5) or TKA (n=1,658,007; mean age 66.1; 62.8% female; mean CCI 1.9) from 2010–2022. Patients were stratified by CABG timing: No CABG, < 6 months, 6–12 months, and 12–24 months before arthroplasty. Cohorts were 1:1 propensity-matched by age, sex, CCI, diabetes, obesity, coronary artery disease, and tobacco use. Chi-square and multivariate regression analyses evaluated 90-day and 2-year complications compared to the No CABG group.

RESULTS: In the THA cohort, prior CABG was associated with higher odds of acute kidney injury (AKI) across all intervals (< 6M: OR=2.75; 6–12M: OR=2.77; 12–24M: OR=2.56; all p< 0.01). Hematoma risk was elevated in the 6–12M (OR=12.82, p=0.01) and 12–24M (OR=10.30, p=0.02) groups. The < 6M group had higher odds of transfusion (OR=2.40, p< 0.01) but lower odds of postoperative infection (OR=0.29, p=0.05). The 12–24M group also had higher odds of cardiac arrest (OR=7.97, p=0.05) and lower odds of mechanical complications (OR=0.18, p=0.04). In the TKA cohort, CABG at any interval increased the odds of AKI (< 6M: OR=2.59; 6–12M: OR=3.53; 12–24M: OR=2.99; all p< 0.01). The < 6M group had elevated odds of transfusion (OR=1.87, p=0.03), while all CABG groups had lower odds of postoperative infection (OR range: 0.19–0.30; all p≤0.02). Revision risk was reduced in the 6–12M group (OR=0.29, p=0.05).

DISCUSSION AND CONCLUSION: Delaying THA or TKA by at least 6–12 months after CABG may reduce infection and revision risk. Additionally, the consistently elevated risk of AKI highlights the need for careful perioperative optimization and management.