Post-COVID-19 Recovery: The Optimal Window for Elective Total Joint Arthroplasty

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INTRODUCTION:
There remains a lack of consensus on the safe timing of elective joint arthroplasty following a COVID-19 infection. We utilized the NIH National COVID Cohort Collaborative, which is the largest multicenter cohort of COVID-19 cases and controls nationwide, to characterize the joint arthroplasty cohort and associated complications.
METHODS:
Patients undergoing total hip arthroplasty (THA) or total knee arthroplasty (TKA) were queried from the N3C database containing 17.4 million persons with 6.9 million confirmed COVID-19 cases. Patients were stratified into initial documented COVID-19 infection within three time periods: 0-2 weeks, 2-6 weeks, or 6-12 weeks prior to surgery. All analyses were performed in the N3C Data Enclave Palantir platform.
RESULTS: A total of 50,158 THA patients and 65,569 TKA patients were identified. For patients undergoing surgery within 2 weeks of COVID-19, the risk of venous thromboembolic events (VTE) was elevated after THA (OR 3.23, 95% CI 1.80 to 5.80) and TKA (OR 2.12, 95% CI 1.09 to 4.15). The risk for sepsis was also elevated for THA (OR 2.79, 95% CI 1.52 to 5.14) and TKA (OR 2.29, 95% CI 1.07 to 4.87). The risk of surgical site infection was increased for THA (OR 2.54, 95% CI 1.38 to 4.68) but not for TKA. No differences in complication rates were seen in surgeries 2-6 weeks or 6-12 weeks after COVID diagnosis. No difference in renal complications were seen for any time group.
DISCUSSION AND CONCLUSION:
Using N3C, we assembled a large nationally representative cohort of patients undergoing total hip and knee arthroplasty after a documented COVID-19 infection. Patients undergoing THA or TKA within 2 weeks of initial COVID-19 diagnosis had increased risk for VTE, sepsis, and surgical site infection. This effect did not persist beyond 2 weeks, however, so it may be warranted to postpone elective surgery for at least 2 weeks or consider a more aggressive VTE chemoprophylaxis regimen for urgent surgery in COVID-19 patients.