

Simultaneous Bilateral TKA with Two-Surgeon Teams: Clinical Outcomes and Cost Analysis

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INTRODUCTION: Bilateral total knee arthroplasty (TKA) can be performed in a single-anesthetic (SA) or a staged, two-anesthetic (TA) approach. There is a paucity of literature on SA, simultaneous bilateral TKA with two-surgeon teams. This study evaluated the largest series of SA simultaneous bilateral TKA and compared 90-day clinical outcomes, initial encounter through 90-day costs, and midterm survivorship to a cohort of TA, staged bilateral TKA.

METHODS: We retrospectively reviewed 542 bilateral TKA (206 SA, simultaneous; 336 TA, staged) in 271 patients from 2007 to 2022. Three fellowship trained arthroplasty surgeons performed all bilateral TKAs (SA and TA). Patients were indicated for a simultaneous approach by a participating surgeon. Staged, single-surgeon TKAs performed within 6 months were included in the TA cohort. Propensity weighted comparisons controlling for age, sex and BMI were made. Mean age was 69, mean BMI was 35 kg/m² and 52% were female. Mean follow up was 4 years.

RESULTS: The combined operative times (104 vs. 181 minutes; p<0.01) and hospital length of stays (3 vs 4 days; p<0.01) were shorter in the SA cohort. There was a higher rate of transfusion in the SA cohort (22% [20 cell saver, 3 allogenic] vs 4% [7 allogenic]; p<0.01). There was no difference in home discharges (p=0.38), and 90-day cardiopulmonary events (p=0.59) between cohorts. There was a higher rate of manipulation under anesthesia (MUA) in the SA cohort (2% vs 0%; p=0.05). The combined initial encounter (\$23,251 vs. \$19,372; p<0.01) and 90-day (\$30,941 vs. \$20,175; p<0.01) costs were higher in the TA cohort. The 5-year survivorship free from any revision was 100% in the TA cohort, and 99% in the SA cohort.

DISCUSSION AND CONCLUSION: Despite higher transfusion rates and 90-day MUAs, a simultaneous, two-surgeon approach to bilateral TKA in select patients was safe and cost-saving through 90-days, with excellent 5-year survivorship.