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CLINICAL OUTCOMES BETWEEN 1ST AND 2ND TSA IN PATIENTS UNDERGOING BILATERAL TSA

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Background: With rise in bilateral total shoulder arthroplasty (TSA), we compared outcomes of first versus second TSA in patients who underwent bilateral TSA.

Methods: A single-institution prospectively-collected shoulder arthroplasty database was reviewed. Patients undergoing bilateral primary anatomic or reverse TSA (aTSA or rTSA) since January 2000 with minimum 2-year follow-up on both shoulders were identified. Outcomes included outcome scores (SPADI, SST, ASES, UCLA, Constant), active range of motion (abduction, forward elevation[FE], external and internal rotation[ER and IR]), and shoulder strength (ER and FE). Clinically-relevant benchmarks were adopted from prior literature and included minimal clinically important difference (MCID), substantial clinical benefit (SCB), and patient acceptable symptomatic state (PASS). Incidence of surgical complications and revision rates were examined for combinations of 1st and 2nd TSA.

Results: We identified 134 bilateral TSA patients; variations were aTSA/aTSA(n=68), aTSA/rTSA(n=29), rTSA/aTSA(n=3), and rTSA/rTSA(n=80). At the time of second TSA, the mean age was 70.3±7.1 years; patients undergoing rTSA were older than aTSA (71.8±7.0 vs. 67.8±6.6,P= .001). The average BMI was 30.8±7.7kg/m2, 50% were female, and 17% had prior surgery; these characteristics did not differ between patients undergoing second aTSA versus second rTSA. Mean time between TSAs was 2.6±2.8 years (aTSA/aTSA=2.2±2.5, aTSA/rTSA=4.6±3.4, rTSA/aTSA=0.9±0.2, rTSA/rTSA=2.3±1.9).
In patients undergoing aTSA/rTSA, 2nd rTSA had superior postoperative SPADI score (19.7±17.9vs. 31.1±27.6,P=.003), SST score (8.6±3.9 vs. 10.0±2.4,P=.015), ASES score (69.3±25.7 vs. 80.8± 6.7,P = .010), and FE strength (12±6 vs. 13 ± 7 lbs.,P = .036). For rTSA/rTSA, 1st rTSA had superior postoperative UCLA (27.7±8.0 vs. 25.1±9.8,P = .010), Constant (70.0±22.9 vs. 61.8±28.8,P = .009), FE (120±35° vs. 109±44°,P = .017), abduction (112±36° vs. 99±45°,P = .005), ER strength (11±6lbs. vs. 9±5lbs.,P = .004) and FE strength (10± 5lbs. vs. 9±6lbs.,P = .040). The only clinically-important difference in all cohort comparisons was a lower proportion of patients achieving the SCB for ER after 2nd rTSA versus 1st aTSA (58% vs. 24%,P=0.016). Overall, there was no difference in incidence of surgical complications or revision rates between any bilateral TSA variations.

Conclusions: All bilateral TSA combinations demonstrated excellent outcomes with most patients achieving clinically-relevant benchmarks. rTSA after aTSA was associated with superior outcomes compared to rTSA after rTSA.