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DOES ACHIEVING CLINICALLY IMPORTANT THRESHOLDS AFTER FIRST SHOULDER ARTHROPLASTY PREDICT SIMILAR OUTCOMES IN THE CONTRALATERAL SHOULDER?

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Background: Patients are increasingly undergoing bilateral total shoulder arthroplasty (TSA). It is unknown whether success after primary TSA is predictive of success after contralateral TSA. We aimed to determine whether exceeding clinically important thresholds of success after primary TSA predicts outcomes for subsequent contralateral TSA.

Methods: We retrospectively reviewed a prospectively-collected shoulder arthroplasty database for patients undergoing bilateral primary anatomic or reverse TSA starting January 2000 with preoperative and 2- or 3-year clinical follow-up. Primary outcome was whether exceeding clinically important thresholds in the ASES score for the first TSA was predictive of success of the contralateral TSA; thresholds for the ASES score were adopted from prior literature and included the minimal clinically important difference (MCID), substantial clinical benefit (SCB), 30% of maximal possible improvement (30%MPI), and patient acceptable symptomatic state (PASS). The PASS is defined as the highest level of symptom beyond which patients consider themselves well, which may be a better indicator of a patient's quality of life. To determine whether exceeding clinically important thresholds was independently predictive of similar success after second contralateral TSA, we performed multivariable logistic regression adjusted for age at second surgery, sex, BMI, and type of first and second TSA.

Results: Of the 134 patients identified that underwent bilateral shoulder arthroplasty, 65 (49%) had bilateral rTSAs, 45 (34%) had bilateral aTSAs, 21 (16%) underwent aTSA/rTSA, and 3 (2%) underwent rTSA/aTSA. On multivariable logistic regression, exceeding clinically important thresholds after first TSA was not associated with greater odds of achieving thresholds after second TSA when success was evaluated by the MCID, SCB, and 30%MPI. In contrast, exceeding the PASS after first TSA was associated with 5.9-times greater odds (95% CI = 2.5-14.4, $P < 0.001$) of exceeding the PASS after second TSA. Overall, patients that exceeded the PASS after first TSA exceeded the PASS after second TSA at a higher rate (71% vs. 29%, $P < 0.001$); this difference persisted when stratified by type of prosthesis for first and second TSA (64-78% vs. 17-35%, $P = 0.046$).

Conclusions: Patients that achieve the ASES score PASS after first TSA have greater odds of achieving the PASS for the contralateral shoulder regardless of prostheses type.