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DO PATIENTS WITH POOR EARLY CLINICAL OUTCOMES AFTER ANATOMIC AND REVERSE TOTAL SHOULDER ARTHROPLASTY ULTIMATELY IMPROVE?

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Background: While most patients undergoing aTSA and rTSA have substantial improvement in pain and function at early follow-up, improvements occur more slowly during postoperative rehabilitation in some patients. We assessed a patient's risk of persistent shoulder dysfunction beyond the early postoperative period and identify risk factors for persistent poor function.

Methods: We identified 702 primary aTSAs for OA and 1,360 primary rTSAs for OA, CTA, RCT, between 2001-2022 with early (3- or 6-months) and 2-year follow-up from a multicenter database. Early poor performance was defined as a postoperative ASES score <20th percentile. Persistent poor performance was defined as failing to achieve the patient acceptable asymptomatic state (PASS) (aTSA=81.7, rTSA=77.3) at 2-year follow-up. We identified 144 aTSA and 292 rTSA early poor performers. Our primary outcome was the rate of persistent poor performance. Secondary, we identified risk factors for persistent poor performance.

Results: At 2-year follow-up, 74 aTSAs(51%) and 178 rTSAs(61%) had persistent poor performance. For aTSA, the rate of persistent poor performance did not differ based on whether patients were early poor performers at 3-month follow-up, 6-month follow-up, or both (50% vs. 49% vs. 56%,P=0.795). In contrast, 85% of rTSAs classified as early poor performers at both 3- and 6-months were persistent poor performers at 2-years versus 56% and 54% of poor performers at 3- or 6-month follow-up only (respectively; both P<0.001). For rTSA, early poor performers at both follow-up visits had a 29.8% [95%CI=18.6-41.0%] greater absolute risk and a 1.54 [95%CI=1.32-1.81] greater relative risk of persistent poor performance compared to rTSAs with poor performance at 3- or 6-month follow-up only (both P<0.001). On multivariable analysis, persistent poor performance was best predicted by a diagnosis of hypertension and diabetes for aTSA and prior shoulder surgery and poor preoperative ASES score for rTSA.

Conclusions: Half of aTSAs and nearly two-thirds of rTSAs with an ASES score <20th percentile at early follow-up will have persistent poor shoulder function at 2-years. Risk factors for persistent poor performance should be assessed in early poor performers to determine if there are implant-positioning errors that would benefit from revision or if continued targeted physical therapy should be pursued.