**Reverse Total Shoulder Arthroplasty Within 6 Weeks of Proximal Humerus Fracture Is Associated With the Lowest Risk of Revision**

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**Purpose:** Reverse total shoulder arthroplasty (RTSA) has become an increasingly popular treatment strategy in the management of complex proximal humeral fractures (PHFs). Although some studies suggest an interval of 4 weeks, no definitive consensus has been reached regarding the optimal surgical timing of RTSA following PHF, particularly considering some of these fractures may initially be treated nonoperatively. Therefore, the aims of this study were (1) to identify optimal timing intervals that minimize the likelihood of revision following RTSA and (2) to determine differences in revision etiologies using the identified timing intervals.

**Methods:** A retrospective cohort analysis was performed on patients undergoing RTSA for PHF using a national administrative claims database. Stratum specific likelihood ratio (SSLR) analysis was conducted to determine data-driven timing strata between sustaining a PHF and undergoing RTSA that minimized the likelihood of revision surgery within 2 years status post RTSA. Multivariable regression analysis was conducted to confirm the identified data-driven strata's association with 2-year revision rates. The likelihood of various indications for revision including mechanical loosening, dislocation, periprosthetic joint infection (PJI), and periprosthetic fracture (PPF) was also compared.

**Results:** 10,756 patients undergoing RTSA following PHF were included in this study. SSLR analysis identified 2 timing categories: 0-6 weeks and 7-12 weeks from the time of PHF to RTSA surgery. Relative to the 0-6 week cohort, the 7-12 week cohort was more likely to undergo revision surgery within 2 years (odds ratio [OR]: 2.00, $P<0.001$). Moreover, the 7-12 week cohort had significantly higher odds of revision indicated for dislocation (OR: 2.44, $P<0.001$), PJI (OR: 1.99, $P = 0.002$), and PPF (OR: 2.52, $P<0.001$).

**Conclusion:** As it can be difficult to determine whether RTSA or nonoperative management is initially more appropriate, this study proposes a threshold of 2 weeks longer than previously studied arbitrary thresholds for surgical timing. The utilization of this new threshold permits more time for trial of nonoperative management and patient preoperative optimization without the added risk of revision.