

Background

Bone quality is an important factor in the success of rotator cuff repair (RCR) although the effects preexisting osteoporosis have not been well studied in this population.<sup>1, 2</sup> Osteoporosis has been identified as an independent risk factor of RCR failure.<sup>3, 4</sup> The purpose of this study is to compare 1- and 3-year outcomes of patients undergoing arthroscopic rotator cuff repair (ARCR) with and without a preoperative diagnosis of osteoporosis.

Methods

- The TriNetX database was queried for all patients undergoing ARCR and divided into two cohorts by whether they had a history of osteoporosis
- Cohorts were 1:1 propensity score matched; 3,427 patients remained in each cohort after matching
- Statistical significance was assessed at p=0.05; all statistical analysis was performed within the TriNetX platform

About TriNetX

TriNetX is a global research network that includes data from more than 170 healthcare organizations across 30 countries and over 400 million patients; of these organizations 76 share data for aggregated outcomes research and are included in this study.<sup>5</sup>

Conclusion

Patients undergoing ARCR with osteoporosis were less likely to undergo repeat open or arthroscopic RCR at 1 and 3 years postoperatively but were more likely to experience postoperative proximal humerus fracture. The overall complication rate was low. Patients should be counseled regarding increased risks, but osteoporosis should not be a deterrent to ARCR.

Arthroscopic RCR Baseline Demographics and Comorbidities

Before Matching				After Matching		
Demographics and Comorbidities N (%)	Osteoporosis N=3,439	No Osteoporosis N=88,358	P-Value	Osteoporosis N=3,427	No Osteoporosis N=3,427	P-Value
Age	65.6 ± 8.2	57.3 ±10.6	<0.001	65.6 ±8.1	65.7 ±8.2	0.670
BMI	28.5 ±6.1	30.4 ±6.0	<0.001	28.5 ±6.1	30.5 ± 6.3	<0.001
Female	2,908 (84.6)	35,903 (40.7)	<0.001	2,897 (84.5)	2,908 (84.9)	0.712
White Race	2,728 (79.3)	67,446 (76.4)	<0.001	2,718 (79.3)	2,733 (79.7)	0.653
Not Hispanic or Latino	2,607 (75.8)	63,828 (72.3)	<0.001	2,599 (75.8)	2,628 (76.7)	0.410
COPD	442 (12.9)	3,375 (3.8)	<0.001	436 (12.7)	385 (11.2)	0.058
Nicotine Dependence	515 (15.0)	9,382 (10.6)	<0.001	511 (14.9)	493 (14.4)	0.539
CHF	222 (6.5)	1,972 (2.2)	<0.001	217 (6.3)	162 (4.7)	0.004
HTN	2,071 (60.2)	30,530 (34.6)	<0.001	2,060 (60.1)	2,069 (60.4)	0.824
Diabetes Mellitus	787 (22.9)	12,180 (13.8)	<0.001	782 (22.8)	768 (22.4)	0.686
Coagulation Defects	258 (7.5)	2,113 (2.4)	<0.001	253 (7.4)	231 (6.7)	0.300
Adrenal Corticosteroids	2,684 (78.1)	43,437 (49.2)	<0.001	2,673 (78.0)	2,680 (78.2)	0.300

Arthroscopic RCR Outcomes

Outcomes N (%)	Osteoporosis N (%) N=3,427	No Osteoporosis N (%) N=3,427	Odds Ratio (Osteoporosis vs. No Osteoporosis)	P- Value
1 Year Outcomes				
Repeat Arthroscopic RCR	176 (5.1)	273 (8.0)	0.625 (0.514, 0.761)	<0.001
Surgical Site Infection	10 (0.3)	10 (0.3)	1 (0.416, 2.406)	1
Frozen Shoulder	183 (5.3)	165 (4.8)	1.115 (0.899, 1.384)	0.322
Open RCR	11 (0.3)	12 (0.4)	0.916 (0.404, 2.080)	0.835
Arthroscopic/Open RCR	187 (5.5)	282 (8.2)	0.644 (0.532, 0.779)	<0.001
Proximal Humerus Fx	41 (1.2)	23 (0.7)	1.792 (1.073, 2.993)	0.024
Shoulder Arthroplasty	48 (1.4)	35 (1.0)	1.377 (0.888, 2.134)	0.151
3 Year Outcomes				
Repeat Arthroscopic RCR	261 (7.6)	361 (10.5)	0.700 (0.593, 0.827)	<0.001
Surgical Site Infection	17 (0.5)	16 (0.5)	1.063 (0.536, 2.107)	0.861
Frozen Shoulder	211 (6.2)	191 (5.6)	1.112 (0.908, 1.360)	0.304
Open RCR	23 (0.7)	16 (0.5)	1.440 (0.760, 2.731)	0.261
Arthroscopic/Open RCR	282 (8.2)	373 (10.9)	0.734 (0.624, 0.864)	<0.001
Proximal Humerus Fx	68 (2.0)	41 (1.2)	1.672 (1.131, 2.470)	0.009
Shoulder Arthroplasty	97 (2.8)	80 (2.3)	1.219 (0.903, 1.645)	0.195