

Complication Rates and Functional Outcomes after Total Ankle Arthroplasty in Patients with Rheumatoid Arthritis

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INTRODUCTION: Utilization rates of total ankle arthroplasty (TAA) have greatly increased in recent years. For patients with rheumatoid arthritis (RA) undergoing TAA, conflicting data have been reported regarding risk of complications and patient-reported outcome (PRO) improvement when compared to patients with osteoarthritis. The purpose of this study is to compare complication rates and PROs of patients with RA to patients with osteoarthritis and posttraumatic arthritis.

METHODS: This was a retrospective study of 1,071 primary TAA performed at a single institution between 2001 and 2020. Minimum follow up was two years. Patients were stratified by indication for TAA (osteoarthritis, n=372; posttraumatic arthritis, n=642; RA, n=57). Patient demographics, intraoperative variables, postoperative complications, and PRO measures were compared between groups using univariable statistics. Multivariable Cox regression was performed to assess risk for implant failure. Mean follow up was 5.6 years (SD: 3.1).

RESULTS: Compared to the osteoarthritis and posttraumatic arthritis groups, the RA cohort had the lowest mean age (p< 0.001), lowest percentage of males (p< 0.001), and highest ASA score (p< 0.001). Univariate analysis showed no statistically significant difference for infection rates among groups (p=1.0). The RA cohort had the highest rate of heterotopic ossification postoperatively (2/57, 3.5%, p< 0.001). Multivariable regression analysis showed no increased risk of implant failure for the RA cohort (p=0.23). For the SMFA, SF-36, AOFAS-hindfoot, FAOS-symptoms, and FAOS-ADL the RA group reported the worst scores at final follow up (p< 0.001). However, the RA cohort demonstrated the largest improvements from preoperative to postoperative scores on the FADI, SF-36, and the symptoms and ADL subscales of the FAOS (p=0.04, 0.01, 0.03, 0.03).

DISCUSSION AND CONCLUSION: In the largest single institution study to date, patients with RA had the worst PRO scores compared to the osteoarthritis and posttraumatic arthritis groups. However, they experienced significantly higher improvements in functional outcomes from their preoperative baseline. Large patient samples with mid- to long-term follow up such as a presented in this series are imperative to fully understand the risk-benefit of TAA in various patient cohorts.

	Overall N=1071	Osteoarthritis N=372	Post Traumatic N=642	Rheumatoid Arthritis N=57	p-value
FADI Δ1	-35.50 (16.80)	-32.17 (18.84)	-35.70 (16.57)	-41.04 (12.93)	0.186
FADI Δ2	-35.27 (17.65)	-29.65 (18.91)	-36.43 (16.96)	-39.77 (18.72)	0.036**
VAS Δ1	-55.79 (27.77)	-52.12 (28.84)	-57.09 (26.62)	-60.72 (31.34)	0.105
VAS Δ2	-52.98 (31.84)	-50.71 (32.26)	-53.69 (31.14)	-57.07 (35.58)	0.382
SMFA Δ1	-19.77 (12.63)	-19.86 (13.38)	-19.79 (11.93)	-19.16 (15.18)	0.954
SMFA Δ2	-18.47 (13.94)	-18.54 (14.46)	-18.82 (13.35)	-15.26 (15.27)	0.270
SF-36 Δ1	23.04 (17.82)	21.61 (16.79)	24.97 (17.84)	12.65 (18.37)	0.001**
SF-36 Δ2	20.23 (20.03)	19.68 (18.52)	21.52 (20.75)	11.13 (19.24)	0.013**
AOFAS-hindfoot Δ1	37.07 (19.46)	35.64 (20.46)	37.21 (18.82)	40.93 (21.79)	0.447
AOFAS-hindfoot Δ2	34.66 (20.47)	34.71 (21.23)	35.10 (19.71)	30.72 (23.58)	0.554
FAOS-pain Δ1	40.63 (20.47)	37.82 (19.44)	42.43 (20.47)	38.27 (29.78)	0.289
FAOS-pain Δ2	37.37 (22.05)	37.40 (20.42)	37.46 (23.73)	35.71 (21.72)	0.980
FAOS-symptoms Δ1	37.07 (22.69)	35.62 (21.48)	40.03 (22.12)	21.75 (33.18)	0.025**
FAOS-symptoms Δ2	34.60 (21.59)	34.81 (21.72)	35.24 (21.59)	25.60 (19.55)	0.332
FAOS-ADL Δ1	30.49 (17.46)	28.59 (15.82)	33.20 (17.64)	18.49 (27.84)	0.034**
FAOS-ADL Δ2	15.67 (23.21)	16.14 (22.47)	15.31 (24.43)	14.03 (18.35)	0.941
FAOS-QOL Δ1	34.79 (19.13)	35.44 (18.68)	35.22 (19.48)	23.64 (19.18)	0.140
FAOS-QOL Δ2	35.44 (21.40)	35.95 (21.07)	35.08 (22.00)	33.50 (19.44)	0.907

*All scores reported as mean (SD)

**Δ1 indicates change in outcome measure from preoperative to 1 year follow-up; Δ2 indicates change in outcome measure from preoperative to final follow-up

***indicates p < 0.05