

Age Related Outcomes in Total Ankle Arthroplasty

James M. Cottom, DPM, FACFAS¹, Steven M. Douthett, DPM, AACFAS², Kelly K. McConnell, DPM, AACFAS³, Britton S. Plemmons, DPM, AACFAS⁴, Colin T. Graney, DPM, AACFAS⁵

¹Fellowship Director, Florida Orthopedic Foot and Ankle Center, Sarasota, FL, ²Associate, Oregon Medical Group, Eugene, OR, ³Associate, Coastline Foot and Ankle Center, Corvallis, OR, ⁴Associate, Longview Orthopedic Clinic Association, Longview, TX, ⁵Fellow, Florida Orthopedic Foot and Ankle Center, Sarasota, FL

Purpose

Total ankle replacement (TAR) is being performed in younger and younger age groups secondary to improvements in technology and reported outcomes in literature. Historically, TAR has been reserved for elderly, minimally active patients. With an expanding indication for TAR, the purpose of this study was to evaluate the outcomes in select cohorts based upon patient age.

Methodology

The total cohort was divided into three groups based on patient age at time of surgery (<55, 55-70, and >70 years). Available charts were reviewed for patients who underwent total ankle arthroplasty during a 5-year period. Patient demographics, implant used, concomitant procedures, postoperative complications, and AOFAS and FFI scores were recorded and included as a measure of patient satisfaction post-operatively. All joint replacement procedures were performed by the senior author, JMC.

Age	Pre Op AOFAS	Pre Op FFI	Post Op AOFAS	Post Op FFI
<55 Years	50.1	65.1	75.5	10
55-70 Years	52.4	62.8	79.7	23.9
> 70 Years	53.8	47.6	86.9	12.3

Table 1. Average patient outcomes

Group	N	Return to OR
Group 1	11	3/11 (27.3%)
Group 2	43	7/43 (16.3%)
Group 3	58	6/58 (10.3%)
Total	112	16/112 (14.3%)

Table 2. Reoperation rate



Figures 1-6. Patient from Group 1 who developed deep infection requiring antibiotic spacer and abdominal free flap followed by liposuction, flap revision, revision TAR

Results

221 patients underwent TAR between March 2012 and July 2017. At the time of study, 112 patient charts were available. Average follow up was 37.8 months (range 12-46) for group 1, 29.3 months (range 10-56) for group 2, and 34.6 months (range 11-63) for group 3. Average age was 45 years (range 23-54) for group 1, 63.3 (range 55-70) for group 2, and 75.8 (range 71-85) for group 3. 3 males, 8 females were in group 1, 19 males, 24 females in group 2, and 34 males and 24 females in group 3.

Results Continued

Total complication rate for group 1 was 36.4% (4), one case (9.1%) resolved with oral antibiotics. The complication rate for group 2 was 20.9% (9), including 2 cases (4.7%) that resolved with oral antibiotics. The total complication rate was 18% (11) for group 3, including 5 (8.6%) that resolved with oral antibiotics. All patients underwent at least one concomitant procedure at the time of ankle replacement. Average post-operative AOFAS scores were 75.5 for group 1, 79.7 for group 2, and 86.9 for group 3. Average post-operative FFI scores were 10 for group 1, 23.9 for group 2, and 12.3 for group 3.

Literature Review

Post traumatic ankle arthritis presents at a much younger age than end stage knee or hip arthritis. TAR has been recommended for patients of older age and with low physical demand. In early literature, Spirt et al reported implant failure and reoperation risk nearly twice as high in patients under the age of 54.¹ Multiple studies have since shown similar survivorship in patients under vs over 50 years of age.^{2,3}

Analysis & Discussion

This retrospective review has shown that patients >70 years old have higher patient reported outcomes following TAR. Additionally, we have found that the complication rate was the lowest in this age group. Our results are similar to those reported by Demetracopoulos et al.⁴ The results have shown that TAR in a younger patient population may involve greater risk of complications post operatively, likely due to the physical demands of this group, however patient satisfaction remains high.

References

1. Spirt AA, Assal M, Sigvard T, Hansen J. Complications and failure after total ankle arthroplasty. *J Bone Joint Surg.* 2004;86(6):1172-1178.
2. Kofoed H, Lundberg-Jensen A. Ankle arthroplasty in patients younger and older than 50 years: a prospective series with long-term follow-up. *Foot Ankle Int.* 1999;20(8):501-506.
3. Rodrigues-Pinto R, Muras J, Martín Oliva X, Amado P. Total ankle replacement in patients under the age of 50: should the indications be revised? *Foot Ankle Surg.* 2013;19(4):229-233.
4. Demetracopoulos C., Adams S., Queen R., DeOrio J., Nunley J., Easley M. Effect of Age on Outcomes in Total Ankle Arthroplasty. 2015;36(8):871-880.