

An Update on the Canadian Experience Treating End Stage Ankle Arthritis with Fusion or Replacement Surgery

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Introduction/Purpose: There is much interest in the surgical treatment of end-stage ankle arthritis. Our team has previously reported comparisons between ankle fusion and replacement outcomes for 321 ankles at 5.5 years from a prospective cohort. This research extends the observational period for another six years, ending in 2013. Our primary hypothesis is that patient-reported clinical outcomes for ankle fusion and replacements would be similar at last follow up.

Methods: Patients in the Canadian Orthopaedic Foot and Ankle Society (COFAS) Prospective Ankle Reconstructive Database were treated with total ankle replacement (involving Agilty, Star, Mobily, Hintegra, or Inbone) or fusion (open or arthroscopic). Patient characteristics collected included demographics, comorbidities, smoking status and body mass index. Patient-reported outcomes (PROs) completed by patients were the Ankle Osteoarthritis Scale (AOS) and Short Form-36 (SF-36). Pre-operative and most recent patient data, with at least four years follow-up, were analyzed. Sensitivity analyses excluded ankles that had undergone revision. A linear mixed-effects regression model compared scores between total ankle replacement and fusion groups, adjusting for patient characteristics, baseline data and surgeon.

Results: The sample included 844 ankles (556 ankle replacements and 284 arthrodesis). The mean follow up period was 8.0 years (standard deviation 3.1 years), with minimum and maximum of 4 and 14 years, respectively. Patients treated with arthrodesis were younger, more likely to be diabetic and smokers, and somewhat less likely to have inflammatory arthritis. Overall, 19.4% of ankle fusion and 30.8% of ankle replacements underwent all-cause re-operation. The mean AOS total score improved from 58.6 points pre-operatively to 31.4 post-operatively (delta 27.2), and from 57.0 to 26.9 points (delta 30.1) in the ankle replacement group. Differences in the change in AOS and SF-36 scores between the arthrodesis and ankle replacement groups were minimal after adjustment for baseline characteristics and surgeon.

Conclusion: Clinical outcomes of total ankle replacement and ankle arthrodesis were comparable in a diverse cohort of patients whose follow up period ranged between 4 and 14 years post-operatively.

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