TREATMENT OF ANKLE ARTHRITIS: A LONG-TERM FOLLOW-UP

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Background: Ankle arthritis is a debilitating disease that can be compared to that of hip arthritis. It has been projected that osteoarthritis (OA) will be the fourth leading cause of disability by the year 2020, due to multiple factors including an increasingly aged population. While OA is generally a well-known pathology in the knee and hip, it is less common in the ankle joint. Primary OA is the most common cause of OA in the hip and knee, however, ankle arthritis is more frequently caused by post-traumatic or secondary arthritis, as primary OA of the ankle is much less common. Despite the differences in etiology, ankle arthritis is frequently treated with arthroplasty similar to hip and knee OA. However, ankle arthrodesis is also a valuable surgical intervention in treatment of ankle arthroplasty creating controversy about the best option for surgical management of ankle arthritis. There is a relative paucity of literature comparing surgical treatment options, especially long-term, for ankle arthritis. Ankle arthrodesis has been the gold standard for treatment of ankle arthritis; however, in the past few decades there has been an increase in the utilization of total ankle arthroplasty (TAA) due to improvements in implant design and improved gait and motion preservation when compared to arthrodesis. However, this comes at the cost of increased re-operation and less certainty with long-term durability. Our study will address the long-term uncertainty in surgical management of ankle arthritis with prospectively gathered long-term comparison of TAA and ankle arthrodesis patients receiving both new and old generation implants with patient reported outcomes and pain scores. This could potentially alter the current recommendation for surgical management of ankle arthritis.

Methods: A multi-center prospective short-term follow up comparing arthrodesis and two generations of TAA has already been completed, including patients from our institution. The original study included 273 patients, 103 with arthrodesis and 170 with arthroplasty, between the years of 2005 and 2011. These patients were evaluated at baseline, 6, 12, 24, and 36 months, where they completed a pain score, Musculoskeletal Function Assessment (MFA) and a Short Form-36 (SF-36) survey. Patients are currently between 7 and 13 years post-op and some patients have been contacted with yearly mailed or in-person questionnaires. Currently, 110 patients have responded, some with multiple data points. We are starting further contact with 40 patients at our institution to gain additional long-term data points and increase our patient number. We will complete an initial analysis of our current responses to score the SF-36, pain scores, and initially compare ankle arthrodesis to ankle arthroplasty patients.

Results: In the short-term follow up study, the mean improvements in the MFA and SF-36 Physical Function (PF) scores over the 3 year period were significantly better in the TAA group compared to the ankle arthrodesis group (3.6 ± 1.6 [p=0.023] for MFA and 7.5 ± 2.9 [p=0.0098] for the SF-36 PF scale). When comparing only newer TAA devices to arthrodesis, these MFA and SF-36 PF score improvements were even greater, with an improved pain scores as well (0.8
± 0.4 [p+0.038]). Long-term SF-36 and pain scores will be initially reported on the patients that have responded and will be updated with increasing response.

**Conclusion:** While both arthrodesis and TAA exhibited significant mean improvement in most outcomes after surgery, the mean improvements in the MFA and SF-36 PF scores over the 3 year follow up were significantly better for TAA over arthrodesis. We expect that the long-term data will reveal maintained or improved patient reported outcomes in the ankle arthroplasty group, at the cost of increased re-operation rates.