Treatment of End-Stage Hallux Rigidus and Impact of Arthrodesis versus Arthroplasty on Patient Reported Outcomes

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Introduction/Purpose: Hallux rigidus is a degenerative disease of the first metatarsophalangeal joint. Severe, end-stage hallux rigidus can become debilitating with surgical intervention becoming necessary once conservative measures and shoe modifications have failed. Joint salvage procedures include metatarsal phalangeal (MTP) arthrodesis and MTP arthroplasty. The purpose of this study was to assess for differences in patient reported outcomes in two cohorts who underwent fusion or joint reconstruction.

Methods: This study was a retrospective review of prospectively collected data of 385 patients from an academic medical institution. Patients who underwent surgical intervention from July 2015 to November 2016 were identified based on CPT codes for MTP arthrodesis (28750) and arthroplasty (28293). We extracted outcome scores including SF12-M, SF12-P, FAAM, and VAS scores. Exclusion criteria included poly-trauma, revision procedures, and lack of pre and post-operative outcome scores. Mann-Whitney t-test was performed using GraphPad Prism version 7.0b for Mac to compare procedure groups, with significance define by a p-value of 0.05.

Results: A total of eighteen patients met the inclusion criteria, with 6 who underwent arthroplasty and 12 arthrodesis. The average age was 63.7 amongst the cohort, with a total of 16 female and 2 males. Patients who underwent arthrodesis had better outcomes across all parameters. When comparing preoperative and postoperative scores, arthrodesis patients showed greater improvement of SF12-M (arthrodesis 9 vs arthroplasty -2, p=0.05), and SF12-P (9 vs -16, respectively p=0.05) scores. Arthroplasty patients were more likely to have a decrease in their SF-12 scores. VAS scores and FAAM scores showed no statistical difference between the two cohorts. Postoperative VAS scores were worse in 33% of arthroplasty patients despite surgical intervention, compared to 10% of arthrodesis patients.

Conclusion: Our results suggests that both procedures provide a statistically significant difference in pain with several patients having a Global Rate of Change that is “very much better”. However, fusion of the metatarsophalangeal joint results in improved pain and functional outcomes for patients with severe hallux rigidus. These findings are consistent with current reports in the literature, which are mostly case series reports. Larger studies are needed to provide appropriate power and better support the findings of this study.

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