Preoperative Patient-Reported Outcome Measures (PROMs) Predict Postoperative Success in Patients With End-Stage Ankle Arthritis

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Disclosure

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• Our disclosures are in the Final AOFAS Mobile App.
• We have no potential conflicts with this presentation.
Background

• Ankle OA is a cause of pain and functional limitation.

• TAR and Ankle fusion have been viable options for treatment of end stage ankle OA with excellent outcomes.

• Despite the effectiveness of those treatments, a subset of patients remains with persistent pain and functional limitations.

• This has prompted the search for predictive tools capable of identifying patients who are likely to benefit from surgery which allows surgeons to provide valuable prognostic information.
Objectives

• To use preoperative PROMs scores to predict which patients with end-stage ankle arthritis are most likely to experience functional improvements (a clinically meaningful change) at an average follow-up of 5 years after surgical treatment.
Materials and Methods

- Prospective cohort design (2004-2013)
- Undergoing ankle fusion or TAR
- PROMs collected at preoperative baseline and average of 5 years post-op follow-up.
- Data collected: demographics, AOS, COFAS-AAS, SF-36 PCS & MCS
- MCID was calculated using the distribution method.
Statistics

Receiver operating characteristic (ROC) analysis was used to calculate threshold values:

- The levels at which substantial changes occurred, and their predictive ability to determine whether preoperative PROM scores were predictive of achieving MCID.

- The Youden index, which maximizes the balance of sensitivity and specificity, was used to calculate threshold values.
Results

• 427 patients included in the study

• Patients who scored worst at preoperative baseline made the greatest gains in function and pain relief following surgical treatment.

• Preoperative AOS, COFAS-AAS, SF-36 PCS scores were predictive of postoperative improvement.

• SF-36 MCS showed minimal post-op improvement and did not demonstrate predictive abilities
Ankle Osteoarthritis Score (AOS)

- MCID: 12.35 points
- 76.8% of patients achieved improvement greater than the MCID
- Patients who scored AOS ≥ 45.76 had a 83% chance of achieving MCID
- AUC 0.68
COFAS-Ankle Arthritis Score

- MCID 9.99 points
- 72.7% of patients achieved improvement greater than the MCID.
- Patients who scored preoperative $\geq 25.70$ had a 78% chance achieving MCID.
- AUC 0.68
SF-36 PCS

- MCID 6.43 points
- 50% of patients achieved improvement greater than the MCID.
- Patients who scored preoperative ≤ 31.01 had a 62% chance achieving MCID.
- AUC 0.70
Discussion

• We identified PROM threshold values that predict clinically meaningful improvements in functional outcome in patients with end-stage ankle OA.

• Patients with a higher level of preoperative function are less likely to obtain meaningful improvement after surgical treatment.

• The results of this study may be used to facilitate discussion between physicians and patients regarding the expected functional benefit after surgery and to support the development of patient-based informed decision-making tools.