The Effect of Obesity on Functional Outcomes and Complications in Total Ankle Arthroplasty

Christopher E. Gross, M.D.\textsuperscript{1}; Alexander Lampley, M.D.\textsuperscript{1}; Cynthia L. Green, PhD.\textsuperscript{2}; James K. DeOrio\textsuperscript{1}, M.D.; Mark Easley, M.D.\textsuperscript{1}; Samuel Adams, M.D.\textsuperscript{1}; James A. Nunley II, M.D.\textsuperscript{1}

\textsuperscript{1}Department of Orthopaedic Surgery
\textsuperscript{2}Department of Biostatistics and Bioinformatics
Duke University Medical Center

cgross144@gmail.com
Twitter: @FootAndAnkle_MD
The Effect of Obesity on Functional Outcomes and Complications in Total Ankle Arthroplasty

Christopher E. Gross, MD

My disclosure is in the Final AOFAS Mobile App.

I have no potential conflicts with this presentation.
Introduction

• Prevalence of obesity in the U.S> rose to 34.9% in 2012 (Ogden 2014)

• Morbid obesity is thought to be a relative contraindication to total ankle replacement (TAR) surgery
Obesity in Total Joint Literature

- Slightly higher revision, infection, and complication rates in the total hip and knee literature
- Functional outcomes are lower compared to non-obese patients, though obese patient experience significant improvements in outcome metrics
Obesity in TAR

- Barg, et al. FAI 2011
  - 123 TAR with a BMI over 30kg/m²
  - All had significant improvements in their ROM and pain and function scores.
  - BMI did not change significantly over a period of two years.
  - Obese patients had a similar survivorship in non-obese patients with a six-year survivorship of 93% and a revision rate of 4.9%.
Purpose

• To describe the functional outcomes in obese TAR patients
• To compare the infection and complication rates to a non-obese group

Hypothesis

• Obese patients after TAR experience similar complication and revision rates compared to non-obese patients, but have lower functional outcomes.
Methods

• Consecutive series of 723 patients who underwent 3rd generation TAR

• Indications:
  – Asymptomatic patients: radiographic progression over one year of >1cm cyst
  – Symptomatic patients: ankle pain, instability, collapse with evidence of cyst on radiographs
Methods

- Consecutive series of 689 patients who underwent 3rd generation TAR
- BMI ≤30 kg/m^2: 347
- BMI >30 kg/m^2: 235

- Clinical and functional outcomes, wound healing issues, superficial or deep infection rates, complications, and failure rates were compared.
- AOFAS, SMFA, FADI, SF-36 compared
Results

• Mean patient follow-up in the obese group was 37.9mos and 38.7mos in the control group
• Mean BMI control: 26.2
• Mean BMI obese: 33.8 (range, 30.1-55.5)
• Sex, Smoking rates similar
• Higher % of African Americans were obese
Complication rates

- Similar complication rates (obese: 11.1%, control: 14.1%)
- Similar revision rates (obese: 2.6%, control: 2.1%)
- No difference in infection rates
Functional Outcomes

• Using a repeated measures analysis, all functional outcome scores significantly improved over time for both the obese and non-obese group (p<0.001).

• Pre-operatively, the obese group had lower FAOS ADL, SF-36 scores and higher SMFA functional score.

• Obese pts had lower FAOS Pain and SF-36 scores and higher FADI compared to the control group.
Conclusions

• Obese and control group had similar wound, complication, revision and infection rates
• Obese patients experienced a significant improvement in all functional outcome measures
• Obese patients tended to have lower functional scores both pre-op and post-op compared to their non-obese counterparts
• Obesitiy should not be considered a contraindication to TAR
References


• Mackie, A; Muthumayandi, K; Shirley, M; Deehan, D; Gerrand, C: Association Between Body Mass Index Change and Outcome in the First Year After Total Knee Arthroplasty. The Journal of arthroplasty. 2014. http://dx.doi.org/10.1016/j.arth.2014.09.003


• Penner, MJ; Pakzad, H; Younger, A; Wing, KJ: Mean BMI of overweight and obese patients does not decrease after successful ankle reconstruction. The Journal of bone and joint surgery American volume. 94 (9): e57, 2012. http://dx.doi.org/10.2106/JBJS.K.00513