What variables influence final range of motion following Total Ankle Arthroplasty

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Disclosures

• My disclosure is in the Final AOFAS Mobile App
• I have no potential conflicts with this presentation
Purpose

• To retrospectively review previous total ankles and examine what variables may contribute to an acceptable final motion outcome.

• This information could help in distinguishing which patients are more appropriate candidates for an arthroplasty versus an arthrodesis.
Methods

- Retrospective analysis of 163 primary total ankles performed between 2009 and 2012 using a single implant (*Tournier Salto Talaris*)
- Radiographs examined for the presence of flexion/extension views at 12 month follow-up.
- 78 patients had complete radiographs.
Methods

• All 78 patients had radiographs analyzed to assess tibiotalar ROM at 12 month follow-up.
• Cobb angle difference measured from tangents to tibial keel and bottom of talar component\textsuperscript{6,15}
Methods

• All 78 ranked based on ROM at 12 months.
• Top and bottom 25 selected for study cohorts
• Each cohort further analyzed for:
  – Pre-operative tibiotalar motion (measure in a similar fashion)
  – Pre-operative diagnosis
  – Prior or concurrent procedures on the foot or ankle
  – Age and BMI
  – Post-operative protocol, including time to weight bearing, time to start of physical therapy, duration and frequency of therapy

• Information gathered from radiographs, chart, and by phone interview. Consent obtained at time of phone interview.
Results

• No difference in age or BMI between the two groups \((p=0.52, p=0.14\) respectively\)

• No difference in the post-operative protocols
  – Time to weight bearing was 5.52 weeks and 5.42 weeks in the top and bottom groups, respectively \((p=0.85)\)
  – Time to start of PT was 4.96 weeks and 4.77 weeks in the top and bottom groups, respectively \((p=0.80)\)
  – Frequency and duration of PT were the same \((p=0.47, p=0.67\) respectively\)
ROM Results

- **Top 25**
  - increased from 28.9° to 33.3°
- **Bottom 25**
  - decreased from 17.9° to 12.3°
  - \( p = 0.0 \) for comparison of post-op ROM between groups
Pre-operative Diagnosis

**Top 25 group**
- Large number of primary OA resulting from previous ankle instability, varus or valgus

- Post-traumatic OA (n=4)
- Primary OA (n=21)

**Bottom 25 group**
- Large number of post-traumatic OA patients

- Post-traumatic OA (n=12)
- Primary OA (n=11)
- RA (n=1)
Conclusion

• As expected, pre-operative range of motion had a large impact on post-operative motion
• Post-traumatic arthritis patients were more likely to have poor motion outcomes, whereas patients with previous varus or valgus instability had the best motion outcomes.
• Time to weight bearing and use of PT did not differ in the two cohorts.
References


