Heterotopic Ossification after Total Ankle Arthroplasty: A comparison of Intramedullary and Non-Intramedullary Based Implant Designs

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Disclosure

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Our disclosures are in the Final AOFAS Program Book.

I have a potential conflict with this presentation due to:
Consultant relationship – WMT (GCB, CFH)
Background

- **Total Ankle Replacement (TAR)**
  - Accepted treatment for end-stage ankle arthritis

- **Heterotopic Ossification (HO)**
  - Known to occur throughout the body after bone and soft tissue trauma

- **HO after TAR**
  - Common occurrence (up to 90%)
  - Etiology poorly understood
Background

- Possible causes of HO after TAR
  - Soft tissue trauma
  - Bone resection
  - Undercoverage
  - Hematoma formation
  - Bone debris $2^\circ$ to intramedullary reaming
Purpose

• Review HO after TAR
  – Quantify
  – Location and progression

• Compare HO progression between:
  – INBONE
    • intramedullary targeting; reaming of tibial metaphysis
  – Salto-Talaris
    • Stemmed implant but no medullary reaming
Methods

• IRB approved
• Retrospective comparative review
• Consecutive, matched case series
  • 2007 – 2012
  • Inbone (IB)
  • Salto-Talaris (ST)
• Minimum follow-up 2 years
Methods

Grading system
- Adapted from Choi, et al.²
- Severity
  - 0 through IV
- Location
  - 1. Mortise: medial
  - 2. Mortise: lateral
  - 3. Lateral: Anterior
  - 4. Lateral: Posterior
  - 5. Syndesmosis

[Diagram showing grading scale and locations]
Results

• HO progresses with time
• Significant (p<.05) difference within each implant
  – Progression of HO in both IB and ST groups
Results

INBONE vs Salto:

- No significant difference in amount of HO
- No significant difference in the distribution of HO
Conclusions

• HO is common in both INBONE and Salto TAR
• HO progresses over the first 2 post operative years in both TAR groups
• Intramedullary reaming and implant fixation (IB) not associated with increased incidence or progression of HO formation