INTERMEDIATE OUTCOMES OF ANKLE ARTHRODESIS AND TOTAL ANKLE ARTHROPLASTY WITH IMPLANTS APPROVED FOR USE IN THE UNITED STATES: A SYSTEMATIC REVIEW OF LITERATURE

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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, Wright Medical (GCB)
Purpose

- Determine survivorship and functional outcomes in last 10 years for:
  - Ankle Fusion
  - TAR
- Focus on TAR implants approved for use in the United States:
  - AGILITY
  - STAR
  - SALTO-TALARIS
  - INBONE
Methods

• Systematic Review of the literature
  – According to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.
  – The EBSCO host platform was used to search the following databases: MEDLINE, CINAHL, and SPORTDiscus.
  – All articles published in English from January 1st, 2001 to December 22, 2011 were included for initial review.

• Manual review of article citations and target journals was also performed
Methods

- 202 studies in initial review
  - 33 met eligibility requirements
    - 27 TAR
    - 4 arthrodesis
    - 2 combined

Potentially relevant papers after initial search results (n=202)

Studies excluded after review of titles and abstracts (n=140)

Studies retrieved for more detailed evaluation (n=62)

Studies excluded after full text review (n=27)

Potentially appropriate studies included in final analysis (n=35)

Studies excluded, overlapping patient populations (n=2)

Studies included in systematic review (n=33)
Results

- Total of 3,638 TAR
  - 2,075 STAR
  - 915 Agility
  - 110 Salto Talaris
  - 58 Inbone
  - 480 not specified

- Total of 4,907 Arthrodeses
  - Implants variable/unreported
TAR Results

• 5 year survival rate 86%
  • Based on 1940 TAR-1415 STAR, 525 Agility
• Minor Infection Rate 5.5%
  • based on 1328 TAR-1011 STAR, 265 Agility, 37 Inbone, 15 Salto
• Major Infection Rate 2.7%
  • based on 2391 TAR -1661 STAR, 678 Agility, 37 Inbone, 15 Salto
• TAR Reoperation Rate 20%
  • based on 2641 TAR- 1450 STAR, 685 Agility, 5 Salto-Talaris, 21 Inbone, 480 unknown
TAR Functional Outcomes

• 4 studies reporting pre AOFAS
  – (223 TAR: 152 STAR, 71 Agility)
  – Average 34.4

• 7 studies reporting post AOFAS
  – (336 TAR: 265 STAR, 71 Agility)
  – Average 80.4

• 4 studies reporting post Kofoed
  – (147 STAR)
  – Average 73.7
Results: Arthrodesis

- Very few studies published in last 10 years
- Fusion reoperation rate 11% at 5 years
  - Observational study (Soohoo, et. al)
  - 4705 ankle fusions
    - Endpoint = subsequent subtalar fusion
- Most studies focus on techniques or viability of new implants without functional data
Conclusion

• Literature shows strong increase in interest in TAR
  – Very few recent outcome studies on ankle arthrodesis
• Functional outcome data for TAR heterogeneous and poorly reported
  – Minimal data available for Salto-Talaris and Inbone
• Average 5 year survival rate for TAR in the US:
  – 86%
• More clinical studies with standardized outcome measures needed to better understand TAR outcomes and survival rates