Total Ankle Replacement in Patients with Severe Bleeding Disorders

Alexej Barg, MD

Head Foot & Ankle Surgery
Orthopaedic Department
University Hospital of Basel, Switzerland
Total ankle replacement in patients with severe bleeding disorders

Alexej Barg¹, MD; Katharina Barg¹; Martin Wiewiorksi¹, MD; Stefan W. Schneider², MD; Dieter C. Wirtz³, MD; Philip Berdel³, MD; Sascha Gravius³, MD; Geert Pagenstert¹, MD; Victor Valderrabano¹, MD, PhD

1) Orthopaedic Department, University Hospital of Basel, Basel, Switzerland; 2) Department of Dermatology, Venerology, and Allergoloty, University Medical Center and Medical Faculty Mannheim, University of Heidelberg, Mannheim, Germany; 3) Department of Orthopaedics and Trauma Surgery, University of Bonn, Bonn, Germany

Alexej Barg, MD
My disclosure is in the Final AOFAS Mobile App. I have no potential conflicts with this presentation.
Total Ankle Replacement

- Established surgical procedure in patients with severe posttraumatic or rheumatoid ankle osteoarthritis
- 3rd generation TAR designs¹:
  - improved equipment and surgical technique
  - better learning curve
- Current literature:
  - promising results²,³
  - superior to results of ankle fusion⁴,⁵
  - still lower than in patients with THA/TKA⁶
  - ankle fusion is no longer the „gold standard“ for end-stage ankle osteoarthritis

Introduction               Methods               Results               Conclusion
Our Study

- There is limited literature addressing feasibility of TAR in patients with severe bleeding disorders\textsuperscript{7,8,9}
- Patients with severe bleeding disorders:
  - the intraoperative and postoperative complications including surgical revision for any reason
  - the prosthesis component stability including radiographic loosening signs
  - postoperative pain relief
  - postoperative functional outcome, including range of motion and quality of life
Patient Cohort

- 28 consecutive patients (31 ankles):
  - TAR between July 2001 and December 2010
  - two orthopaedic university centers
- Patients’ demographics:
  - all male
  - mean age of 48 years (range, 27 – 64)
- Bleeding disorders:
  - type A haemophilia in 16 patients (19 ankles)
  - von Willebrand disease in 12 patients (12 ankles)
Surgical Technique

- HINTEGRA® ankle replacement design in all patients:
  - standardized surgical technique with cementless fixation
- All procedures were performed under substitution of hemostatic factors:
  - plasma derived FVIII/VWF concentrate (Haemate® P)
Results

• Intraoperative complications:
  - fracture of medial malleolus in 3 ankles
  - ORIF, all fractures healed uneventfully within 4 months

• Perioperative complications:
  - wound healing problems in 4 ankles
    - resolved with i.v. antibiotics
    - no surgery was needed
  - bleeding complications in 4 ankles
    - subcutaneous haematoma
    - no need for platelet or erythrocytes transfusion
Results

- Major revision surgeries:
  - revision of talar component in 2 patients
  - chronic pain due to medial impingement and arthrofibrosis
    - open debridement and exchange of mobile bearing
- Prosthesis component alignment:
  - α-, β-, and γ-angles: 90°, 86°, and 21°
Results

- Mean follow-up 5.2 years (range, 2.5 – 12.1)
- Significant pain relief and functional improvement:
  - VAS:
    ▪ $7.1 \pm 1.9 \rightarrow 1.6 \pm 0.9$, $P < 0.001$
  - AOFAS hindfoot score:
    ▪ $32.6 \pm 12.4 \rightarrow 80.1 \pm 14.8$, $P < 0.001$
  - ROM:
    ▪ $17^\circ \pm 8^\circ \rightarrow 28^\circ \pm 7^\circ$, $P < 0.05$
- Quality of life:
  - all 8 subgroups significantly improved postoperatively
Clinical Case

42 years old male
Haemophilia A
postoperative
Conclusions

- TAR in patients with bleeding disorders:
  - significant pain relief
  - significant functional improvement
- Complication rate is comparable to those reported in patients with posttraumatic or rheumatoid OA
- Experienced, multidisciplinary team is necessary:
  - careful hematologic management
  - university orthopaedic center
- TAR is a feasible treatment option in patients with severe bleeding disorders
References