Saturday: Arthritis: 8:38 – 8:40 am

Mobility TAR: The Canadian Experience

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Summary: Total Ankle Replacement (TAR) is increasingly being offered to patients as an alternative to arthrodesis for the operative management of debilitating end-stage ankle arthritis. The Mobility Total Ankle System is a third-generation design consisting of a three component, cementless, unconstrained, mobile-bearing prosthesis. Although early results of the Mobility TAR are encouraging for independent researchers, they do not match those reported by designer surgeons. Most patients achieve good pain relief and improved function post-operatively.

Introduction: This study reports the early results of a multi-centre prospective study of the Mobility prosthesis. This is the first such report by independent researchers.

Methods: The senior authors implanted 86 consecutive Mobility prostheses in 85 patients. The underlying diagnosis was primary OA in 24 ankles, secondary OA in 47 ankles and inflammatory arthritis in 15 ankles. There were 41 males (Mean age 67 / Range 51-87) and 44 females (Mean age 60 / Range 29-72). The mean BMI was 28 (Range 22-36) for males, and 28 (Range 20-39) for females. Previous ankle operations were performed in 24 patients, 22 of which were for fracture fixation.

Ankles were classified according to the COFAS end-stage ankle arthritis classification system. Coronal plane deformity was quantified pre-operatively. Clinical outcome was assessed using the AOFAS hindfoot score. Radiological assessment was performed from weight-bearing radiographs, documenting post-operative alignment, osseous integration, edge-loading and heterotopic bone formation. The mean follow-up time was 40 months (Range 30-60).

Survival analysis was calculated according to the Kaplan-Meier method. Failure was defined as exchange of any component of the TAR, arthrodesis or amputation.

Results: Type 1 ankle arthritis was demonstrated in 54 ankles (63%). No patient had pre-operative coronal plane angulation > 20°. In 30 ankles (35%), the pre-operative coronal alignment was neutral, and in 32 ankles (37%), the deformity was < 10°.

The mean AOFAS hindfoot score improved from 37.4 (Range 12-59) pre-operatively to 77.9 (Range 51-100) post-operatively. 78 (90%) of prosthetic components were implanted within 5° of the optimal position. Bone-implant interface abnormalities were identified in 16 ankles (18%). In total, 5 TARs required revision, 4 for aseptic loosening and one for component malpositioning. There was one conversion to arthrodesis, and one BKA for CRPS.

30 simultaneous procedures were performed in 28 patients. The most common was gastrocnemius recession. There were 8 re-operations, most commonly for impingement due to peri-articular ossifications. Delayed wound healing occurred in 3 patients, and there was one case of deep infection. There were 5 patients that sustained fractures of the medial malleolus: 2 were intra-operative, and underwent internal fixation.

There are 6 patients being investigated for ongoing pain. The 2-year survival was 96.4% (95% CI 89.4-99.1) and 3-year survival was 91.7% (95% CI 83.3-96.3).

Conclusions: Although early results of the Mobility TAR are encouraging for independent researchers, they do not match those reported by designer surgeons. Most patients achieve good pain relief and improved function post-operatively.