

Long-Term Outcomes of a Randomized Control Trial Comparing Fibular Nail with Open Reduction and Internal Fixation in Patients with Unstable Ankle Fractures

Nicholas Roman Heinz¹, Kate Ella Bugler, Nicholas D Clement¹, Xinwei Low, Andrew David Duckworth, Timothy O White¹
¹Royal Infirmary of Edinburgh

INTRODUCTION: Over the last decade there has been an increased interest in minimally invasive ankle fracture fixation, which has seen the introduction of the fibular nail. Currently there are no reports of long-term outcomes comparing open reduction internal fixation to fibular nail fixation for unstable ankle fractures. Our aim was to compare the long-term outcomes of fibular nail and plate fixation for unstable ankle fractures in a cohort of patients under the age of 65 years at a minimum of 10 years post surgery.

METHODS:

Patients from a previously conducted randomized control trial comparing fibular nailing and plate fixation were contacted at a minimum of 10 years post intervention at a single study center. Short-term data were collected prospectively and long-term data were collected retrospectively using an electronic patient record software. Outcomes assessed included patient-reported outcome measures specific to the ankle, health related quality of life measures, and radiographic assessment of secondary osteoarthritis.

RESULTS: Ninety-nine patients from one trauma center were included (48 fibular nails and 51 plate fixations). Groups were matched for gender ($p=0.579$), age ($p=0.811$), body mass index (BMI) ($p=0.925$), smoking status ($p=0.209$), alcohol status ($p=0.679$), and injury type ($p=0.674$). Radiographically at an average of 2 years post-injury, there was no statistically significant difference between groups for development of osteoarthritis ($p=0.851$). Both groups had 1 tibio-talar fusion (2% of both groups) secondary to osteoarthritis with no statistically significant difference in overall reoperation rate between groups identified ($p=0.518$). Forty-five percent ($n=42$) of patients had so far returned patient-reported outcome measures at a minimum of 10 years (Fibular nail $n=19$, plate fixation $n=23$). No significant difference was found between groups at 10 years for the Olerud and Molander Ankle Score ($p=0.990$), the Manchester-Oxford Foot Questionnaire (MOXFQ) ($p=0.288$), Euroqol-5D Index ($p=0.828$), and Euroqol-5D Visual Analogue Score ($p=0.769$).

DISCUSSION AND CONCLUSION:

The current study illustrates no difference between fibular nail fixation and plate fixation at a long-term follow up of 10 years in patients under 65 years old, although the study is currently under powered.