

The role of additional fibula fixation on alignment in distal lower leg fractures

VF Palm¹, JM Hoogendoorn¹, SM Verhage¹

¹Haaglanden Medisch Centrum - Westeinde, S-GRAVENHAGE, Traumachirurgie

Introduction

The use of fibula fixation (FF) concomitant to intramedullary nailing (IMN) or plate osteosynthesis (POS) to treat distal lower leg fractures is a topic of debate as available literature regarding this topic is inconclusive. The aim of this study was to assess the role of FF in the treatment of combined distal tibia and fibula fractures.

Method

A retrospective cohort study was performed including 130 patients who had sustained an operative treatment following distal third, combined tibia and fibula fractures. Tibia alignment and fracture characteristics were determined by radiograph analyses. Mean alignment and loss of reduction after FF and conservative treatment of the fibula were compared using Student's t-test. Bivariate analysis was used to determine relative risks on malalignment, nonunion, secondary surgery and infection.

Results

Type of tibia osteosynthesis correlated significantly with tibia fracture height with respect to the tibia plafond (POS: 74.6 mm \pm 26.3 mm vs. IMN: 31.6 mm \pm 22.6 mm, $p=0.000$). FF was not significantly associated with alignment or union. In case of tibial POS, additional FF resulted in less coronal malalignment (RR 0.51, 95%CI: 0.30 – 0.88) and a reduced risk of secondary surgery (RR 0.31 95%CI 0.10 -0.98). No association between fibula treatment and LOR was found.

Conclusion

FF does not affect alignment after tibial IMN. Also, FF is not associated with tibia union or LOR. However, in case of tibial POS, FF reduces the risk of coronal malalignment and secondary surgery.