Subtrochanteric femur fractures treated with femoral nail: the effect of cerclage wire augmentation on complications, fracture union, and reduction: a systematic review and meta-analysis of comparative studies

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Objective:

To perform a systematic review and meta-analysis of subtrochanteric femur fractures treated with an intramedullary nail, augmented with or without cerclage wiring, comparing the risk of reoperation, nonunion, loss of fixation, and implant failure; fracture reduction and time to union.

Data Source:

A systematic review according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses guide lines was performed through MEDLINE, EMBASE, PubMed, Web of Science, and Scopus databases using a combination of controlled vocabulary and keywords on September 30, 2020.

Study Selection:

All comparative (prospective and retrospective) studies of subtrochanteric fractures managed with intramedullary nail, that compared the addition of cerclage wire to without in patients 16 years of age or older were included. Pathological, atypical bisphosphonate, and segmental fractures were excluded, as were non-English literature.

Data Extraction:

Data from each study were independently recorded by 2 investigators.

Data Synthesis:

Agreement was obtained on 18 studies (all retrospective) for final inclusion, with 378 patients receiving cerclage wire and 911 without. A random-effects meta-analysis was used to analyze the pooled aggregate data.

Conclusions:

There is no statistically significant advantage in using cerclage wire with femoral intramedullary nail when treating subtrochanteric femur fractures regarding risk of reoperation, non union, loss of fixation, and implant failure or time to union. An advantage favoring cerclage wire was seen for accuracy of fracture reduction. Cerclage wiring was used more often in cases associated with high-energy trauma. Given the relatively small number of events available to be modelled, a clinical benefit for cerclage wiring may still exist for certain fracture types.

Biography

Laura McDonald is working as a orthopedic doctor in the Department of Orthopaedics at The Alfred in Hospital, Australia

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