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The effect of ongoing litigation on outcome scores following open reduction and internal fixation of the calcaneum

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All sixteen patients who had undergone open reduction and internal fixation (ORIF) of the calcaneum by the senior author between April 1993 and August 1996 were included in the study. Two had died from unrelated illnesses and one had failed to attend any follow-up following discharge. The remaining 13 were reviewed by the main author. As part of a complete clinical, radiological and functional assessment, Buckley and Meek (B&M) and Kerr and Atkins (K&A) outcome scores were calculated as well as a satisfaction score obtained by a visual analogue scale (VAS). Statistical analysis of the results using Wilcoxon's paired and unpaired ranking scores showed that the initial grade of the fracture, degree of operative reduction, correction of width of the heel and post-operative ranges of motion had no significant correlation to either B&M or K&A outcome scores or to the VAS score. However the presence of ongoing litigation was significantly correlated to the scores (VAS < 0.01, B&M < 0.05, K&A < 0.05). These findings cast doubt on the validity of post operative scoring for fracture of the calcaneum in the presence of ongoing litigation. © 1998 Elsevier Science Ltd. All rights reserved.

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Introduction

Due to the nature of the common mechanisms of injury in fractures of the calcaneum, i.e. falls at the workplace and road traffic accidents, patients often are involved in litigation in attempt to gain compensation.

Previously, outcome scores have been used to allow comparison between patients following ORIF of the calcaneum^{1–3}. Kerr et al.⁴ produced a rational scoring system based on a statistical analysis of the important factors in each scoring system. Such scores have become the foundation for comparative analyses, however, on reviewing the literature it was found that there was no previous mention given to the effect of litigation on such scores.

This paper examines whether there is any correlation between the presence of ongoing litigation and poor outcome scores using three scoring systems.

Patients and methods

All patients who had been admitted to the trauma and orthopaedic department at Bury General Hospital with a fracture of the calcaneum which had been treated by ORIF between April 1993 and August 1996 were included in the study. Of these 16 patients, two had subsequently died of unrelated illnesses and one had failed to attend any follow-up following discharge from hospital. The notes and radiographs for the remaining 13 patients were examined. Patient details, the mechanism of injury, details of the pre- and post-operative course, and operative details were obtained from the patients' notes. Böhler's angle, Gissane's angle and calcaneal width were measured from pre- and post-operative X-rays of the heel with lateral, axial and Broden's views. The fracture was also graded using Sanders's⁵ grading system from a pre-operative computerised tomography (CT) scan.

All 13 patients were then reviewed by the principal author. The Buckley and Meek (B&M) and Kerr and Atkins (K&A) scores were calculated for each patient and a patient satisfaction score was obtained using a visual analogue scale (VAS). The range of movements of the ankle and sub-talar joints, the weight-bearing and non weight-bearing heel widths of the normal and operated heels, deformities of the hind foot and complications of surgery were recorded from clinical examination.

Statistical analysis of the data obtained was performed using Wilcoxon's paired and unpaired ranking scores.

Results

All of the 13 patients available for follow-up were fully reviewed. The mean follow-up period was

ΕΙΔΟΠΟΙΗΣΗ: ΠΡΟΕΙΔΟΠΟΙΗΣΗ ΣΧΕΤΙΚΑ ΜΕ ΤΟΥΣ ΠΕΡΙΟΡΙΣΜΟΥΣ ΠΝΕΥΜΑΤΙΚΩΝ ΔΙΚΑΙΩΜΑΤΩΝ

Ο νόμος πνευματικών δικαιωμάτων των Ηνωμένων Πολιτειών (τίτλος 17, Ηνωμένος κώδικας) ελέγχει την παραγωγή των φωτοτυπιών ή άλλων αναπαραγωγών του υλικού. Υπό ορισμένους όρους που διευκρινίζονται στο νόμο, οι βιβλιοθήκες και τα αρχεία εξουσιοδοτούνται για να εφοδιάσουν μια φωτοτυπία ή άλλη αναπαραγωγή. Ένας από αυτούς τους διευκρινισμένους όρους είναι ότι η φωτοτυπία ή η αναπαραγωγή δεν πρόκειται «να χρησιμοποιηθεί για οποιοδήποτε σκοπό εκτός από την ιδιωτική μελέτη, την υποτροφία ή την έρευνα». Εάν ένας χρήστης υποβάλλει ένα αίτημα, ή αργότερα χρησιμοποιήσει, μια φωτοτυπία ή την αναπαραγωγή για λόγους παραπάνω από τη «δίκαιη χρήση», αυτός ο χρήστης μπορεί να είναι υπεύθυνος για την παράβαση πνευματικών δικαιωμάτων. Αυτό το όργανο διατηρεί το δικαίωμα να αρνηθεί να δεχτεί μια διαταγή πνευματικών δικαιωμάτων εάν, στην κρίση της, η εκπλήρωση της διαταγής θα περιελάμβανε την παραβίαση του νόμου πνευματικών δικαιωμάτων.

(η παραπάνω ειδοποίηση αποτελεί μετάφραση από τον πρωτότυπο σχετικό νόμο των Η.Π.Α. σχετικά με τα πνευματικά δικαιώματα που παρατίθεται παρακάτω).

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27 months (range 9–49). At review, six patients were actively seeking compensation through the courts (group 1) leaving seven who had no ongoing litigation (group 2). Of the patients in group 1, all but one patient (patient C) decided to attempt to gain legal redress for their injuries whilst in hospital with their initial injury.

There was no significant difference between the groups in terms of age, follow-up, initial fracture severity as graded by the Sanders scale, operative technique, post-operative management, complications, reduction of Böhler's, Gissane's angles and heel width, ranges of motion of ankle and sub-talar joints or associated injuries.

The scores obtained from interviewing the patients are documented in the graphs of Figure 1a–c.

Analysing both groups as a single cohort, the scoring system of Buckley and Meek scores significantly higher than that of Kerr and Atkins ($p < 0.05$), but there is no significant difference in the order in which the scores rank the patients. Similarly there is no significant difference between the rank order for the satisfaction score against either Buckley and Meek or Kerr and Atkins scores.

There is a significant difference between the scoring on all three scales between group 1 and group 2, that is between those with litigation ongoing and those without. The scores on all three scales are significantly lower in group 1 (VAS $p < 0.01$, B&M $p < 0.05$, K&A $p < 0.05$).

Discussion

The use of scoring systems as research tools is widespread. Virtually all outcome studies previously published on the subject of management of fractures of the calcaneum have used them as their prime method of comparison. However, our study would suggest a strong association between litigation and poor outcome scores. It appears that the poor outcome is not the cause for litigation because five out of six decided to sue within the first 3 weeks after injury. In fact the patient who decided to sue some 6 months after her injuries were sustained scored most highly in group 1. Our findings should therefore cast doubt upon the findings of outcome studies unless the presence of ongoing litigation has been compensated for. It could be argued that until any compensation claims have been settled, patients with such action underway should be excluded from outcome studies for fracture of the calcaneum.

Further study is required on outcome scores for other fractures to see if the effect of litigation as shown in this study is a universal phenomenon and also whether outcome scores improve once the case is settled.

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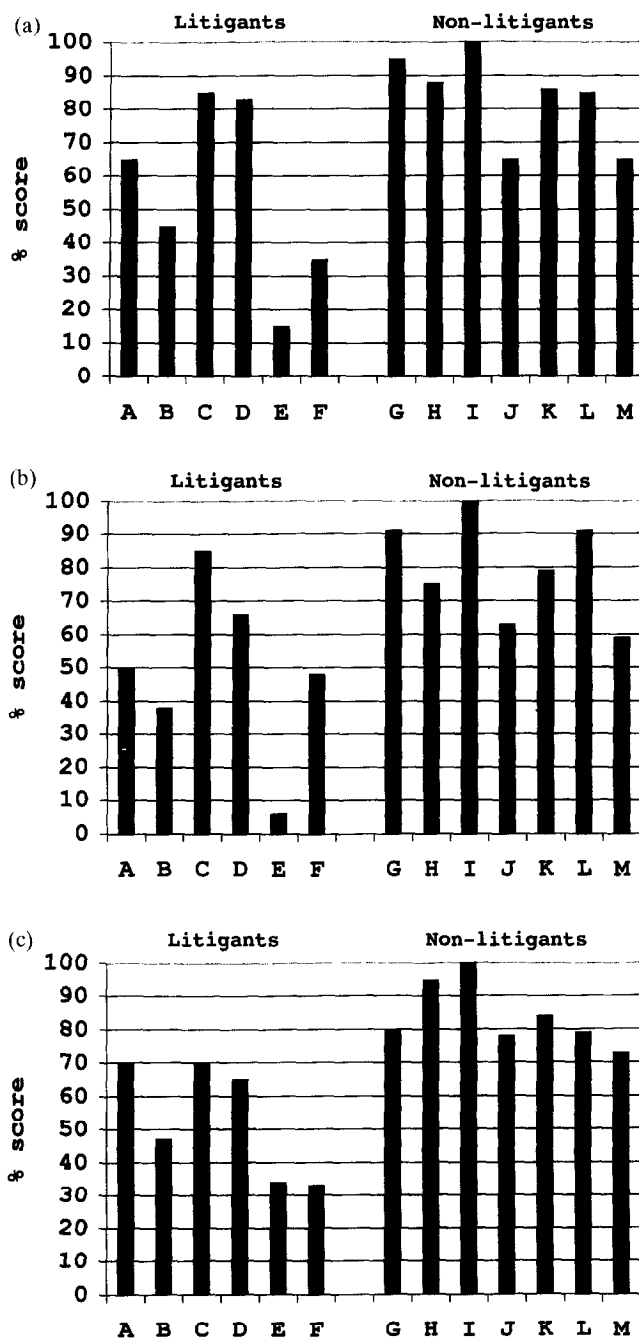


Figure 1. Graphs (a–c) show the outcome score per patient for each outcome measure. Graph (a) shows Buckley and Meek scores, (b) shows Kerr and Atkins scores and (c) shows VAS satisfaction scores. Patients A to F inclusive comprise group 1 (litigants) and patients G to M inclusive comprise group 2 (non-litigants).

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