

Title of Paper

OUTCOME AND COSTS OF WORK-RELATED CALCANEAL FRACTURES IN
NORTHERN GERMANY

1 – 2 Sentence Descriptive Abstract

Representative prospective study of factors influencing outcome and costs of work-related calcaneal fractures using computer-assisted evaluation of medical expertises and disability management data.

Topic Tract

Medical issues in Disability Management – Applied Empirical or Institutional Studies

Extended Abstract

OUTCOME AND COSTS OF WORK-RELATED CALCANEAL FRACTURES IN
NORTHERN GERMANY

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The study which was carried out in cooperation with the German Federation of Insurers for Work Accidents and Occupational Diseases (DGUV) investigates the factors influencing outcome and costs of work-related calcaneal fractures using computer-assisted evaluation of medical expertises and disability management data of insurers. A previous study concerning ankle fractures (Grosser et al. 2003) had already shown that computer-assisted evaluation of medical expertises is a suitable and practical instrument for measuring the quality of outcome within the setting of work-related injuries. It enables a representative comparison of treatment results encompassing different providers as a basis for measures of quality assurance and improvement including monitoring the effectiveness.

All cases of work-related calcaneal fractures that occurred from July 1, 2005 to July 30, 2008 in Hamburg, Schleswig-Holstein, Bremen, the North-Western part of Mecklenburg-Western Pomerania and the Northern part of Lower Saxony (postal area codes 18... - 29 ...) in the scope of the participating regional workmen's compensations insurers were investigated. For this purpose an injury specific registration sheet to be filled in by the disability managers was developed. In those cases in which an impairment evaluation was carried out an additional injury specific registration sheet with data about the classification and severity of the original injury, the treatment, complications, and the anatomic and functional outcome was filled in by the medical experts. The deadline for submission of the registration sheets was October 31, 2009. By that date registration sheets for a total of 438 cases had been received, including 158 cases in which an impairment evaluation had been documented.

In all cases the disability managers encoded the fractures according to the DGUV-code on the basis of the medical reports of the treating physicians. In the 158 cases with documented impairment evaluation the medical experts reviewed the x-rays and – if applicable – CT scans taken at the time of injury and classified the fractures according to the modified ASIF-classification of Kuner, Bonnaire und Hierholzer (1995). 79,08 % of the cases with impairment evaluation had sustained a displaced intraarticular calcaneal fracture (B2 20,91 %, C1 39,87 %, C2 18,30 %), 15,69 % a non displaced intraarticular calcaneal fracture (B1) and 5,23 % an extraarticular calcaneal fracture (A1 5,23 %, A2 0 %). The majority of cases without documented impairment evaluation was comprised of extraarticular or non-displaced fractures.

77,1 % of the fractures with documented impairment evaluation had been treated operatively, most commonly locked-screw plate fixation was used. In the cases without documented impairment evaluation operative treatment had been carried out in 28,2 %.

Compared to non-operative care, better functional results could be achieved in surgically treated patients with displaced intraarticular fractures, provided a good reduction of the fracture could be accomplished. The strongest determinant of outcome, however, was the severity of the original injury.

Absence from work averaged 236 days for the cases with documented impairment evaluation and 105 days for the cases without documented impairment evaluation. In injured workers with a high work load in whom a major remaining impairment is expected occupational rehabilitation measures should be initiated early.

The total costs for inpatient and outpatient treatment, compensation for absence from work, and occupational rehabilitation averaged 29,715 €(range: 669 €to 223,129 €) for the cases with documented impairment evaluation and 10,687 €(range: 30 €to 131,877 €) for the cases without documented impairment evaluation.

Injured workers in Germany are entitled to disability payments if an MdE (abstract measure of disability) of at least 20 % remains after return to work (this is roughly equivalent to 25 % lower extremity impairment according to the AMA Guides to the Evaluation of Permanent Impairment). An MdE of 20 % or more remained in 77,07 % of the cases with documented impairment evaluation and in 20,42 % of the cases without documented impairment evaluation.

References:

Grosser V, Seide K, Kranz HW, Faschinbauer M, Jürgens C (2003) EDV-gestützte Auswertung von Begutachtungsdaten zur Qualitätssicherung und –verbesserung [Computer-assisted evaluation of medical expertises for purposes of quality assurance and improvement]. Trauma Berufskrankh 5: 432 – 442

Kuner EH, Bonnaire F, Hierholzer B (1995) Zur Klassifikation und Osteosynthese der Kalkaneusfrakturen [Classification and osteosynthesis technique of calcaneus fractures]. Unfallchirurg 98: 320 - 327

