Review: early mobilisation is better than cast immobilisation for injured limbs


Clinical impact ratings GP/FP/Primary care *****☆☆☆☆☆ Emergency medicine ****☆☆☆☆☆

In patients with acute limb injuries, is early mobilisation better than rest (cast immobilisation)?

METHODS

Data sources: Cochrane Controlled Trials Register, Cochrane Database of Systematic Reviews, Medline (1966–2002), EMBASE/Excerpta Medica, Web of Science, and references of retrieved studies.

Study selection and assessment: randomised controlled trials (RCTs) in any language that compared early mobilisation with cast immobilisation in patients with acute limb injuries, had >80% follow up, and included patients who were not predominantly young children. Quality assessment of the individual studies was based on the criteria of the Cochrane Musculoskeletal Injuries Group (maximum score 18).

Outcomes: patient centred outcomes (pain and swelling and satisfaction), functional outcomes (range of motion, days lost from work, and return to sport), and complications.

MAIN RESULTS

49 RCTs met the selection criteria. 16 trials were considered to be of high quality (score ≥11). Follow up ranged from 1–60 months. 10 RCTs were of lower limb fractures, 21 of lower limb injuries without fracture, 16 of upper limb fractures, and 2 of upper limb injuries without fracture. Rest comprised cast immobilisation (duration range 10 d to 8 wks). Mobilisation strategies included some form of limb support (eg, brace, splint, or short period of immobilisation) or minimal or no support (eg, orthoses, crutches, bandages, or tape) and could include active exercise.

In 14 RCTs, early mobilisation improved pain and swelling. In no study did cast immobilisation improve pain and swelling. In 9 RCTs, patients were more satisfied with early mobilisation than a cast. Early mobilisation was associated with better global function composite scores after 6 months (6 RCTs) and after 12 months (1 RCT). Patients returned to work sooner after early mobilisation in 13 RCTs, particularly for lower limb non-fracture injuries (8 RCTs). In 5 RCTs, early mobilisation prompted an earlier return to sport. Early mobilisation improved range of motion in patients with upper and lower limb fractures (14 RCTs). Early mobilisation reduced deformity in Colles’ fractures (2 RCTs), meta-carpal fractures (1 RCT), and radial fractures (1 RCT). 10 RCTs showed no change in deformity, no loss of fracture reduction, and no other complications after early mobilisation.

CONCLUSION

Early mobilisation decreases pain and swelling and improves functional outcomes more than cast immobilisation in patients with acute limb injuries.

Commentary

Traditionally, cast immobilisation and non-weightbearing across joints adjacent to traumatic or surgical soft tissue or bone injuries have been recommended to maintain fracture reduction, allow ligaments to heal, minimise swelling and wound problems, and decrease pain. However, as the review by Nash et al and other evidence shows, stable bone and soft tissue injuries (eg, impacted proximal humerus fractures and incomplete ligament disruptions) have better functional outcomes when joint mobility with controlled weightbearing is permitted. Clearly, displaced fractures must be reduced and held in position while healing, but modern fracture care can often achieve this without immobilising adjacent joints and often with weightbearing (eg, internal and external fixation and functional cast braces). Similarly, although disrupted tendons and ligaments cannot be immobilised without affecting adjacent joints, it is desirable to limit the joint immobilisation as much as possible (eg, only immobilise the distal interphalangeal joint in a mallet finger or only restrict extension but allow flexion after an elbow dislocation).

Given the harmful effects of joint immobilisation, it is important that emergency medicine and family practice physicians educate patients about the positive results of early mobilisation after limb injury and abandon the practice of casting “for comfort” in adults, although some patients may still value a walking cast more than crutches. The results of this systematic review support a flexible approach to management, and physicians should consider which method best addresses factors such as patient preferences, an efficient use of resources (eg, time in the emergency department and number of follow up visits), and indirect costs to the patient such as loss of wages. Further research would be helpful to determine if immediate weightbearing and mobilisation are safe for all types of leg injuries.

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