



Title	Effectiveness and Cost-effectiveness of Acute Hospital-based Spinal Cord Injuries Services: Systematic Review
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Aim

To examine: (1) the effectiveness and cost effectiveness of spinal fixation surgery, (2) the consequences of immediate vs delayed referral to a spinal injuries unit (SIU), (3) the number of people with a new spinal cord injury (SCI) who are discharged from hospital without being transferred to an SIU, and (4) the effectiveness and cost effectiveness of steroids for people with SCI.

Conclusions and results

For spinal fixation vs no fixation, 68 retrospective observational studies were found. The results suggested some benefits of fixation surgery. Only 4 studies were found on fixation surgery in SIUs compared with non-SIU hospitals, and no significant differences were seen. All 28 studies on delayed referral to an SIU were retrospective observational studies. In most, study details were poorly reported, and comparability of groups at baseline and on confounding factors was in doubt. Referral and transfer times were not reported separately. Evidence suggested an effect favoring the SIU group for neurological improvement. No relevant published studies were found regarding how many people with a new SCI are discharged from hospital without being transferred to an SIU. Two systematic reviews assessed the effectiveness of steroids. No studies were found that considered both costs and the impact on patient outcomes of a given intervention.

Recommendations

The evidence suggested some benefits of fixation surgery and immediate referral to SIUs compared with delayed or no referral, but data were limited. The data were insufficient to assess whether surgery is more beneficial in SIUs. Further research is required. High-dose methylprednisolone steroid therapy within 8 hours of injury may promote some neurological recovery, but the magnitude of this benefit is unclear. No studies showed how many people with acute SCI are discharged from hospital without being transferred to an SIU.

Methods

Three separate search strategies were used in the 4 key areas. Two reviewers independently screened all study citations. The references in retrieved studies were scanned for additional studies. Study quality was assessed and data were extracted by one reviewer, then checked by the second. Data were summarized within each key area. Searches were carried out to identify economic evaluations. Details of these and a critical appraisal of quality are presented in structured tables. Quality was assessed using a checklist supplemented with additional comments on the adequacy of methodology where appropriate.

Further research/reviews required

Well-designed, prospective observational studies with matched controls are needed to assess spinal fixation surgery and consequences of delayed referral to an SIU. Randomized controlled trials (RCTs) are needed of pharmacotherapy for acute SCI. Primary research involving audits of selected hospital records should ascertain the number of SCI patients not acutely admitted to an SIU. Future research should include full economic evaluations, possibly with a large RCT that considers the costs and consequences of interventions.