

Is Routine Spinal Immobilization an Effective Intervention for Trauma Patients?

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Main Results

The authors identified 4,438 potentially eligible reports; none of these met the inclusion criteria. The authors failed to find any randomized controlled trial performed on unhealthy volunteers that focused on spinal immobilization strategies and techniques in trauma patients. A number of randomized controlled trials were identified comparing different spinal immobilization strategies in healthy volunteers. The results of randomized controlled trials on healthy volunteers may provide some useful insights into their relative effectiveness in trauma patients. For this reason, although trials of healthy volunteers did not meet the inclusion criteria, the authors summarized them in the additional tables section of the review.

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Conclusions

The authors of this Cochrane review failed to identify any randomized controlled trials that met their inclusion criteria. The effect of spinal immobilization on mortality, neurologic injury, spinal stability, and adverse effects in trauma patients remains uncertain. Because airway obstruction is a major cause of preventable death in trauma patients, and spinal immobilization, particularly of the cervical spine, can contribute to airway compromise, the possibility that immobilization may increase mortality and morbidity cannot be excluded. Large prospective studies are needed to validate the decision criteria for spinal immobilization in trauma patients with high risk of spinal injury. Randomized controlled trials in trauma patients are required to establish the relative effectiveness of alternative strategies for spinal immobilization.

Commentary: Clinical Implication

Spinal immobilization and spinal precautions are common practices in the out-of-hospital care of patients with trauma, especially those in whom spinal injury is suspected. Despite this practice, spinal cord injuries are rare, often obvious at the scene, and several validated decision rules exist that are designed to clinically clear the cervical spine and reduce the need for radiography.^{1, 2} In the United States, out-of-hospital agency-specific protocols and national guidelines consider spinal immobilization as “the standard of care.” **This systematic review concludes that there is no published or unpublished scientific evidence justifying the practice of spinal immobilization in the out-of-hospital setting, suggesting that a large randomized controlled trial is required to solve this problem. This lack of scientific evidence is potentially related to historical out-of-hospital practice factors or even perhaps fear of litigation by deviating from what is considered “standard of care.”**

The authors of this Cochrane systematic review also describe several studies that show how spinal immobilization has little or no effect on outcomes.^{3, 4} **The authors suggest that because significant forces are needed to produce an unstable spinal injury, there is a high likelihood that the spinal cord damage occurs at impact and subsequent movement will not cause further damage. Moreover, other studies have found associated risks related to the practice of spinal immobilization, such as airway difficulties, increased intracranial pressure, increased risk of aspiration, and restricted ventilation.^{5, 6} Finally, spinal immobilization could lead to increased pain and potentially delay discharge, lead to patient flow problems, and contribute to emergency department (ED) crowding.**