

The State of the Evidence for Emergency Medical Services (EMS) Care of Blunt Spinal Trauma. An Analysis of Appraised Research from the Canadian Prehospital Evidence-based Practice (PEP) Project

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Background

The Canadian Prehospital Evidence-based Practice (PEP) project is an online, freely accessible, continuously updated EMS evidence repository. The summary of research evidence for EMS interventions used to care for blunt spinal trauma is described.

Methods

PubMed was systematically searched. One author reviewed titles and abstracts for relevance. Included studies were scored by trained appraisers on a three-point Level of Evidence (LOE) scale (based on study design and quality) and three-point Direction of Evidence (DOE) scale (supportive, neutral, or opposing results). Second party appraisal was conducted for included studies. Interventions were plotted on a 3x3 table (DOE x LOE) for the spinal injury condition based on appraisal scores. The primary outcome was identified for each study and categorized.

Results

Seventy-seven studies were included. Evidence for adult and paediatric blunt spinal trauma interventions was: supportive-high quality (n=1, 7%), supportive-moderate quality (n=3, 21.4%), supportive-low quality (n=1, 7%), neutral-high quality (n=1, 7%), neutral-moderate quality (n=5, 35.7%), neutral-low quality (n=1, 7%), opposing-high quality (n=0, 0%), opposing-moderate quality (n=0, 0%), opposing-low quality (n=1, 7%). One (7%) intervention had no evidence. Interventions with supportive evidence were: steroids, cervical-spine clearance, scoop stretcher, self-extrication and "leaving helmet in place". The evidence weakly opposed use of short extrication devices. Leading study primary outcomes were spinal motion, diagnostic accuracy, and pressure/discomfort.

Conclusion

EMS blunt spinal trauma interventions are informed by moderate quality supportive and neutral evidence. Future research should focus on high quality studies filling identified evidence gaps using patient-oriented outcomes to best inform EMS care of blunt spinal injury.