The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynyk and Fineout-Overholt (2011).

I Evidence obtained from a systematic review of all relevant randomised control trials.

II Evidence obtained from at least one well designed randomised control trial.

III Evidence obtained from well-designed controlled trials without randomisation.

IV Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case- series

V Evidence obtained from systematic reviews of descriptive and qualitative studies

VI Evidence obtained from single descriptive and qualitative studies

VII Expert opinion from clinicians, authorities and/or reports of expert committees or based on physiology

Melynyk, B. & Fineout-Overholt, E. (2011). Evidence-based practice in nursing & healthcare: A guide to best practice (2nd ed.). Philadelphia: Wolters Kluwer, Lippincott Williams & Wilkins.

National Health and Medical Research Council (2009). NHMRC levels of evidence and grades for recommendations for developers of guidelines (2009). Australian Government: NHMRC. http://www.nhmrc.gov.au/_files_nhmrc/file/guidelines/evidence_statement_form.pdf

OCEBM Levels of Evidence Working Group Oxford (2011).The Oxford 2011 Levels of Evidence. Oxford Centre for Evidence-Based Medicine. http://www.cebm.net/index.aspx?o=1025

Databases searched:	☐ CINAHL (Ebsco)	☐ Medline (Ebsco)	☐ Pubmed (NLM)	☐ Nursing (Ovid)	☐ Emcare (Ovid)	☐ Other List: _____
Keywords used:	Paediatric Spinal; Spinal Cord Injury; Cervical Spine; Spinal Shock; Neurogenic Shock; Autonomic Dysrelexia, Ventilated-associated pneumonia; trauma;					
Search limits:	Unknown					
Other search comments:						

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Reference (include title, author, journal title, year of publication, volume and issue, pages)	Evidence level (I-VII)	Key findings, outcomes or recommendations
Lemley, K., & Bauer, P. (2015). Pediatric Spinal Cord Injury: Recognition of Injury and Initial Resuscitation, in Hospital Management, and Coordination of Care. Journal of Pediatric Intensive Care, 4(1), 27–34.	Narrative Review **VII**	Initial care focuses on treating shock, respiratory insufficiency and stabilizing an unstable neck or spine whilst preventing secondary injury. With improvement in survivability we need to provide patients and their families with the skills and resources to help them transition, adjust and cope with long-term challenges of living with a SCI.
Volski, A., & Ackerman, D. J. (2019). Neurogenic Shock. In S. P. Stawicki, & M. Swaroop (Eds.), Clinical Management of Shock - The Science and Art of Physiological Restoration.	Narrative Review **VII**	Neurogenic shock is a disruption of the sympathetic nervous system which can occur following a spinal cord injury. This can be extremely dangerous for the patient, and may lead to cerebral anoxia, cardiac arrest which can affect the rehabilitation process.
Konovalov, N., et al. (2020). Pediatric Cervical Spine Injuries and SCIWORA: WFNS Spine Committee Recommendations. Neurospine, 17(4), 797–808.	Systematic Review **V**	Different approaches in the management of SCI can be attributed to a lack of standardized protocols (level I evidence). It is recommended that randomized controlled trials are needed to draw reliable conclusions on the optimum management of cervical spine trauma in children. Consensus agreement is that MRI should be performed when SCIWORA is present.

Wilson, J. R., et al. (2020). Early Surgery for Traumatic Spinal Cord Injury: Where Are We Now?. Global spine journal, 10(1 Suppl), 84S–91S.	Narrative Review **VII**	International surgical opinion supports the principle of early surgery after traumatic SCI with the best evidence for this management involving patients with cervical SCI. Further work is necessary to identify the patients who stand to derive particular benefit. At present existing prehospital and hospital logistics seem to pose barriers to early surgery in a significant proportion of patients; as evidence continues to accumulate supporting this practice. Modifications to transport and early care may be needed to ensure timely access to surgical decompression for SCI patients.
Hatton, G. E., et al. (2021). High tidal volume ventilation is associated with ventilator-associated pneumonia in acute cervical spinal cord injury. The Journal of Spinal Cord Medicine, 44(5), 775–781.	Prospective Cohort **IV**	Pneumonia is the leading cause of death following SCI and is associated with poor neurologic recovery, increased length of stay, and increased mortality. This study evaluated the association between High tidal volume ventilation and Ventilated Assisted Pneumonia in the acute post-SCI period.
Lee, Y. S., Kim, K. T., & Kwon, B. K. (2021). Hemodynamic Management of Acute Spinal Cord Injury: A Literature Review. Neurospine, 18(1), 7–14.	Systematic Review **V**	Evidence-based guidelines for haemodynamic management are required to address gaps in knowledge and the limitations of the current literature on this topic. Maintaining MAP levels above 85 mmHg improves neurologic recovery; however, to maintain MAP, intensive haemodynamic management is required according to practice guidelines. Further research on the hemodynamic management of acute SCI is required to determine how to optimize neurologic recovery.
Hauser, B. M., et al. (2021). Association of venous thromboembolism following pediatric traumatic spinal injuries with injury severity and longer hospital stays. Journal of Neurosurgery - Spine, 36(1), 153–159.	Retrospective Cohort **IV**	Venous Thromboembolisms (VTE) occurs in a low percentage of paediatric patients hospitalized with SCI. Injury severity, particularly spinal cord injury, is associated with a likelihood of developing VTE during initial hospitalization, which is most likely due to reduced mobility.