

## REFERENCES

- Fredo HL, Bakken IJ, Lied B, Ronning P, Helseth E: Incidence of traumatic cervical spine fractures in the Norwegian population: a national registry study. *Scand J Trauma Resusc Emerg Med* 22: 78, 2014. [PMID: 25520042]
- Wang H, Xiang Q, Li C, Zhou Y: Epidemiology of traumatic cervical spinal fractures and risk factors for traumatic cervical spinal cord injury in China. *J Spinal Disord Tech* 26: E306, 2013. [PMID: 23429308]
- <https://www.nscisc.uab.edu/Public/Facts%20and%20Figures%20-%202017.pdf> (NSCISC: Spinal cord injury facts and figures at a glance, 2017.) Accessed September 17, 2017. [PMID: 30143477]
- Greenbaum J, Walters N, Levy PD: An evidenced-based approach to radiographic assessment of cervical spine injuries in the emergency department. *J Emerg Med* 36: 64, 2009. [PMID: 18783909]
- Wang H, Zhang Y, Xiang Q, et al: Epidemiology of traumatic spinal fractures: experience from medical university-affiliated hospitals in Chongqing, China, 2001-2010. *J Neurosurg Spine* 17: 459, 2012. [PMID: 22978439]
- Wang H, Liu X, Zhao Y, et al: Incidence and pattern of traumatic spinal fractures and associated spinal cord injury resulting from motor vehicle collisions in China over 11 years: an observational study. *Medicine* 95: e5220, 2016. [PMID: 27787384]
- Amorosa LF, Vaccaro AR: Current concepts in cervical spine trauma. *Instr Course Lect* 63: 255, 2014. [PMID: 24720311]
- Dickman CA, Hadley MN, Pappas CT, Sonntag VK, Geisler FH: Cruciate paralysis: a clinical and radiographic analysis of injuries to the cervicomedullary junction. *J Neurosurg* 73: 850, 1990. [PMID: 2230968]
- Harris JH Jr, Carson GC, Wagner LK: Radiologic diagnosis of traumatic occipitovertebral dissociation: 1. Normal occipitovertebral relationships on lateral radiographs of supine subjects. *AJR Am J Roentgenol* 162: 881, 1994. [PMID: 8141012]
- Holmes JF, Miller PQ, Panacek EA, Lin S, Horne NS, Mower WR: Epidemiology of thoracolumbar spine injury in blunt trauma. *Acad Emerg Med* 8: 866, 2001. [PMID: 11535478]
- Rabb CH, Lopez J, Beauchamp K, Witt P, Bolles G, Dwyer A: Unilateral cervical facet fractures with subluxation: injury patterns and treatment. *J Spinal Disord Tech* 20: 416, 2007. [PMID: 17970181]
- Syre P, Petrov D, Malhotra NR: Management of upper cervical spine injuries: a review. *J Neurosurg Sci* 57: 219, 2013. [PMID: 23877268]
- Denis F: The three column spine and its significance in the classification of acute thoracolumbar spinal injuries. *Spine* 8: 817, 1983. [PMID: 6670016]
- Vaccaro AR, Oner C, Kepler CK, et al: AOSpine thoracolumbar spine injury classification system: fracture description, neurological status, and key modifiers. *Spine* 38: 2028, 2013. [PMID: 23970107]
- Pizones J, Alvarez-Gonzalez P, Sanchez-Mariscal F, et al: AOSpine thoracolumbar spine injury classification system. Fracture description, neurological status, and key modifiers. *Spine* 39: 783, 2014. [PMID: 24525987]
- Schnake KJ, Schroeder GD, Vaccaro AR, Oner C: AOSpine classification systems (subaxial, thoracolumbar). *J Orthop Trauma* 31(Suppl 4): S14, 2017. [PMID: 28816871]
- Vaccaro AR, Koerner JD, Radcliff KE, et al: AOSpine subaxial cervical spine injury classification system. *Eur Spine J* 25: 2173, 2016. [PMID: 25716661]
- Iyer NR, Wilems TS, Sakiyama-Elbert SE: Stem cells for spinal cord injury: strategies to inform differentiation and transplantation. *Biotechnol Bioengineering* 114: 245, 2017. [PMID: 27531038]
- Grossman RG, Fehlings MG, Frankowski RF, et al: A prospective, multicenter, phase I matched-comparison group trial of safety, pharmacokinetics, and preliminary efficacy of riluzole in patients with traumatic spinal cord injury. *J Neurotrauma* 31: 239, 2014. [PMID: 23859435]
- Horodyski M, DiPaola CP, Conrad BP, Rechtine GR 2nd: Cervical collars are insufficient for immobilizing an unstable cervical spine injury. *J Emerg Med* 41: 513, 2011. [PMID: 21397431]
- Kwan I, Bunn F, Roberts I: Spinal immobilisation for trauma patients. *Cochrane Database Syst Rev* 2: CD002803, 2001. [PMID: 11406043]
- Linares HA, Mawson AR, Suarez E, Biundo JJ: Association between pressure sores and immobilization in the immediate post-injury period. *Orthopedics* 10: 571, 1987. [PMID: 3575181]
- Teschner AN, Rindfleisch AB, Youdas JW, et al: Range-of-motion restriction and craniofacial tissue-interface pressure from four cervical collars. *J Trauma* 63: 1120, 2007. [PMID: 17993960]
- Luscombe MD, Williams JL: Comparison of a long spinal board and vacuum mattress for spinal immobilisation. *Emerg Med J* 20: 476, 2003. [PMID: 12954698]
- Totten VY, Sugarman DB: Respiratory effects of spinal immobilization. *Prehosp Emerg Care* 3: 347, 1999. [PMID: 10534038]
- Del Rossi G, Rechtine GR, Conrad BP, Horodyski M: Are scoop stretchers suitable for use on spine-injured patients? *Am J Emerg Med* 28: 751, 2010. [PMID: 20837250]
- Hemmes B, Poeze M, Brink PR: Reduced tissue-interface pressure and increased comfort on a newly developed soft-layered long spineboard. *J Trauma* 68: 593, 2010. [PMID: 19918198]
- Ham WH, Schoonhoven L, Schuurmans MJ, Leenen LP: Pressure ulcers, indentation marks and pain from cervical spine immobilization with extrication collars and head-blocks: an observational study. *Injury* 47: 1924, 2016. [PMID: 27158006]
- Woster CM, Zwank MD, Pasquarella JR, et al: Placement of a cervical collar increases the optic nerve sheath diameter in healthy adults. *Am J Emerg Med* 36: 430, 2018. [PMID: 28865838]
- Ham W, Schoonhoven L, Schuurmans MJ, Leenen LP: Pressure ulcers from spinal immobilization in trauma patients: a systematic review. *J Trauma Acute Care Surg* 76: 1131, 2014. [PMID: 24662882]
- Sundstrom T, Asbjornsen H, Habiba S, Sunde GA, Wester K: Prehospital use of cervical collars in trauma patients: a critical review. *J Neurotrauma* 31: 531, 2014. [PMID: 23962031]
- White CC, Domeier RM, Millin MG, et al: EMS spinal precautions and the use of the long backboard: resource document to the position statement of the National Association of EMS Physicians and the American College of Surgeons Committee on Trauma. *Prehosp Emerg Care* 18: 306, 2014. [PMID: 24559236]
- Connor D, Greaves I, Porter K, et al: Pre-hospital spinal immobilisation: an initial consensus statement. *Emerg Med J* 30: 1067, 2013. [PMID: 24232011]
- Purvis TA, Carlin B, Driscoll P: The definite risks and questionable benefits of liberal pre-hospital spinal immobilisation. *Am J Emerg Med* 35: 860, 2017. [PMID: 28169039]
- Gerling MC, Davis DP, Hamilton RS, et al: Effects of cervical spine immobilization technique and laryngoscope blade selection on an unstable cervical spine in a cadaver model of intubation. *Ann Emerg Med* 36: 293, 2000. [PMID: 11020675]
- Suppan L, Tramer MR, Niquille M, Groscurin O, Marti C: Alternative intubation techniques vs Macintosh laryngoscopy in patients with cervical spine immobilization: systematic review and meta-analysis of randomized controlled trials. *Br J Anaesth* 116: 27, 2016. [PMID: 26133898]
- Lewis SR, Butler AR, Parker J, Cook TM, Smith AF: Videolaryngoscopy versus direct laryngoscopy for adult patients requiring tracheal intubation. *Cochrane Database Syst Rev* 11: CD011136, 2016. [PMID: 27844477]
- Martini RP, Larson DM: Clinical evaluation and airway management for adults with cervical spine instability. *Anesthesiol Clin* 33: 315, 2015. [PMID: 25999005]
- Zipnick RI, Scalea TM, Trooskin SZ, et al: Hemodynamic responses to penetrating spinal cord injuries. *J Trauma* 35: 578, 1993. [PMID: 8411282]
- Prasarn ML, Zhou H, Dubose D, et al: Total motion generated in the unstable thoracolumbar spine during management of the typical trauma patient: a comparison of methods in a cadaver model. *J Neurosurg Spine* 16: 504, 2012. [PMID: 22385085]
- Hyldmo PK, Vist GE, Feyling AC, et al: Does turning trauma patients with an unstable spinal injury from the supine to a lateral position increase the risk of neurological deterioration? A systematic review. *Scand J Trauma Resusc Emerg Med* 23: 65, 2015. [PMID: 26382216]
- Horodyski M, Conrad BP, Del Rossi G, DiPaola CP, Rechtine GR 2nd: Removing a patient from the spine board: is the lift and slide safer than the log roll? *J Trauma* 70: 1282, 2011. [PMID: 21610441]
- Conrad BP, Rossi GD, Horodyski MB, Prasarn ML, Alemi Y, Rechtine GR: Eliminating log rolling as a spine trauma order. *Surg Neurol Int* 3(Suppl 3): S188, 2012. [PMID: 22905325]
- Powers J, Daniels D, McGuire C, Hilbish C: The incidence of skin breakdown associated with use of cervical collars. *J Trauma Nurs* 13: 198, 2006. [PMID: 17263104]
- Maissan IM, Ketelaars R, Vlotter B, Hoeks SE, den Hartog D, Stalker RJ: Increase in intracranial pressure by application of a rigid cervical collar: a pilot study in healthy volunteers. *Eur J Emerg Med* July 19, 2017. [PMID: 28727580]
- Karason S, Reynisson K, Sigvaldason K, Sigurdsson GH: Evaluation of clinical efficacy and safety of cervical trauma collars: differences in immobilization, effect on jugular venous pressure and patient comfort. *Scand J Trauma Resusc Emerg Med* 22: 37, 2014. [PMID: 24906207]
- Hoffman JR, Mower WR, Wolfson AB, Todd KH, Zucker MI: Validity of a set of clinical criteria to rule out injury to the cervical spine in patients with blunt trauma. National Emergency X-Radiography Utilization Study Group. *N Engl J Med* 343: 94, 2000. [PMID: 10891516]
- Stiell IG, Wells GA, Vandemheen KL, et al: The Canadian C-spine rule for radiography in alert and stable trauma patients. *JAMA* 286: 1841, 2001. [PMID: 11597285]
- Sixta S, Moore FO, Dittilo MF, et al: Screening for thoracolumbar spinal injuries in blunt trauma: an Eastern Association for the Surgery of Trauma practice management guideline. *J Trauma Acute Care Surg* 73(Suppl 4): S326, 2012. [PMID: 23114489]
- Inaba K, Nosanov L, Menaker J, et al: Prospective derivation of a clinical decision rule for thoracolumbar spine evaluation after blunt trauma: an American Association for the Surgery of Trauma Multi-Institutional Trials Group Study. *J Trauma Acute Care Surg* 78: 459, 2015. [PMID: 25710414]
- <http://lms3.learnspace.com/Images/Brand/120/ASIA/International%20Standards%20Worksheet.pdf>. (American Spinal Injury Association: ASIA International Center Materials: International Standards for Neurological Classification of SCI (ISNCSCI) Exam Worksheet.) Accessed October 4, 2017.
- Scivoletto G, Bonavita J, Torre M, et al: Observational study of the effectiveness of spinal cord injury rehabilitation using the Spinal Cord Injury-Ability Realization Measurement Index. *Spinal Cord* 54: 467, 2016. [PMID: 26369890]
- Amendola L, Corgi A, Cappuccio M, De Iure F: Two cases of Brown-Sequard syndrome in penetrating spinal cord injuries. *Eur Rev Med Pharmacol Sci* 18(Suppl 1): 2, 2014. [PMID: 24825034]
- Johnson S, Jones M, Zumsteg J: Brown-Sequard syndrome without vascular injury associated with Horner's syndrome after a stab injury to the neck. *J Spinal Cord Med* 39: 111, 2016. [PMID: 25659820]
- Gooding BW, Higgins MA, Calthorpe DA: Does rectal examination have any value in the clinical diagnosis of cauda equina syndrome? *Br J Neurosurg* 27: 156, 2013. [PMID: 23113877]

56. Sherlock KE, Turner W, Elsayed S, et al: The evaluation of digital rectal examination for assessment of anal tone in suspected cauda equina syndrome. *Spine (Phila Pa 1976)* 40: 1213, 2015. [PMID: 25811266]
57. Balasubramanian K, Kalsi P, Greenough CG, Kuskoor Seetharam MP: Reliability of clinical assessment in diagnosing cauda equina syndrome. *Br J Neurosurg* 24: 383, 2010. [PMID: 20726746]
58. Gooding BW, Higgins MA, Calthorpe DA: Does rectal examination have any value in the clinical diagnosis of cauda equina syndrome? *Br J Neurosurg* 27: 156, 2013. [PMID: 23113877]
59. Ahad A, Elsayed M, Tohid H: The accuracy of clinical symptoms in detecting cauda equina syndrome in patients undergoing acute MRI of the spine. *Neuroradiol J* 28: 438, 2015. [PMID: 26306934]
60. Guly HR, Bouamra O, Lecky FE: The incidence of neurogenic shock in patients with isolated spinal cord injury in the emergency department. *Resuscitation* 76: 57, 2008. [PMID: 17688997]
61. Mallek JT, Inaba K, Branco BC, et al: The incidence of neurogenic shock after spinal cord injury in patients admitted to a high-volume level I trauma center. *Am Surg* 78: 623, 2012. [PMID: 22546142]
62. Ditunno JF, Little JW, Tessler A, Burns AS: Spinal shock revisited: a four-phase model. *Spinal Cord* 42: 383, 2004. [PMID: 15037862]
63. Ko HY, Ditunno JF Jr, Graziani V, Little JW: The pattern of reflex recovery during spinal shock. *Spinal Cord* 37: 402, 1999. [PMID: 10432259]
64. D'Amico JM, Condliffe EG, Martins KJ, Bennett DJ, Gorassini MA: Recovery of neuronal and network excitability after spinal cord injury and implications for spasticity. *Front Integr Neurosci* 8: 36, 2014. [PMID: 24860447]
65. Fujii T, Faul M, Sasser S: Risk factors for cervical spine injury among patients with traumatic brain injury. *J Emerg Trauma Shock* 6: 252, 2013. [PMID: 24339657]
66. Bandiera G, Stiell IG, Wells GA, et al: The Canadian C-spine rule performs better than unstructured physician judgment. *Ann Emerg Med* 42: 395, 2003. [PMID: 12944893]
67. Touger M, Gennis P, Nathanson N, et al: Validity of a decision rule to reduce cervical spine radiography in elderly patients with blunt trauma. *Ann Emerg Med* 40: 287, 2002. [PMID: 12192352]
68. Paykin G, O'Reilly G, Ackland HM, Mitra B: The NEXUS criteria are insufficient to exclude cervical spine fractures in older blunt trauma patients. *Injury* 48: 1020, 2017. [PMID: 28274471]
69. Denver D, Shetty A, Unwin D: Falls and implementation of NEXUS in the elderly (the FINE Study). *J Emerg Med* 49: 294, 2015. [PMID: 26022935]
70. Goode T, Young A, Wilson SP, Katzen J, Wolfe LG, Duane TM: Evaluation of cervical spine fracture in the elderly: can we trust our physical examination? *Am Surg* 80: 182, 2014. [PMID: 24480220]
71. Tran J, Jeanmonod D, Agresti D, Hamden K, Jeanmonod RK: Prospective validation of modified NEXUS cervical spine injury criteria in low-risk elderly fall patients. *West J Emerg Med* 17: 252, 2016. [PMID: 27330655]
72. Evans D, Vera L, Jeanmonod D, Pester J, Jeanmonod R: Application of National Emergency X-Ray Utilizations Study low-risk c-spine criteria in high-risk geriatric falls. *Am J Emerg Med* 33: 1184, 2015. [PMID: 226092674]
73. Hoffman JR, Mower WR: Rethinking "time to rethink" distracting injuries. *J Trauma Acute Care Surg* 78: 1066, 2015. [PMID: 25909433]
74. Stiell IG, Clement CM, Grimshaw J, et al: Implementation of the Canadian C-Spine Rule: prospective 12 centre cluster randomised trial. *BMJ* 339: b4146, 2009. [PMID: 19875425]
75. Vaillancourt C, Stiell IG, Beaudoin T, et al: The out-of-hospital validation of the Canadian C-Spine Rule by paramedics. *Ann Emerg Med* 54: 663, 2009. [PMID: 19394111]
76. Mower WR, Hoffman J: Comparison of the Canadian C-Spine rule and NEXUS decision instrument in evaluating blunt trauma patients for cervical spine injury. *Ann Emerg Med* 43: 515, 2004. [PMID: 15039696]
77. Weiner S: The actual application of the NEXUS and Canadian C-spine rules by emergency physicians. *Internet J of Emerg Med* 5: 2, 2008.
78. <https://www.mdcalc.com/canadian-c-spine-rule>. (Walker G, Habboushe J: MDCalc: Canadian C-Spine Rule. 2016.) Accessed October 5, 2017.
79. Stiell IG, Clement CM, McKnight RD, et al: The Canadian C-spine rule versus the NEXUS low-risk criteria in patients with trauma. *N Engl J Med* 349: 2510, 2003. [PMID: 14695411]
80. Mower WR, Wolfson AB, Hoffman JR, Todd KH: The Canadian C-spine rule. *N Engl J Med* 350: 1467, 2004. [PMID: 15070802]
81. Yealy DM, Auble TE: Choosing between clinical prediction rules. *N Engl J Med* 349: 2553, 2003. [PMID: 14695417]
82. Michaleff ZA, Maher CG, Verhaeg AP, Rebbeck T, Lin CW: Accuracy of the Canadian C-spine rule and NEXUS to screen for clinically important cervical spine injury in patients following blunt trauma: a systematic review. *CMAJ* 184: E867, 2012. [PMID: 23048086]
83. Duane TM, Mayglothling J, Wilson SP, et al: National Emergency X-Radiography Utilization Study criteria is inadequate to rule out fracture after significant blunt trauma compared with computed tomography. *J Trauma* 70: 829, 2011. [PMID: 21610391]
84. Duane TM, Wilson SP, Mayglothling J, et al: Canadian cervical spine rule compared with computed tomography: a prospective analysis. *J Trauma* 71: 352, 2011. [PMID: 21925938]
85. Como JJ, Diaz JJ, Dunham CM, et al: Practice management guidelines for identification of cervical spine injuries following trauma: update from the eastern association for the surgery of trauma practice management guidelines committee. *J Trauma* 67: 651, 2009. [PMID: 19741415]
86. Ryken TC, Hadley MN, Walters BC, et al: Radiographic assessment. *Neurosurgery* 72(Suppl 2): 54, 2013. [PMID: 23417179]
87. Hunter BR, Keim SM, Seupaul RA, Hern G: Are plain radiographs sufficient to exclude cervical spine injuries in low-risk adults? *J Emerg Med* 46: 257, 2014. [PMID: 24342907]
88. Bailitz J, Starr F, Beecroft M, et al: CT should replace three-view radiographs as the initial screening test in patients at high, moderate, and low risk for blunt cervical spine injury: a prospective comparison. *J Trauma* 66: 1605, 2009. [PMID: 19509621]
89. Gale SC, Gracias VH, Reilly PM, Schwab CW: The inefficiency of plain radiography to evaluate the cervical spine after blunt trauma. *J Trauma* 59: 1121, 2005. [PMID: 16385289]
90. Hashem R, Evans CC, Farrokhyar F, Kahnoumi K: Plain radiography does not add any clinically significant advantage to multidetector row computed tomography in diagnosing cervical spine injuries in blunt trauma patients. *J Trauma* 66: 423, 2009. [PMID: 19204517]
91. Grogan EL, Morris JA Jr, Dittus RS, et al: Cervical spine evaluation in urban trauma centers: lowering institutional costs and complications through helical CT scan. *J Am Coll Surg* 200: 160, 2005. [PMID: 15664088]
92. Blackmore CC, Ramsey SD, Mann FA, Deyo RA: Cervical spine screening with CT in trauma patients: a cost-effectiveness analysis. *Radiology* 212: 117, 1999. [PMID: 10405730]
93. <https://www.nice.org.uk/guidance/ng41>. (NICE. Spinal injury: assessment and initial management.) Accessed October 13, 2017.
94. Chew BG, Swartz C, Quigley MR, Altman DT, Daffner RH, Wilberger JE: Cervical spine clearance in the traumatically injured patient: is multidetector CT scanning sufficient alone? Clinical article. *J Neurosurg Spine* 19: 576, 2013. [PMID: 24033302]
95. Menaker J, Stein DM, Philp AS, Scalea TM: 40-slice multidetector CT: is MRI still necessary for cervical spine clearance after blunt trauma? *Am Surg* 76: 157, 2010. [PMID: 20336892]
96. Inaba K, Byerly S, Bush LD, et al: Cervical spinal clearance: a prospective Western Trauma Association Multi-institutional Trial. *J Trauma Acute Care Surg* 81: 1122, 2016. [PMID: 27438681]
97. Goodnight TJ, Helmer SD, Dort JM, Nold RJ, Smith RS: A comparison of flexion and extension radiographs with computed tomography of the cervical spine in blunt trauma. *Am Surg* 74: 855, 2008. [PMID: 18807677]
98. Insko EK, Gracias VH, Gupta R, Goettler CE, Gaieski DF, Dalinka MK: Utility of flexion and extension radiographs of the cervical spine in the acute evaluation of blunt trauma. *J Trauma* 53: 426, 2002. [PMID: 12352475]
99. Khan SN, Erickson G, Sena MJ, Gupta MC: Use of flexion and extension radiographs of the cervical spine to rule out acute instability in patients with negative computed tomography scans. *J Orthop Trauma* 25: 51, 2011. [PMID: 21085024]
100. McCracken B, Klineberg E, Pickard B, Wisner DH: Flexion and extension radiographic evaluation for the clearance of potential cervical spine injuries in trauma patients. *Eur Spine J* 22: 1467, 2013. [PMID: 23404352]
101. Tran B, Saxe JM, Ekeh AP: Are flexion extension films necessary for cervical spine clearance in patients with neck pain after negative cervical CT scan? *J Surg Res* 184: 411, 2013. [PMID: 23809183]
102. Inaba K, DuBose JJ, Barmparas G, et al: Clinical examination is insufficient to rule out thoracolumbar spine injuries. *J Trauma* 70: 174, 2011. [PMID: 20389662]
103. Cason B, Rostas J, Simmons J, Frota MA, Brevard SB, Gonzalez RP: Thoracolumbar spine clearance: clinical examination for patients with distracting injuries. *J Trauma Acute Care Surg* 80: 125, 2016. [PMID: 26491795]
104. Wintermark M, Mouhsine E, Theumann N, et al: Thoracolumbar spine fractures in patients who have sustained severe trauma: depiction with multi-detector row CT. *Radiology* 227: 681, 2003. [PMID: 12702827]
105. Berry GE, Adams S, Harris MB, et al: Are plain radiographs of the spine necessary during evaluation after blunt trauma? Accuracy of screening torso computed tomography in thoracic/lumbar spine fracture diagnosis. *J Trauma* 59: 1410, 2005. [PMID: 16394914]
106. Carter B, Griffith B, Mossa-Basha F, et al: Reformatted images of the thoracic and lumbar spine following CT of chest, abdomen, and pelvis in the setting of blunt trauma: are they necessary? *Emerg Radiol* 22: 373, 2015. [PMID: 25666301]
107. Miller CP, Brubacher JW, Biswas D, Lawrence BD, Whang PG, Grauer JN: The incidence of noncontiguous spinal fractures and other traumatic injuries associated with cervical spine fractures: a 10-year experience at an academic medical center. *Spine* 36: 1532, 2011. [PMID: 21242872]
108. Sharma OP, Oswanski MF, Yazdi JS, Jindal S, Taylor M: Assessment for additional spinal trauma in patients with cervical spine injury. *Am Surg* 73: 70, 2007. [PMID: 18092649]
109. Nelson DW, Martin MJ, Martin ND, Beekley A: Evaluation of the risk of noncontiguous fractures of the spine in blunt trauma. *J Trauma Acute Care Surg* 75: 135, 2013. [PMID: 23940857]
110. Schoenfeld AJ, Bono CM, McGuire KJ, Warholc N, Harris MB: Computed tomography alone versus computed tomography and magnetic resonance imaging in the identification of occult injuries to the cervical spine: a meta-analysis. *J Trauma* 68: 109, 2010. [PMID: 20065765]
111. Badhiwala JH, Lai CK, Alhazzani W, et al: Cervical spine clearance in obtunded patients after blunt traumatic injury: a systematic review. *Ann Intern Med* 162: 429, 2015. [PMID: 25775316]
112. Patel MB, Humble SS, Cullinane DC, et al: Cervical spine collar clearance in the obtunded adult blunt trauma patient: a systematic review and practice management guideline from the Eastern Association for the Surgery of Trauma. *J Trauma Acute Care Surg* 78: 430, 2015. [PMID: 25757133]
113. Katsuura Y, Osborn JM, Cason GW: The epidemiology of thoracolumbar trauma: a meta-analysis. *J Orthop* 13: 383, 2016. [PMID: 27504058]
114. Dai LY: Imaging diagnosis of thoracolumbar burst fractures. *Chin Med Sci J* 19: 142, 2004. [PMID: 15250254]

115. Ballock RT, Mackersie R, Abitbol JJ, Cervilla V, Resnick D, Garfin SR: Can burst fractures be predicted from plain radiographs? *J Bone Joint Surg Br* 74: 147, 1992. [PMID: 1732246]
116. Dai LY, Wang XY, Jiang LS, Jiang SD, Xu HZ: Plain radiography versus computed tomography scans in the diagnosis and management of thoracolumbar burst fractures. *Spine* 33: E548, 2008. [PMID: 18628696]
117. Bracken MB, Collins WF, Freeman DF, et al: Efficacy of methylprednisolone in acute spinal cord injury. *JAMA* 251: 45, 1984. [PMID: 6361287]
118. Bracken MB, Shepard MJ, Collins WF, et al: A randomized, controlled trial of methylprednisolone or naloxone in the treatment of acute spinal-cord injury. Results of the Second National Acute Spinal Cord Injury Study. *N Engl J Med* 322: 1405, 1990. [PMID: 2278545]
119. Bracken MB, Shepard MJ, Holford TR, et al: Administration of methylprednisolone for 24 or 48 hours or tirilazad mesylate for 48 hours in the treatment of acute spinal cord injury. Results of the Third National Acute Spinal Cord Injury Randomized Controlled Trial. National Acute Spinal Cord Injury Study. *JAMA* 277: 1597, 1997. [PMID: 9168289]
120. Bracken MB: Steroids for acute spinal cord injury. *Cochrane Database Syst Rev* 1: CD001046, 2012. [PMID: 22258943]
121. Ito Y, Sugimoto Y, Tomioka M, Kai N, Tanaka M: Does high dose methylprednisolone sodium succinate really improve neurological status in patient with acute cervical cord injury? A prospective study about neurological recovery and early complications. *Spine* 34: 2121, 2009. [PMID: 19713878]
122. Sayer FT, Kronvall E, Nilsson OG: Methylprednisolone treatment in acute spinal cord injury: the myth challenged through a structured analysis of published literature. *Spine* 31: 335, 2006. [PMID: 16651231]
123. Suberviola B, Gonzalez-Castro A, Llorca J, Ortiz-Melon F, Minambres E: Early complications of high-dose methylprednisolone in acute spinal cord injury patients. *Injury* 39: 748, 2008. [PMID: 18541241]
124. Hurlbert RJ, Hadley MN, Walters BC, et al: Pharmacological therapy for acute spinal cord injury. *Neurosurgery* 72(Suppl 2): 93, 2013.
125. <https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Hope-Through-Research/Spinal-Cord-Injury-Hope-Through-Research>. (NINDS. Spinal Cord Injury: Hope Through Research. 2013.) Accessed October 21, 2017.
126. Evaniew N, Belley-Cote EP, Fallah N, Noonan VK, Rivers CS, Dvorak MF: Methylprednisolone for the treatment of patients with acute spinal cord injuries: a systematic review and meta-analysis. *J Neurotrauma* 33: 468, 2016. [PMID: 26529320]
127. Ahuja CS, Schroeder GD, Vaccaro AR, Fehlings MG: Spinal cord injury: what are the controversies? *J Orthop Trauma* 31(Suppl 4): S7, 2017. [PMID: 28816870]
128. Levy ML, Gans W, Wijesinghe HS, SooHoo WE, Adkins RH, Stillerman CB: Use of methylprednisolone as an adjunct in the management of patients with penetrating spinal cord injury: outcome analysis. *Neurosurgery* 39: 1141, 1996. [PMID: 8938768]
129. Alderson P, Roberts I: Corticosteroids for acute traumatic brain injury. *Cochrane Database Syst Rev* 1: CD000196, 2005. [PMID: 15674869]
130. Ryken TC, Hurlbert RJ, Hadley MN, et al: The acute cardiopulmonary management of patients with cervical spinal cord injuries. *Neurosurgery* 72(Suppl 2): 84, 2013. [PMID: 23417181]
131. Ploumis A, Yadlapalli N, Fehlings MG, Kwon BK, Vaccaro AR: A systematic review of the evidence supporting a role for vasopressor support in acute SCI. *Spinal Cord* 48: 356, 2010. [PMID: 19935758]
132. Readdy WJ, Saigal R, Whetstone WD, et al: Failure of mean arterial pressure goals to improve outcomes following penetrating spinal cord injury. *Neurosurgery* 79: 708, 2016. [PMID: 27759678]
133. Martin ND, Kepler C, Zubair M, Sayadipour A, Cohen M, Weinstein M: Increased mean arterial pressure goals after spinal cord injury and functional outcome. *J Emerg Trauma Shock* 8: 94, 2015. [PMID: 25949039]
134. Hawryluk G, Whetstone W, Saigal R, et al: Mean arterial blood pressure correlates with neurological recovery after human spinal cord injury: analysis of high frequency physiologic data. *J Neurotrauma* 32: 1958, 2015. [PMID: 25669633]
135. Readdy WJ, Whetstone WD, Ferguson AR, et al: Complications and outcomes of vasopressor usage in acute traumatic central cord syndrome. *J Neurosurg Spine* 23: 574, 2015. [PMID: 26230417]
136. <https://clinicaltrials.gov/ct2/show/NCT02232165>. (Jacobs WB: Mean Arterial Blood Pressure Treatment for Acute Spinal Cord Injury [MAPS], 2014.) Accessed October 21, 2017.
137. Readdy WJ, Dhall SS: Vasopressor administration in spinal cord injury: should we apply a universal standard to all injury patterns? *Neural Regen Res* 11: 420, 2016. [PMID: 27127478]