Reference 810

Core Principles: Spinal Immobilization

Rev: 2/18

Rule #1 True spinal injuries are extremely rare, and even more rarely occur in the absence of spinal line pain and/or neurologic deficits.

Rule #2 Mechanism of injury without subjective complaints or objective findings of spinal injury is generally a poor predictor of spinal injury.

- Substantial spinal injuries are best recognized with diligent patient histories and physical exams.
- Alert and oriented patients with true spinal injuries tend to exhibit pain and tenderness to palpation, and generally vigorously self-splint.
- Mechanism of injury should be more carefully considered in high risk patients (the elderly and the young) and in those patients for whom an accurate history and physical examination cannot be obtained.

Rule #3 Elderly patients are more likely to have spinal injuries after a traumatic event.

- These patients should be more conservatively managed, and there should be a greater suspicion for occult – hidden – spinal injuries, especially in those patients with chronic confusion/dementia.

Rule #4 Spinal immobilization should not increase patient discomfort. Immobilization that increases pain should be avoided.

- Backboards must be appropriately padded to prevent pain and pressure sores.

Rule #5 The goal of immobilization is to prevent further spinal injury during patient extrication, treatment, and transport.

- Patients with suspected spinal injuries should be maintained in what is for them a “neutral”, in-line position.
- This position will vary from patient to patient depending on the presence of arthritis or other spinal abnormalities.
- A patient’s cervical spine should never be moved if movement increases pain, neurologic deficits, or neck spasms.

Rule #6 A range of immobilization strategies - from partial to complete immobilization of the spine – may be utilized depending on the mechanism of injury, complaints, physical findings, and comorbidities of the patient.

- The best candidates for full head-to-toe immobilization are victims of a high impact mechanism with multi-systems injuries.

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- •Immobilization of only the cervical spine is acceptable in patients who have an isolated cervical pain complaint, normal mentation, and no neurologic deficits.
- Patients may be partially or completely immobilized in a semi-fowler's position.
- Patients who are laid supine will be substantially more comfortable with knees elevated.

Rule #7 Immobilization should be accomplished using the most appropriate equipment for the specific circumstance.

- Acceptable equipment includes long backboards, vacuum splints, pneumatic splints, stiff cervical collars, soft collars, short boards or KEDs, straps, head immobilization devices ("headbeds", etc.), tape as well as soft materials such as pillows and pull sheets.
- Ill-fitting equipment is worse than no equipment at all.
- Pull sheets, other flexible devices, and concave "scoops" should be employed for moving patients whenever possible; backboards should be used only if these other devices are unavailable.

Rule #8 Spinal movement and discomfort are reduced by allowing patients to self- extricate when possible, and to place themselves onto gurneys and spinal immobilization devices.

- Back-boarding patients from a standing position is discouraged.
- Logrolling patients is very uncomfortable and leads to increased spinal movement. The preferred technique to getting patients onto boards is to "forklift" the patient onto the backboard.

Rule #9 Full spinal immobilization of penetrating thoracic trauma patients increases mortality and morbidity. Alert, neurologically intact victims of penetrating thoracic trauma without spinal pain do not need spinal immobilization.

Rule #10 Football players who have suffered a potential spine injury should have all protective equipment removed on the field and should then be immobilized as indicated.

Rule #11 Responders should document all history and exam findings on the Pre-hospital Care Report. The patient's neurologic status pre- and post-immobilization, along with all spinal immobilization interventions, should also be documented.

Rule #12: In patients without neck or spinal line back pain or tenderness, ALOC, or distracting injury, spinal immobilization may be withheld as long as the patient can be accurately evaluated.

Rule #13: If there is any doubt about the evaluation of a patient's spine, it is always better to immobilize the patient and defer further spinal evaluation to the ED staff.