

SPINAL INJURY ASSESSMENT

PURPOSE

To decrease unnecessary immobilizations in the field and reduce the risks and complications associated with this procedure.

DEFINITION

Spinal Motion Restriction (SMR) – The term SMR better describes the procedure used to care for patients with possible unstable spinal injury:

- Reduction of gross movement
- Prevention of duplicating the damaging mechanism to spine
- Regular reassessment of motor/sensory function

INTRODUCTION

While maintaining manual stabilization of the C-spine during the evaluation process, you will assess the mechanism of injury. You will interview and examine the patient, then use this information to determine which patients require SMR. At any point of the decision tree you find a positive factor, you must provide SMR. You do not balance or weight the merits of each component to make your decision.

Studies show that immobilizing trauma victims may cause more harm than good to the patient. Penetrating trauma victims benefit most from rapid assessment and transport to a trauma center without SMR.

PROCEDURE

If the immobilization process is initiated prior to an ALS assessment, *stop* and perform spine injury assessment to determine best course of action.

SMR is indicated in pre-hospital trauma patients who sustain an injury with a mechanism having the potential for causing spinal injury and who have at least one of the following clinical criteria:

1. Altered Mental Status
2. Evidence of intoxication
3. A distracting painful injury (e.g. long bone extremity fracture)
4. Neurological deficit
5. Spinal pain or tenderness

Omit SMR if all assessment criteria are safely assessed and are normal.

Consider SMR for a patient who is suspected of having a traumatic unstable spinal injury. Have a high index of suspicion for pediatrics, and patients with degenerative skeletal/connective tissue disorders.

Victims of penetrating trauma (stabblings, gunshot wounds) to the head, neck, and/or torso SHOULD NOT receive SMR unless there is one or more of the following:

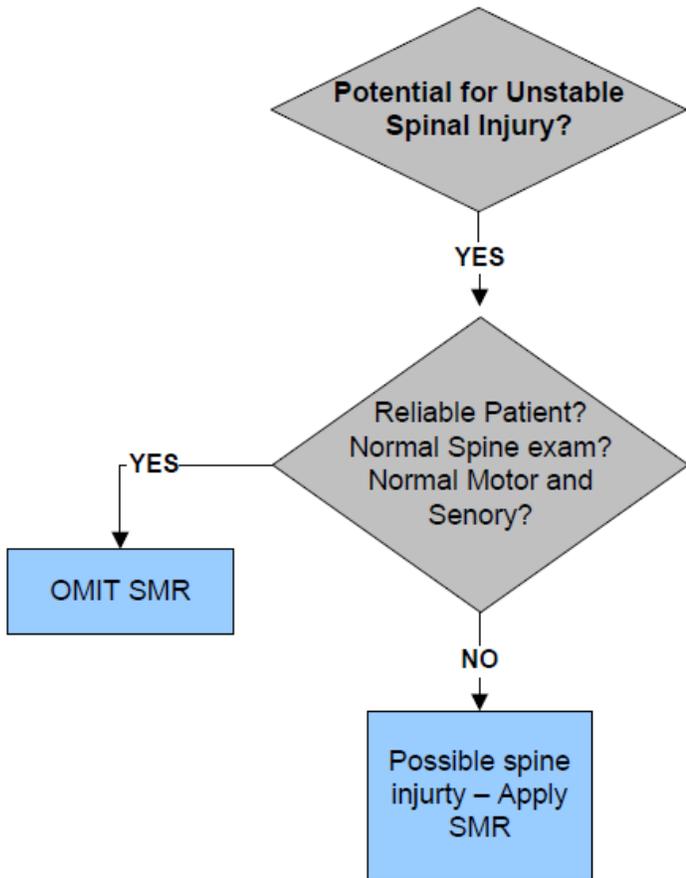
1. Obvious neurologic deficit to the extremities
2. Significant secondary blunt mechanic of injury
3. Priapism

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- 4. Neurogenic shock
- 5. Anatomic deformity to the spine secondary to injury

ASSESSMENT

****Consider, High-Risk factors, and Low Risk Factors with considering SMR**



A Reliable Patient is cooperative, sober, and alert without:
 Significant distracting injuries
 Language barrier

SPINAL PAIN/TENDERNESS:
 Palpate vertebral column thoroughly

MOTOR/SENSORY Exam:
 Wrist or finger extension (both hands)
 Plantarflexion (both feet)
 Dorsiflexion (both feet)
 Check gross sensation in all extremities
 Check for abnormal sensation to extremities

SMR Methods:

If patient experiences negative effects of SMR methods used, alternative measures should be implemented.

Approved methods and tools to achieve SMR: Lateral, Semi-Flower's or Fowler's position with a cervical collar only, vacuum splint, children's car seats, KED, Backboards with adequate padding, head immobilizers and straps.

Provide manual stabilization restricting gross motion movement. Alert and cooperative patients may be allowed to self-limit motion if appropriate with or without a collar.

If needed, limit the extricated patient flexion, extension, rotation, and distraction of the spine.

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Place patient in a position to protect airway.

Regularly check, and reassess motor/sensory function (including finger abduction, wrist and finger extension, plantar/dorsal flexion and sharp/dull exam when possible).

Consider the use of EtCO₂ to monitor respiratory function.

CONSIDERATIONS**Low-Risk Factors:**

- Simple rear-end MVC
- Ambulatory at any time on scene
- No neck pain at scene
- Absence of midline cervical tenderness

*** Low-risk factors above allow for omission of SMR, if you have done a complete assessment and all is normal.*

High-Risk Factors:

- Age > 65
- Meets Trauma Patient Criteria for mechanism of injury
- Axial load to the head
- Numbness of tingling in the extremities

***High-risk factors are present, strongly consider SMR*

Pediatric Patients in Car Seats:

Infants restrained in a rear facing car seat: may be immobilized and extricated in the car seat. The child may remain in the car seat if the immobilization is secure and his/her condition allows.

Children restrained in a car seat (with a high back): may be immobilized and extricated in the car seat. Once removed from the vehicle the child should be placed in SMR.

Children restrained in a booster seat: need to be extricated and immobilized following standard SMR procedures.

*** If decision is made to apply SMR to patient in a car seat, ensure that a proper assessment of the patient's posterior is performed.*

Helmet removal:

Any type of helmet that requires manipulation of the head and neck to remove it from a trauma patient should be left in place. The airway may be managed through the mask/screen but should be removed if the airway needs to be managed and cannot be with the mask/screen in place. Be sure to pad around the helmet, neck and shoulders to fill any gaps and maintain inline spinal motion restriction.