Spinal Precautions

Indications & General Guidance

1. Refer to the **Spinal Injury Assessment Protocol**. Patients with a positive spinal injury assessment should have spinal precautions maintained during transport.
2. Major trauma patients who require extrication should have spinal precautions maintained using an extrication device (long backboard or equivalent) during extrication. If sufficient personnel are present, the patient may be log rolled from the extrication device to the ambulance cot during loading of the patient.
3. Patients may remain on the extrication device if the crew deems it safer for the patient considering stability, time and patient comfort considerations. This decision will be at the discretion of the crew.
4. Patients with penetrating traumatic injuries do not require spinal precautions unless a focal neurologic deficit is noted on the spinal injury assessment.
5. An ambulatory patient with a positive spinal injury assessment should have an appropriately sized cervical collar placed. Place the patient directly on the ambulance cot in a supine position or position with least amount of elevation to maintain comfort, limiting movement of the spine during the process.
6. Patients, who are stable, alert and without neurological deficits may be allowed to self-extricate to the ambulance cot after placement of a cervical collar. Limit movement of the spine during the process.
7. Patients over the age of 65 with evidence of a head strike mechanism of injury will have a cervical collar applied even if the spinal injury clinical assessment is negative.

Specific Techniques

1. Cervical Collars
    A. Cervical collar should be placed on patient prior to patient movement, if possible.
    B. If no collar can be made to fit patient, towel, blanket rolls, head block or similar device may be used to support neutral head alignment.
    C. The cervical collar may be removed if interfering with airway management or airway placement, or if causing extreme patient distress.
2. Self-Extrication Procedure
    A. Patients, who are stable, alert and without neurological deficits may be allowed to self-extricate to the ambulance cot after placement of a cervical collar.
    B. Limit movement of the spine during the process.
3. Emergency Patient Removal
    A. Indicated when scene poses an imminent or potential life-threatening danger to patient and/or rescuers, (e.g., vehicle or structure fire).

B. Remove the patient from danger while best attempt is made to maintain spinal precautions.
C. Rapid extrication is indicated when patient condition is unstable (i.e., airway or breathing compromise, shock, unconsciousness, or need for immediate intervention).

4. Long Extrication Device (e.g., long backboard, scoop stretcher, basket stretcher)
   A. Indicated when patient requires spinal precautions and the patient condition prevents self-extrication.
   B. Patient's head and cervical spine should be manually stabilized.
   C. Rescuers should place the patient in a stable, neutral position where space is created to place backboard or other long extrication device in position near the patient.
   D. Move the patient to supine position on the long extrication device.
   E. The patient is secured to the device with torso straps applied before head stabilization.
   F. Head stabilization material should be placed to allow for movement of the lower jaw to facilitate possible airway management.
   G. The extrication device is used to move the patient to the ambulance cot.
5. Log Roll Procedure
   A. Cervical collar should be placed when indicated.
   B. Place the backboard or equivalent behind the patient.
   C. Patient is log rolled, maintaining neutral alignment of spine and extremities.
   D. Log roll procedure requires 2 or more personnel in contact with the patient.
   E. If log roll is not possible, patient should be moved to board or equivalent while attempting to maintain neutral alignment spinal precautions.
   F. Patient is secured to the backboard or equivalent for movement to the ambulance cot.
   G. Head stabilization materials such as foam pads, blanket rolls may be used to prevent lateral motion. Pad under the head when feasible.
   H. If sufficient personnel are present, the patient should be log rolled from the extrication device to the ambulance cot during loading of the patient.
   I. When log roll on to the ambulance cot is impractical, secure the patient to the extrication device and ambulance cot for transport.
6. Spinal Precautions
   A. Once the patient is placed on the ambulance cot, if no extrication device is still in place, secure the patient with seatbelts in a supine position, or in position of comfort if a supine position is not tolerated.
   B. Head may be supported with head block or similar device to prevent rotation if needed. Padding should be placed under the head when practical. Do not tape the head to the ambulance cot.

Special Considerations

1. Hypoventilation is likely to occur with spinal cord injury above the diaphragm. Quality of ventilation should be monitored closely with support offered early.
2. Spinal/neurogenic shock may result from high spinal cord injury. Monitor patient for signs of shock. Refer to **Shock-Treatment Protocol**.
3. Spinal precautions in the patient wearing a helmet should be according to the **Helmet Removal-Procedure Protocol**.
4. Manual spinal precautions in the obtunded patient must be initiated and continued until the patient is secured to the ambulance cot.
5. Patients who are markedly agitated, combative or confused may not be able to follow commands and cooperate with minimizing spinal movement. Rigid immobilization should be avoided if it contributes to patient combativeness. Patients may remain on the backboard if the crew deems it safer for the patient, and this will be at the discretion of the crew.
6. Manual in line stabilization must be used during any procedure that risks head or neck movement, such as endotracheal intubation. If manual cervical stabilization is hampering efforts to intubate the patient, the neck should be allowed to move as needed to secure the airway. An unsecured airway is a greater danger to the patient than a spinal fracture.
7. Document spinal precautions techniques utilized.
8. Document the patient's neurologic status before and after establishing spinal precautions when possible.
9. Pediatric Patients and Car Seats:
    A. 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 (no signs of respiratory distress or shock).
    B. Children restrained in a car seat (with a high back) may be immobilized and extricated in the car seat; however, once removed from the vehicle, the child should have spinal precautions maintained as for an adult.
    C. Children restrained in a booster seat (without a back) need to be extricated and immobilized following standard procedures.
10. Pregnant Patients
    A. Monitor for decreased venous return and if required displace uterus to the left manually or by patient positioning