Selective Immobilization

Education for Region X

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VICTIM'S PREPPED AND READY FOR TRANSPORT.

WHOA! ALL I DID WAS SMASH MY FINGER.
We have always done it this way

• Change must happen for the well being of the patients.
• Want to practice on evidenced based medicine
• Studies have shown that in some cases we have done more harm than good.
• EMS providers are able to safely evaluate and identify patients with suspected spinal injuries
Selective Immobilization

- Field spinal precautions practiced to prevent spinal cord injury in a patient with unstable spinal fracture
  - Selective immobilization provided in the presence of highly suspicious injuries
  - The theory is that keeping the axial spine in a stable anatomic position is protective
Question…

What constitutes adequate spinal motion restriction???

• Collar alone?
• Collar plus a short board / KED?
• Collar plus long board?
• Collar plus long board plus foam blocks?
• Collar plus stretcher or scoop?
Application of Selective Immobilization

• Performing an appropriate assessment to aid in decision making is essential
• Perform interventions where the potential benefits outweigh the risks
• Want to reduce need for and potential harm of using a backboard when possible
Purpose of Selective Immobilization

• Minimize unnecessary movement of the spine
• Maintain neutral anatomical position
• Appropriate use of adjuncts alone or in combination
  ✓ Cervical collar
  ✓ Well padded backboard
  ✓ Scoop stretcher
  ✓ Stretcher/cot
What Doesn’t Change in Practice

• Indications for initial manual stabilization
• Criteria assessed
  – Mechanism of injury (MOI)
  – Signs and symptoms
  – Patient reliability
• Appropriate physical assessment of patient
• Process for measuring and sizing of c-collar
• Backboards remain useful for patients with high risk for unstable spine injuries
Change in Practice

• How spinal precautions are *applied*
  – “Selective spinal immobilization”
    – May select partial, full, or no immobilization based on assessment findings

• Biggest change
  – Not every patient requires a backboard
  – Most backboard use is as an extrication device and does not need to be used during transport
    – The cot or scoop stretcher can serve as the “backboard”
    – Straps, tape will reduce spinal flexion/extension, rotation, lateral motion
Backboards

- Not proven to be helpful
- Does not provide immobilization we thought it did
- Has demonstrated harm to some patients
  - Patient should be removed from rigid, unpadded backboard as soon as possible whether in the field or in the ED
- Are useful as a conveyance device
  - Removing patient from entrapment
  - Moving patient to the cot
Hazards of Backboard Use

- Inducing pain
- Increasing patient agitation
- Causing respiratory compromise
- Decreasing tissue perfusion at pressure points leading to pressure ulcers
  - Secondary injuries based on what we do/don’t do
- Be aware: could increase intracranial pressure (ICP) due to agitation related to pain and discomfort from lying on the board
Indications For Use Of Backboard

• Blunt trauma with altered level of consciousness
• High energy MOI and any of the following
  ✓ Drug or alcohol intoxication
  ✓ Inability to communicate
  ✓ Distracting injury
• Spinal pain or tenderness
• Neurological complaint
  ✓ Numbness or motor weakness
  ✓ Anatomic deformity of the spine
Backboard *NOT* Indicated

- Low risk and uncertain MOI
- Normal level of consciousness – GCS 15
- Cooperative
- No spine tenderness or anatomic abnormality
- No neurologic findings or complaints
- Ability to actively rotate head $45^0$ to left and right
- No distractions (i.e.: injuries, pain, others)
- No intoxication
- Penetrating trauma to head, neck, or torso and *NO* evidence of spinal injury
If Not A Board, Then What???

- If extricated onto board, can be removed from board and placed on cot or scoop stretcher
- Selective immobilization can include use limited to a c-collar and head immobilization
- The EMS cot or scoop stretcher can serve as the “backboard”
  - Cot padded, more comfortable, less pressure points
- Straps and tape continue to be used to reduce spinal flexion/extension, rotation, lateral motion
Transferring Patient - EMS Cart To ED Bed

- Patient may arrive to ED with a c-collar in place but *NOT* on a backboard or scoop stretcher
  - Manually maintain in-line spinal immobilization to transfer to ED stretcher/cart
  - Can use a slide board with appropriate number of personnel
  - Can use the sheet to manually lift patient from EMS cot to ED stretcher/cart

- ED staff will determine if patient needs to be re-taped or not
What Is *Not* Helpful

- Log rolling
  - Causes significant and unwanted motions in all directions
  - Causes more motion when compared to the lift-and-slide technique or use of a scoop stretcher
- Repositioning a patient into the neutral position
  - May increase the level of injury
Region X SOP Selective Immobilization

If all 3 criteria are met, no immobilization is required

1. No high risk mechanism of injury (MOI) or MOI is uncertain

2. Reliable patient
   – No signs of intoxication – drugs or ETOH
   – Normal mental status
     • Includes normal stress reaction
   – No communication barriers
   – No distracting injuries
Region X Selective Immobilization cont’d

3. No neurological deficits
   – If fleeting/temporary complaint, consider as positive sign
   – No pain in neck or spine
   – No tenderness to palpation to neck or spine
   – Normal motor exam
   – No paresthesia or paralysis
   – Normal response to painful stimuli
Region X Selective Immobilization

• If the patient had a high risk mechanism of injury, is reliable and has no signs or symptoms, then provide selective immobilization
  – Can be limited to collar and securing to the cot
• If patient is not reliable and/or has neurological signs or symptoms, they are to receive full spinal immobilization
Selective Immobilization

Using EMS cot/stretcher as padded board

• May be most appropriate for
  ✓ Patient found ambulatory at the scene
  ✓ Patients with long transport time
  ✓ Patients in whom a backboard is not otherwise indicated
Spinal Precautions and EMS Cot/Stretcher

• Can initiate manual spine precautions
• Measure and place a rigid cervical collar
• Request patient to move to cot and lay down
  – Patient to be able to accomplish this with minimal assistance from EMS
• Secure patient to the EMS stretcher
  – Can use head blocks, towel rolls, tape
  – Method will be decided on a case-by-case basis
Scoop Stretcher Use

• When do you use a scoop stretcher?
  – Can be used for a patient found in a lying position to facilitate transfer to the ambulance stretcher
  – Can be used to facilitate transfer to the ED cot

• How do you secure a patient to the scoop stretcher?
  – Measure and place a rigid cervical collar
  – Use tape to secure the head to the stretcher
    • Painter’s tape has been used with success in Region 9
      – Has holding power and yet peels off easily
Sizing of C-Collar

- Keep fingers held horizontally
- Measure from top of shoulder to bottom of chin
- Place fingers against the hard plastic to size the collar
Process – Selective Immobilization

*Ambulatory or able to self-extricate without undue pain*

- After assessing MOI and patient
  - If patient reliable with NO signs or symptoms but high risk mechanism of injury
    - Measure and apply collar
    - Patient moves self supine on stretcher
    - Immobilize head
  - This process includes penetrating trauma to head, neck, torso without evidence of spinal cord injury
Selective Immobilization cont’d

*Patient requires extrication*

– Backboard used to assist with extrication
– Maintain manual immobilization
– Measure and apply collar
– Evaluate reliability, signs and symptoms with physical assessment
– Can transfer to scoop stretcher on cot if reliable, with no signs or symptoms, and negative physical assessment
  • Keep c-collar on and immobilize head
Elderly Patients

• Must maintain high index of suspicion for need to immobilize the elderly
• Elderly have decreased sensation to pain
• Seemingly minor mechanism of injury can injure frail bones
• Make sure device used is well padded and patient is well supported
  • Consider blankets, towel rolls, whatever works
  • Elderly patient skin can be very thin and fragile
  • Elderly are particularly vulnerable to pressure sores
Spinal Precautions

• Whether or not a backboard is used, care of at-risk patients includes spinal precautions
  ✓ Measure and apply a cervical collar
  ✓ Secure patient to the stretcher
  ✓ Minimize movement and transfers
  ✓ Maintain in-line stabilization during any necessary movement or transfers
Suggested Documentation

• Initial neurological exam related to a potential spinal injury
  – Symmetrical extremity strength and movement
  – Evaluation for numbness or weakness
  – Presence/absence of priapism

• Repeated neurological exam
  – Minimally performed with each patient transfer

• “Neurological exam remains unchanged throughout all transfers”
Questions???
Resources/References

• Bledsoe. The Evidence Against Backboards. 2013.
• Duckworth, R. L. Board to Death: The State of Prehospital Spinal Injury Care in 2013.
• International Trauma Life Support. Long Backboard Use for Spinal Motion Restriction of the Trauma Patient. 2014.
Resources/References cont’d


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