Controversies in Spinal Immobilization

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Historical Perspective

• 1960’s Push for improvement of Emergency Medicine
• 1971: American College of Orthopedic Surgeons recommendations for spinal immobilization primarily included:
  • Symptoms of potential Spinal Injury (SI)
  • Physical findings of potential SI
• Early ED evaluation of Spinal injury was inaccurate and incomplete
  • 1975 AMA approved formal section for EM
  • ABEM incorporated in 1975
  • Sept 1979 Emergency Medicine is the 23rd Recognized Medical Specialty
Why the move away from Symptoms and Physical findings

• As mentioned earlier: people were interested in improving EM since the 60’s
• EM not a true specialty until 1979
• Better safe than sorry:
  • Shift was to that of mechanism of injury
• Mechanism of Injury remains the primary reason for spinal immobilization to date in most of the United States
  • This most often not based on symptoms or physical exam but rather by protocol
Changes over Time

• ED Trauma care in the US has improved dramatically
  • Pre-hospital training and certification
  • Pre-hospital medical director review
  • Pre-hospital medicine now it’s own field of expertise (2013)
• Designated Trauma Centers
  • Specialty Teams
  • Specialty Physicians
• Research
Improved Care and Evaluation

• ATLS
• Primary and secondary assessments
• Radiographs of the spine
• Research shows:
  • Use of Clinical Criteria should determine the need for spinal X-rays
  • Support of the following presumption:
    • Without symptoms and physical findings associated with spinal injury, NO significant spinal injury exists
Research Continued

- No real finding that spinal injury has occurred with appropriate normal handling of trauma patient who did not already have a spinal cord injury
- Significant force is usually involved in these patients and the minor forces used on a patient by EMS personnel would be enough to cause a spine injury that was not already there
- Retrospective review of the data reflects what criteria should be considered
Issues with Spinal Immobilization

- Patient comfort issues
- Respiratory compromise due to strapping techniques
- Pressure complications from rigid boards
- Head and back pain from prolonged immobilization on a rigid board
- Cost of equipment to immobilize patients
- Cost of extra radiographs to evaluate the consequences of the immobilization instead of the actual effects of the trauma
- Prolonged evaluation of the patient
Confounders that will allow current practice to continue:

- Altered Mental Status
- Evidence of Intoxication
- A distracting* painful injury (e.g., long bone fracture)
  - *: This term has never been definitively defined
- Neurologic Deficit
- Spinal Pain or Tenderness

- Benefit of long backboards is largely unproven
- Backboard can induce pain, patient agitation, and respiratory compromise
- Can decrease perfusion at pressure points leading to decubiti
- Utilization should be judicious so that benefits out weigh risks
Position Statement: Nat’l Assoc. of EMS Physicians and ACS Comm. On Trauma

• Who is appropriate
  • Blunt trauma and altered level of consciousness
  • Spinal pain or injury
  • Neurologic complaint
  • Anatomic deformity of the spine
  • High Energy Mechanism with any of the following
    • Drug or alcohol intoxication
    • Inability to communicate
    • Distracting injury
So, Who can we not immobilize?

- Those without a mechanism of injury that potentially could cause spinal injury
- And:
  - Not altered (GCS 15)
  - Not intoxicated
  - No distracting injuries
  - No neurologic deficit
  - No spinal pain
- WE MUST trust our EMS crews to evaluate the patients properly and we must ensure a good PI Process
Other considerations

• Penetrating neck trauma to the head, neck or torso with no evidence of spinal cord injury need not be immobilized on a board
  • (isn’t this a distracting injury?)
• Spinal immobilization can be maintained with a Cervical Collar and securing firmly to the EMS Stretcher
  • Pts ambulatory on the scene
  • Protracted transport time
  • Pt’s whom the backboard is not otherwise indicated
Example Protocol from Air Evac EMS, Inc.

- Mechanism of injury and:
  - Altered Mental status
  - Inability to communicate
  - Spinal pain, tenderness and/or deformity
  - Motor and/or sensory deficits
  - Suspected intoxication
  - Painful distracting injury
  - Signs of neurogenic shock
  - Priapism
Foreseeable issues:

- Variability can occur with assessment of symptoms and tenderness
- Strong education, proctoring, evaluation and Performance Improvement and evaluation is key
- Education of the community and of physicians and APP’s (Advanced Practice Providers – formerly, MLP’s) of the new standards and why the practice has changed
- We need the backing of the American College of Surgeons and ATLS
- Expect pushback and arguments
Include as Many Stake Holders as Possible Before Implementing This Change

- EMS providers
- EMS medical directors
- Transport agencies
- Trauma accepting facilities
- Nursing
- Emergency Medicine
- Trauma Surgeons
Thank You and Let’s Get Your Input