being use to assess and to follow-up on stable patients with blunt abdominal trauma concern for solid organ (liver, spleen, kidneys) damage, particularly in low-energy injuries [Afag A et al. *Eur J Emerg Med*. 2012].

Spinal Boards for Spinal Immobilization Prove Harmful

Written by Mary Beth Nierengarten

One million spine injuries occur annually, and 2% to 3% are spinal cord injuries [Hauswald M. *Emerg Med J*. 2013]. For patients with suspected spinal injury, the use of spinal boards for spine immobilization confers no benefit [Oteir AO et al. *Prehosp Disaster Med*. 2014] and may cause harm [Goldberg W et al. *Ann Emerg Med*. 2001]. Christopher B. Colwell, MD, Denver Health Medical Center, Denver, Colorado, USA, reviewed the current evidence on the use of spinal boards for spinal immobilization.

Dr Colwell noted that the traditional use of spinal boards for spinal injuries is based on a set of beliefs that additional movement in people with suspected spinal injuries may exacerbate or cause injury and that immobilization can prevent further injury.

However, data used to support this dogma are not based on solid evidence. Dr Colwell highlighted the lack of evidence from randomized clinical controlled trials to support the recommendation to use backboards and cervical-collars (c-collars) for trauma patients with signs and symptoms of spinal injury made in the 1971 guidelines by the American Academy of Orthopedic Surgeons.

For patients with a penetrating trauma, such as a gunshot wound, Dr Colwell emphasized that the evidence clearly shows that spinal immobilization is harmful and doubles the mortality rate [Haut ER et al. *J Trauma*. 2010]. Because of the increased mortality rate due to delayed resuscitation, the American Academy of Neurological Surgeons recommended against spinal immobilization in patients with penetrating trauma [Theodore N et al. *Neurosurgery*. 2013]. Dr Colwell provided further evidence that spinal boards have harmful consequences, such as respiratory compromise and increased pain (Table 1).

Harm is also associated with c-collars [Ben-Galim P et al. *J Trauma*. 2010], and there is evidence to suggest that routine use of c-collars can be safely avoided [Sundstrøm T et al. *J Neurotrauma*. 2014].

For those looking for a way to safely transfer a patient from the pram to the hospital bed, research has shown that scoop stretchers can restrict motion as well as long boards [Del Rossi G et al. *AmJ Emerg Med*. 2010]. Evidence has demonstrated that controlled self-extrication had up to 4 times less spine movement [Dixon M et al. *Emerg Med J*. 2013].

Table 1. Evidence for Harm With Spinal Boards

Harm	Evidence
Respiratory compromise	Walsh M et al. *Ann Emerg Med*. 1990; Bauer D et al. *Ann Emerg Med*. 1988
Pressure sores and tissue hypoxia	Ham HW et al. *J Trauma*. 2014; Hemmes B et al. *Injury*. 2014; Oomens CW et al. *Clin Biomech (Bristol, Avon)*. 2013; Berg G et al. *Prehop Emerg Care*. 2010
Increased pain	Lerner EB et al. *Prehosp Emerg Care*. 1998; Chan D et al. *Ann Emerg Med*. 1994
Increased radiation	March JA et al. *Prehosp Emerg Care*. 2002
Increased pain, increased radiation, increased admission in pediatric patients	Leonard JC et al. *Prehosp Emerg Care*. 2012

Given the evidence, Dr Colwell concluded that change is needed regarding the traditional use of spinal boards for spinal immobilization and emphasized that if a medication had the same risk/benefit ratio as spinal boards, it would no longer be used.

Diagnosis and Treatment of NSTEMI in 2014

Written by Emma Hitt Nichols, PhD

Acute coronary syndromes (ACSs) affect > 780 000 individuals in the United States each year, 70% of which cases will be NSTEMI [Amsterdam EA et al. *Circulation*. 2014]. Tarlan Hedayati, MD, Cook County Health and Hospitals System, Chicago, Illinois, USA, discussed updates in the treatment of NSTE-ACS based on the 2014 American Heart Association / American College of Cardiology guideline for the management of patients with NSTE-ACS [Amsterdam EA et al. *Circulation*. 2014].

NSTE-ACS includes NSTEMI and unstable angina (UA). The difference between the 2 is the myocardial necrosis that occurs in NSTEMI, which can be identified by an increase in biomarkers caused by myocyte death. However, troponin levels are elevated not only in patients with myocardial infarction (MI) but also in those with other conditions, such as tachycardia, trauma, heart failure, pulmonary embolism, burns, drug toxicity, respiratory failure, and neurologic diseases. Therefore, a history and clinical exam are important in the diagnosis of NSTEMI. Elevated troponin levels may be present for up to 2 weeks after the index event, but a