Reduced Time on the Spinal Board

Effect of Guidelines and Education for Emergency Department staff

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The Leading Cause of Major Trauma
2nd Leading Cause of Major Trauma
Mechanisms of Injury

- MVC: 48%
- Fall: 33%
- Others: 10%
- Penetrating: 6%
- Major Burn: 3%
- Major Burn: 3%
Introduction

Trauma patients with suspected spinal injury require full spinal immobilization (SI)

- Spinal immobilization involves:
  - Spinal board (SB)
  - Neck collar
  - Head immobilization unit

- to stabilize the spinal column after injury and help to prevent spinal cord damage

- The practice is widespread in pre-hospital care in Hong Kong
Apply SI At Scene
Transfer Patient to ED with SI
Patient admitted with SB
Prolonged Immobilization (1)

- Causes false-positive clinical examinations (March et al 2002)
- Places patients into relative cervical extension (Schiger et al 1991)
Prolonged Immobilization (2)

- The mean interface pressure between the sacrum and the spinal board is 147mmHg (Lovell & Evans 1994)

- Skin breakdown within hours (Chan et al 1996, Morris et al 2004)
Prolonged Immobilization (3)

- No support to the physiological lumbar lordosis (Schiger et al, 1991)
- Affects the quality of spinal radiographs (Malik & Lovell, 2003)
In order to reduce the time spent by trauma patients on the spinal board, an education program and clinical guideline was developed for ED staff.

In November 2002, the “Guideline on Removal of Spinal Board” was introduced to ED staff.
Background of the Study (2)

- Continuous feedback and discussions through educational program
- Reinforcement through department meetings and written reminders
Aim of the study

To examine the effect of a clinical guideline and educational program on the time spent by patients on the spinal board.
Methods (1)

- Observational study in a trauma centre emergency department
- Patients were excluded if they had incomplete data
- Length of time immobilized on SB identified from patients’ records for two periods
  - Period 1 (Pre-training) : January - June 2001
  - Period 2 (Post-training): May - October 2003
Methods (2)

- 122 patients in period 1 and
- 104 patients in period 2 were included
- Medians compared using Mann-Whitney U test
- Chi-squared test used for categorical data
Results

- Median time from arrival in the ED to removal of the SB was reduced from 50 min to 31.5 minutes (p<0.0001, Mann-Whitney, 95% CI 13-29min)

- Removal of spinal board before leaving the ED:
  - Period 1: 36% (44/122)
  - Period 2: 75% (78/104)
  - p<0.0001, chi-square test
Conclusion

The introduction of guidelines, reinforced by ED staff education, can significantly reduce the time spent by patients on spinal board.
Thank You Very Much!