

CERVICAL SPINE COLLAR REMOVAL BY EMERGENCY ROOM NURSES: A QUALITY IMPROVEMENT PROJECT

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Contribution to Emergency Nursing Practice

- A practice improvement program to monitor the use of the Canadian C-Spine Rule (CCR) by emergency room charge nurses and compare their assessments with those of physicians
- An overview of challenges and key elements to take into account when training charge nurses to use the CCR to facilitate the safe removal of cervical collars in the alert, orientated, low-risk adult trauma patient
- An overview of the training and clinical coaching should accompany the implementation of CCR guidelines for nurse-led cervical collar removal in nonspecialized centers.

Abstract

Introduction: The Canadian C-Spine Rule (CCR) is a clinical decision aid to facilitate the safe removal of cervical collars in the alert, orientated, low-risk adult trauma patient. Few health care settings have assessed initiatives to train charge nurses to use the CCR. This practice improvement project conducted in a secondary trauma center in Canada aimed to (1) train charge nurses of the emergency room to use the CCR, (2) monitor its use throughout the

project period, and (3) compare the assessments of the charge nurses with those of emergency physicians.

Methods: The project began with the creation of an interdisciplinary team. Clinical guidelines were established by the interdisciplinary project team. Nine charge nurses of the emergency room were then trained to use the CCR (3 on each 8-hour shift). The use of the CCR was monitored throughout the project period, from June 1 to October 5, 2016.

Results: The 3 aims of this practice improvement project were attained successfully. Over a 5-month period, 114 patients were assessed with the CCR. Charge nurses removed the cervical collars for 54 of 114 patients (47%). A perfect agreement rate (114 of 114 patients, 100%) was attained between the assessments of the nurses and those of physicians.

Discussion: This project shows that the charge nurses of a secondary trauma center can use the CCR safely on alert, orientated, and low-risk adult trauma patients as demonstrated by the agreement in the assessments of emergency room nurses and physicians.

Key words: cervical collar; trauma; cervical spine; canadian c-spine rule

Introduction

From 2014 to 2015, more than 2.3 million Canadians were admitted to emergency departments for trauma, motor vehicle

collision, or accidental fall.¹ Even though traumatized patients present a risk of cervical spine (c-spine) injury, this risk is estimated to be less than 1% in alert, orientated, and low-risk adult trauma patients.²⁻⁵

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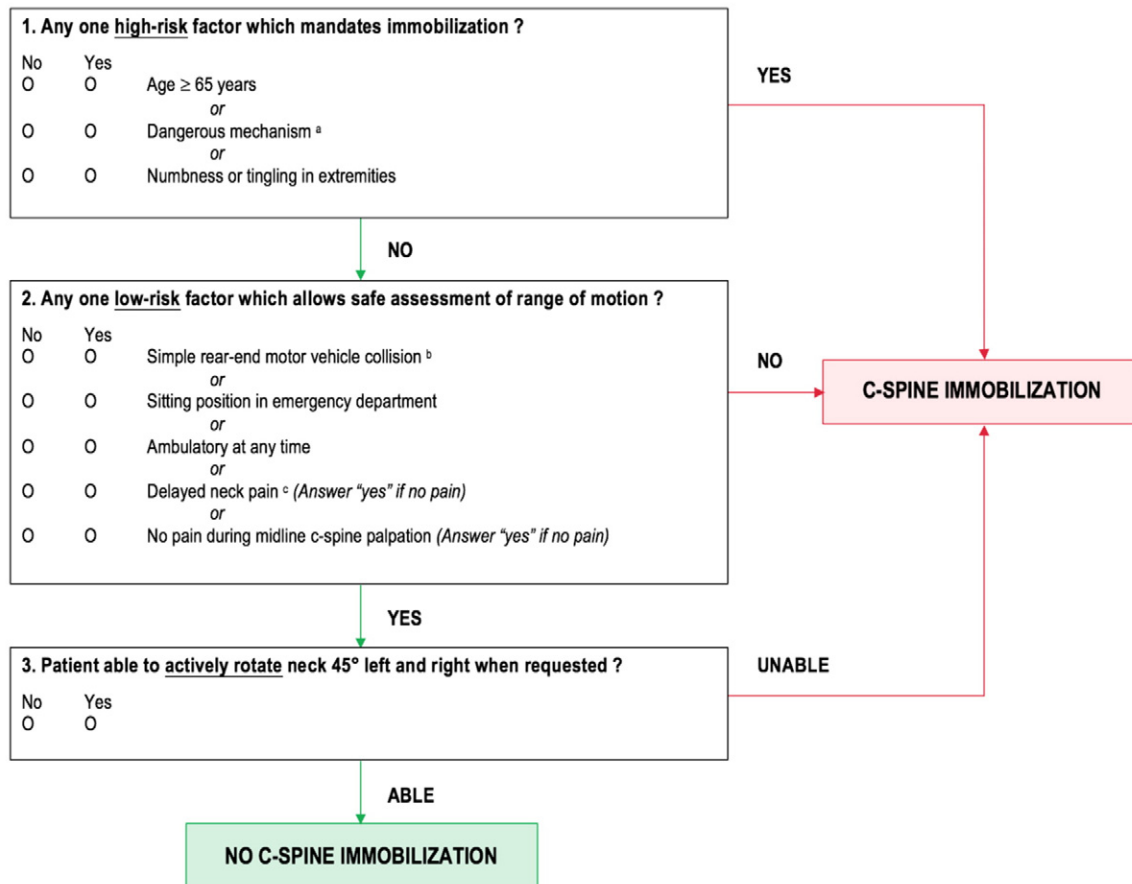


FIGURE 1

The Canadian C-Spine Rule a. **Dangerous mechanism:** fall from an elevation of \geq 3 feet/5 stairs, axial load to head (ie, diving), high-risk motor vehicle collision (ie, $>$ 100 km/h, rollover, ejection), motorized recreational vehicles, bicycle struck or collision. b. **Simple rear-end motor vehicle collision excludes:** pushed into oncoming traffic, hit by bus/large truck, rollover, hit by high-speed vehicle. c. **Delayed:** not immediate onset of neck pain.

Description of the Problem

The majority of patients with c-spine immobilizations are admitted to emergency departments by ambulance on a backboard with a cervical collar, a temporary immobilization device to prevent neck movement.⁶ Following the assessment of the triage nurse, patients are assigned to the various areas of the emergency department and kept immobilized until the ED physician performs a medical assessment and a c-spine radiography, if necessary. This practice remains widespread throughout the world, even though the evidence demonstrates negative consequences.^{4,7} Indeed, a prolonged c-spine immobilization often has more negative consequences than benefits, such as repercussions on patients' comfort and health.⁸⁻¹⁰ More-

over, a recent study found that as many as 38% of c-spine radiographs were not indicated.¹¹ The overuse of c-spine radiography when clearing c-spine injury uses valuable resources and induces undesirable exposure to radiation.¹¹⁻¹³

The Canadian C-Spine Rule (CCR) is a clinical decision aid to guide the removal of cervical collars and the use of radiography in patients with low risk trauma.¹⁴ The CCR is applicable with alert, cooperative, and nonintoxicated patients.^{4,15} The use of the CCR is widespread in medical clinical practice to determine the need to perform radiographs in patients with risks of injuries to their c-spines.¹⁶ However, the use of the CCR by nurses is recent in clinical practice. A few studies in this area generally point to a good acceptance of this practice as well

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