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International Emergency Nursing

journal homepage: www.elsevier.com/locate/aaen

Nurses' perceptions of using an evidence-based care bundle for initial emergency nursing management of patients with severe traumatic brain injury: A qualitative study



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ARTICLE INFO

Article history:

Received 14 December 2014

Received in revised form 13 April 2015

Accepted 27 April 2015

Keywords:

Emergency nursing

Brain injury

Trauma

Neurotrauma

Evidence-based practice

Care bundle

Thailand

ABSTRACT

Evidence to guide initial emergency nursing care of patients with severe traumatic brain injury (TBI) in Thailand is currently not available in a useable form. A care bundle was used to summarise an evidence-based approach to the initial emergency nursing management of patients with severe TBI and was implemented in one Thai emergency department. The aim of this study was to describe Thai emergency nurses' perceptions of care bundle use. A descriptive qualitative study was used to describe emergency nurses' perceptions of care bundle use during the implementation phase (Phase-One) and then post-implementation (Phase-Two). Ten emergency nurses participated in Phase-One, while 12 nurses participated in Phase-Two. In Phase-One, there were five important factors identified in relation to use of the care bundle including quality of care, competing priorities, inadequate equipment, agitated patients, and teamwork. In Phase Two, participants perceived that using the care bundle helped them to improve quality of care, increased nurses' knowledge, skills, and confidence. Care bundles are one strategy to increase integration of research evidence into clinical practice and facilitate healthcare providers to deliver optimal patient care in busy environments with limited resources.

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1. Introduction

Care bundles are one solution to introduce evidence into clinical practice and optimise the care provided by healthcare providers (Resar et al., 2012). A care bundle is defined as "a small set of evidence-based interventions for a defined patient segment/population and care setting that, when implemented together, will result in significantly better outcomes than when implemented individually" (Resar et al., 2012, p. 2). The care bundle approach has been developed and used more widely in Western countries, particularly in intensive care units (Litch, 2007; Morris et al., 2011; Rello et al., 2010; Sedwick et al., 2012). Use of care bundles in intensive care not only improved clinical outcomes (Litch, 2007; Morris et al., 2011; Sedwick et al., 2012), decreased the length of hospital stay (Litch, 2007; Rello et al., 2010), and reduced the healthcare costs

(Sedwick et al., 2012), but also increased knowledge among healthcare providers (Dumont and Wakeman, 2010; Subramanian et al., 2013).

Care bundles are being used in emergency care to improve the care of patients with stroke and transient ischaemic attack (NICS, 2009; Weeraratne et al., 2010), sepsis (Kuan et al., 2013; Nguyen et al., 2011; Tromp et al., 2010), cardiac arrest (Nolan and Soar, 2008), chronic obstructive pulmonary disease (McCarthy et al., 2013), and acute asthma (McCreanor et al., 2012). Implementation of care bundles in emergency care has been shown to improve clinical outcomes (McCarthy et al., 2013; Tromp et al., 2010; Weeraratne et al., 2010). Although the development and implementation of care bundles in Western countries have been shown to improve patient outcomes and reduce healthcare costs, care bundle use in low-income and middle-income countries, where backgrounds, facilities, and resources are very different, is just beginning to occur (Apisarntharak et al., 2010; Liu et al., 2013; Subramanian et al., 2013; Unahalekhaka et al., 2007; Wu et al., 2012). In this paper, the particular focus will be on the use of a care bundle approach for management of patients with severe TBI in the Thai context.

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2. Background

Severe TBI is a global problem (Crowe et al., 2010; Faul et al., 2010; Tagliaferri et al., 2006) and it is a major and increasing problem in Thailand (Bureau of Policy and Strategy [BOPS], Ministry of Public Health, Thailand, 2011; Ratanalert et al., 2007). Thai emergency nurses play a vital role in caring for patients with severe TBI, particularly during initial emergency care and resuscitation in the emergency department (ED). However, little is known about the evidence-based management of severe TBI in Thailand, where specifically ED management of TBI is poorly understood. Research has shown variation in Thai nurses' knowledge and clinical care regarding best available evidence for management of patients with severe TBI (Damkliang et al., 2013). Lack of clear evidence for the initial emergency nursing management of patients with severe TBI may lead to variation in care, and place patients at risk of harm from increased intracranial pressure and secondary brain injury (Damkliang et al., 2013; LaPlaca and Irons, 2011; O'Phelan, 2011).

International evidence-based guidelines for the management of patients with severe TBI were reviewed and it was established that they were either derived from Western countries with well-developed trauma care systems and emergency care facilities or, if relevant to the Asian content, were directed at physician care (Damkliang et al., 2014). Further, due to the different contexts, currently available evidence cannot be directly implemented into the Thai ED context, and specifically, the Thai emergency nursing context, without considerable adaptation. Thus, to address this significant gap in the evidence base for care, a care bundle for the initial emergency nursing management of patients with severe TBI was developed and implemented.

2.1. Theoretical framework

This study was guided by rigorous conceptual and theoretical frameworks, namely, the Knowledge to Action Framework (Graham et al., 2006) and seven theoretical steps for care bundle development by Fulbrook

and Mooney (2003). The Knowledge to Action Framework (Graham et al., 2006) provided rigorous processes to develop and implement the care bundle in a particular context, while the seven theoretical steps for care bundle development by Fulbrook and Mooney (2003) guided the process of developing the care bundle. Details of the care bundle development process have been published elsewhere (Damkliang et al., 2014). The care bundle was developed specifically for implementation in one Thai ED including consideration of the structure, staffing, processes and resources of the emergency healthcare system, and more specifically the ED setting (Table 1). It is critical to identify the barriers and facilitators to knowledge use specific to the knowledge translation intervention (Graham et al., 2006). The term knowledge translation is commonly used in Canada to describe the process of putting knowledge into action (Straus et al., 2009). Monitoring use of the knowledge is also important to determine how and the extent to which the knowledge has been diffused throughout the end-users (Graham et al., 2006). Thus, in this study, interviews with emergency nurses were conducted to understand emergency nurses' perspectives on the implementation and subsequent use of the care bundle as well as to identify barriers and facilitators to care bundle use.

2.2. Aims

The aim of this study was to describe nurses' perceptions of the use of an evidence-based care bundle for initial nursing management of patients with severe TBI. Specific objectives were to investigate barriers and facilitators to care bundle use and to explore nurses' perspectives of the implementation and subsequent use of the care bundle in clinical practice.

3. Methods

3.1. Study design

A descriptive qualitative approach using interviews to collect study data was used. The interviews were conducted in two phases:

Table 1
Initial emergency nursing management of adult patients with severe TBI.

| | |
|--|---|
| Airway and C-spine protection | 1. Establish a secure airway along with c-spine protection <ul style="list-style-type: none"> Apply a jaw thrust maneuverer to open and clear airway Apply bag-valve-mask with oxygen >10 l/min before intubation Apply manual inline stabilisation during assist in ETT intubation Apply an appropriate size of cervical collar and proper application |
| Oxygenation and ventilation | 2. Maintain adequacy of oxygenation and ventilation <ul style="list-style-type: none"> Monitor oxygen saturation, keep SpO₂ > 90% and record every 15 minutes Monitor ventilation using capnography, keeping ETCO₂ of 35–40 mmHg and record every 15 minutes Monitor respiratory rate and record every 15 minutes |
| Circulation | 3. Maintain circulation and fluid balance <ul style="list-style-type: none"> Administer normal saline solution (NSS) or other solutions as prescribed Keep systolic blood pressure (SBP) > 90 mmHg and record every 15 minutes Monitor pulse rate/heart rate and record every 15 minutes |
| Disability and intracranial pressure management | 4. Regular monitoring of the GCS score, and pupillary size and reactivity <ul style="list-style-type: none"> Monitor GCS score, pupillary size and reactivity and record every 15 minutes Notify the physician or the neurosurgeon if any changes of the following are identified: <ul style="list-style-type: none"> A GCS score drop Dilated or asymmetric pupils Sluggish or unreactive pupils 5. Maintain cerebral venous outflow <ul style="list-style-type: none"> Keep head and neck in neutral alignment Keep 30° head of bed elevated (unless contraindicated) Ensure using appropriate size of cervical collar 6. Management of pain, agitation, and irritability <ul style="list-style-type: none"> Administer sedatives and analgesics as prescribed Splinting of limb fractures Urinary catheterisation 7. Administer for urgent CT brain imaging <ul style="list-style-type: none"> CT brain as soon as possible after ABCs are stabilised Contact CT staff Safe transfer: SBP > 90 mmHg, SpO₂ > 90%, ETCO₂ 35–40 mmHg |

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