



Using an evidence-based care bundle to improve Thai emergency nurses' knowledge of care for patients with severe traumatic brain injury



Jintana Damkliang^{a, b, *}, Julie Considine^{c, d, 1}, Bridie Kent^e, Maryann Street^{c, d, 1}

^a School of Nursing and Midwifery, Deakin University, Australia

^b Faculty of Nursing, Prince of Songkla University, Songkhla, Thailand

^c Eastern Health – Deakin University Nursing & Midwifery Research Centre, Australia

^d Centre for Quality and Patient Safety Research, Australia

^e University of Plymouth, School of Nursing and Midwifery, Drake Circus, Plymouth PL4 8AA, UK

ARTICLE INFO

Article history:

Accepted 22 March 2015

Keywords:

Emergency nursing
Brain injury
Trauma
Neurotrauma
Care bundle
Evidence-based practice
Thailand

ABSTRACT

There is known variation in Thai nurses' knowledge regarding the best available evidence for care of patients with severe traumatic brain injury. The purpose of this study was to examine the impact of an evidence-based care bundle on Thai emergency nurses' knowledge regarding management of patients with severe traumatic brain injury. A pre-test/post-test design was used. The study intervention was an evidence-based care bundle for initial nursing management of patients with severe traumatic brain injury. Data were collected from 31 Registered Nurses using multiple choice questions. Results revealed a statistically significant improvement in overall knowledge scores after care bundle implementation ($p < 0.001$). There were statistically significant improvements in five areas of knowledge: understanding of target end-tidal carbon dioxide levels ($p < 0.001$), implications of hypocapnia in severe traumatic brain injury ($p = 0.01$), implications of hypercapnia in severe traumatic brain injury ($p = 0.02$), importance of maintaining head and neck in neutral position ($p = 0.05$), and administration of sedatives and analgesics in severe traumatic brain injury ($p = 0.01$). This study suggested that implementation of an evidence-based care bundle improved emergency nurses' knowledge regarding management of patients with severe traumatic brain injury.

© 2015 Elsevier Ltd. All rights reserved.

Introduction

Severe traumatic brain injury (TBI) is a major cause of mortality and disability in young adults around the world, and is involved in nearly half of all trauma deaths (WHO, 2006). The incidence of severe TBI varies greatly in different parts of the world, and ranges from 18 per 100,000 population in the US (Faul et al., 2010), 15 per 100,000 in Europe (Tagliaferri et al., 2006), and 12 per 100,000 in Australia (Crowe et al., 2010). In Asia, the mortality rate from TBI per 100,000 population varies from 20 in India to 38 in Taiwan

(Tagliaferri et al., 2006). It is estimated that severe TBI comprises around 10–20% of all TBIs (Tagliaferri et al., 2006; Wu et al., 2008). Deaths and disabilities resulting from severe TBI not only have an effect on the individuals but also on their families (Blake, 2008; McCartan et al., 2008; Turner et al., 2010). Severe TBI is associated with great financial burdens for individuals, families and society (Berg et al., 2005).

Guidelines for the management of patients with severe TBI have been established in most Western countries (BTF, 2007a, 2007b; NICE, 2014; NZGG, 2007; SIGN, 2009). These evidence-based guidelines aim to improve the outcomes of all brain injury patients especially those with severe TBI. Implementation of the guidelines for the management of severe TBI has been shown to improve outcomes in terms of mortality rates, functional outcomes, length of hospital stay, and healthcare costs (Arabi et al., 2010; Faul et al., 2007; Gerber et al., 2013; Talving et al., 2013; Watts et al., 2004).

* Corresponding author. c/- School of Nursing and Midwifery, Deakin University, 221 Burwood Hwy, Burwood, Victoria 3125, Australia.

E-mail addresses: jdanklia@deakin.edu.au (J. Damkliang), julie.considine@deakin.edu.au (J. Considine), bridie.kent@plymouth.ac.uk (B. Kent), maryann.street@deakin.edu.au (M. Street).

¹ c/- School of Nursing and Midwifery, Deakin University, 221 Burwood Hwy, Burwood, Victoria 3125, Australia.