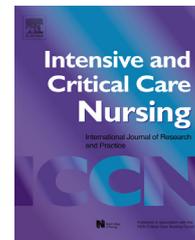




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REVIEW

Managing hyperactive delirium and spinal immobilisation in the intensive care setting: A case study and reflective discussion of the literature



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KEYWORDS

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Hyperactive delirium;
Intensive Care Unit;
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Ventilator care
bundle

Summary The management of ventilated patients on intensive care has, at its core, a care bundle; an evidence based group of actions designed to reduce the risk of ventilator-associated pneumonia. One of these is the daily cessation of sedation medication to expedite weaning from ventilatory support. A reflection-on-action exercise was carried out when a spinally injured patient became physically active during a sedation hold. This was attributed to hyperactive delirium. The concern was the conflict between providing evidence based Intensive Care Unit (ICU) therapy care and maintaining spinal immobility.

Reflection on this incident led to a literature search for guidance on the likelihood of delirium causing secondary spinal injury in patients with unstable fractures. There was plentiful research on delirium and its consequences but very little examining the link between spinal injury and delirium. In order to be able to provide evidence-based care to future trauma patients the research supporting spinal immobilisation was also examined.

The research showed that compliance with ventilator care bundles reduced the risks of acquiring ventilator-associated pneumonia. Research surrounding spinal immobilisation was conflicting and there were no studies linking the consequences of immobilised patients experiencing hyperactive delirium.

Through a case study approach the research was reviewed in relation to a particular patient and although literature was lacking some implications for practice could be identified to promote the best possible outcomes.

Sedation cessation episodes are an essential part of patient care on intensive care. For spinally injured patients' these may need to be modified to sedation reductions to prevent sudden

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wakening and uncontrolled movement should the patient be experiencing hyperactive delirium. This case study clearly highlights the need for further research in this area as the consequences of both ventilator associated pneumonia and extending spinal injuries is costly for both patients and hospitals.

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Implications for Clinical Practice

- More research into the specific area of secondary spinal cord injury due to delirium is required.
- Education of nursing staff to be aware of the risk factors associated with delirium.
- Support for nursing staff to be able to remain at the bedside to provide reassurance to delirious patients and to reduce risk factors where able.
- Training in the use of a validated delirium assessment tool to enable early recognition of delirium.
- Modifying sedation holds into slow sedation reduction to allow the patient to be assessed for signs of delirium before any hyperactive incidents lead to uncontrolled patient movement that could exacerbate a spinal cord injury.

Introduction

The standard treatment of ventilated patients on the Intensive Care Unit (ICU) in the United Kingdom (UK) is based around a ventilator 'care bundle' (Department of Health, 2007; Westwell, 2008). This evidence-based tool is aimed at reducing the incidence of ventilator-associated pneumonia (VAP). This particular nosocomial infection affects approximately 12% of ICU patients (Bercault and Boulain, 2001; Orgeas et al., 2008). Mechanical ventilation was linked with 83% of nosocomial pneumonias in ICU patients (Richards et al., 2000). The development of nosocomial pneumonia has been attributed to an increased mortality rate and length of ICU stay (Bercault and Boulain, 2001).

The implementation of a ventilator 'care bundle' has been found to reduce the development of VAP in ICU patients (Al-Tawfiq and Abed, 2010; Marra et al., 2009; Morris et al., 2011). This group of interventions includes a daily sedation hold (cessation of all sedative medication), to facilitate ventilatory weaning and assess neurological function along with reducing the harmful effects of over sedation. Usually the clinical treatment of a patient's condition is compatible with this care bundle. A situation arose on the ICU where the author works which highlighted an instance where compliance with the ventilator care bundle was not possible due to the nature of a patient's orthopaedic injuries.

A man was admitted requiring spinal immobilisation following a road traffic collision (RTC). During a sedation hold the patient exhibited signs of hyperactive delirium resulting in vigorous, non-purposeful movement. Delirium has been defined as an acute, fluctuating change in mental function that is characterised by inattention and disorganised thinking (Bourne, 2008; Devlin et al., 2008; National Institute of Clinical Excellence (NICE) 2010). Daily sedation holds were stopped due to fear of potential secondary spinal trauma caused by further uncontrolled movement. The use of sedative medication is associated with numerous risks including the development of delirium (Thompson and Ocampo, 2011; Van Rompaey et al., 2009). During his stay on ICU the patient suffered a number of adverse events resulting in continuous sedation for several weeks.

Concern over whether or not this patient received optimal care during his critical illness led to reflection on his treatment. A literature search was carried out to discover if it was possible to co-ordinate his ICU care with the management of his unstable spinal injury. What follows is an examination of the evidence gathered, with the aim of linking theory to practice in this area. This case study illustrated that there was a knowledge deficit when it came to managing the combination of the patient's spinal injury and delirium. A literature review was carried out to enable best practice to be provided to other patients presenting with similar complex problems in the future.

Reflective practice is a useful learning tool in health care as it enables the individual to learn from experience and use that knowledge to benefit others in the future (FitzGerald and Chapman, 2000; Jasper, 2003). A case study approach was used to present the findings of this reflection-on-action process. The clinical details of the case are written in italics to separate them from the discussion of the literature.

Literature review

Keywords used in the literature search were: log roll, spinal immobilisation, delirium, hyperactive delirium, ICU, intensive care, lumbar fractures, nursing, ventilator-associated pneumonia and ventilator care bundles. These words were used singly and in combination i.e. spinal immobilisation and hyperactive delirium, spinal immobilisation and nursing. Databases searched were Athens, Google Scholar, Department of Health and the Cochrane Database. The search was limited by the year of publication (2002-2013). Most of the literature found related to spinal immobilisation in the accident and emergency and pre-hospital setting.

There was a dearth of information available related to hyperactive delirium combined with spinal immobilisation; and on continued spinal immobilisation in hospital after spinal injury. In order to locate literature on lumbar fractures and immobilisation the limitation of year of publication was removed. The literature was reviewed regarding the effects of delirium, concentrating on hyperactive delirium and the importance of spinal immobilisation.

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