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### Pros and Cons of Physical Restraint

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This article discusses the pros and cons of physical restraint of ICU patients during critical illness.

#### Introduction

The debate about physical restraint of ICU patients during their critical care stay has been going on for many years. In some countries, such as the UK, it is considered an unacceptable practice (Bray et al. 2004). In other countries across Europe, such as France (De Jonghe et al. 2013), and in parts of the USA, it is a more common practice. In the USA practice guidelines to facilitate the safe application of physical restraint methods have been published (Maccioli et al. 2003). While the views of nurses and other healthcare staff on physical restraint have been examined, those of the patient and family on its use are sadly lacking. In addition, the long-term impact of physical restraint on the patients' recovery has not been really investigated.

#### Factors Influencing the Use of Physical Restraint

Physical restraint has been shown to be most often used with agitated, delirious patients, or where there has been an adverse event, such as self-extubation (Sneyers et al. 2013). A study comparing the use of physical restraint in two ICUs in different countries, ie the USA and Norway, found that the use of physical restraint was very different, with 40% of the U.S. patients receiving it at some point in their critical care stay and 0% in Norwegian patients (Martin and Mathisen 2005). The most common type of restraint used in this study was soft wrist restraints. Interestingly, there were seven incidents of unplanned removal of an invasive device during the study, and these were all in restrained U.S. patients. The study did show a distinct difference in nurse-patient ratios between the two countries, with a ratio of 1.05:1 for the Norwegian units and 0.65:1 for the USA ones. In Norway nurses tended to maintain direct visual observation of patients, fewer non-qualified staff were being used, and respiratory therapists were not present at all on the unit compared to the US. DeJonghe et al. (2013), in their survey of French ICUs, found that in 82% of ICUs physical restraint was used at least once in more than 50% of patients. Medical orders for starting or removing physical restraint were commonly lacking, and most of the decisions were made by nurses.

#### Patient Autonomy

Martin and Mathisen (2005) point out in the discussion of their study examining the differences between U.S. and Norwegian practices that where physical restraint is an established practice there is a potential to violate the patient's dignity and the individual's autonomy ceases to be considered.

In a 1988 study of the perceptions of 20 elderly patients who had been physically restrained during a hospitalisation (not critical care), feelings such as anger, discomfort, fear and resistance were commonly expressed (Strumpf and Evans 1988). They concluded that the use of physical restraint was not a benign practice, and that there was a need to develop alternatives to ensure patient safety.

In a more recent study of elderly ICU patients only six patients (40%) could remember being restrained, but they did not report great distress at the memories (Minnick et al. 2001). The patients were much more bothered by memories of hallucinations and intubations. However, the research found it very difficult to recruit to the study because of ongoing health problems in this group of patients, which restricts the generalisability of the results.

In a multicentre European study of the precipitants of posttraumatic stress disorder (PTSD) in ICU patients one of the study units did interview restrained patients using the ICU Memory Tool (Jones et al 2007). This showed similar findings to Minnick et al. (2001), in that only one patient remembered being physically restrained. When the sedation score data was examined for those patients who had been restrained in this ICU all of them had been agitated prior to being restrained. Half of these restrained patients could remember delusional memories, such as hallucinations, nightmares and paranoid delusions from their time in ICU, rather than the experience of being restrained. In contrast, a South African study of 98 ICU patients found that 24 (24%) participants could remember being physically restrained and were very distressed by it (Hatchett et al. 2010).

#### **Physical and Psychological After Effects of Physical Restraint**

Jones et al. (2007) found that being physically restrained was strongly associated with the development of PTSD, with a rate of 23% in the physically restrained patients. This was despite only one patient having any recall of being restrained. Other factors found to be related to the development of PTSD in this study of 238 patients were recall of delusional memories, heavy and prolonged sedation and a premorbid history of psychological problems (see Figure 1). Hackett et al. (2010) found the opposite, ie that those patients who had recall of being physically restrained in ICU were six times more likely to develop PTSD-related symptoms than those with no memory of restraint. One of the differences between the studies may be that 100% of the patients in the Jones (2007) study were mechanically ventilated but only 53% in the Hatchett (2010) study. The mean length of stay in the ICU was also significantly longer in the Jones' patient population compared to Hatchett so the Jones' study may more typically reflect the experience of the ICU patient, rather than those receiving high dependency unit (HDU) level care.

#### **Physical Restraint and Delirium**

Physical restraint used prior to the onset of delirium significantly increases the risk of ICU patients developing delirium (OR 33.84) (Van Rompaey et al. 2009). Restraint also impedes early rehabilitation on the ICU, which has been shown to reduce the risk of the patient developing delirium (Schweickert et al. 2010).

In hospitalised older patients (non-ICU) the use of a multi-component intervention designed to tackle the risk factors for delirium, including activities such as repeated reorientation, the provision of cognitively stimulating activities, a nonpharmacologic sleep protocol, early mobilisation, removal of catheters and physical restraints, use of eyeglasses, magnifying lenses and hearing aids has been shown to significantly reduce the incidence of delirium in the intervention group (OR 0.6) (Inouye et al. 1999).

#### **Reducing the Use of Physical Restraint**

Mion et al. (2001) implemented a physical restraint reduction programme with four core components: administrative, educational, consultative and feedback. However, only a small number of units achieved a > 20% reduction in physical restraint use.

#### **The American College of Critical Care**

Medicine Task Force developed clinical practice guidelines for the use of restraining therapies (Maccioli 2003). The task force developed nine recommendations to maintain patient safety in the ICU (see Table 1). The whole thrust of the guidelines is to try to reduce the use of physical restraint, unless it is felt clinically to be the only way to keep the patient safe. The impact of these guidelines has not been assessed.

The learning programme Knot-so-fast (Hurlock-Chorostecki and Kielb 2006) was implemented following new legislation in Ontario, Canada, introduced in 2001, called the Patient Restraint Minimization Act. All Canadian hospitals were mandated to develop a policy to minimise the use of restraints. In the study ICU a survey of ICU nursing staff was undertaken to establish learning needs and develop the learning plan Knot-So-Fast, in addition to a decision tool titled the Restraint Decision Wheel. They were created to support staff in making restraint decisions quickly and appropriately. The key points of Knot-So-Fast are that alternatives to restraints should be tried first. If felt to be absolutely necessary then restraint can only be used on doctors' orders, and frequent monitoring has to be documented in the medical notes. Staff were resurveyed one year after the introduction of these measures, and a statistically significant decrease in restraint use was found in the study ICU. A particular effect noted by the research team was that patients returning from theatre were not automatically restrained. Other ICUs have implemented the programme and decision wheel and found an equal reduction in restraint use (Hurlock- Chorostecki and Kielb 2006).

De Jonghe et al. (2013), when they surveyed French physical restraint practice, found that restraint was often used without written medical orders and on awake, calm and cooperative patients. They felt the results of the survey showed that physical restraint was an essential component of the management of mechanically ventilated patients in French ICUs. The authors suggest that a restraint protocol may reduce the use of restraint, and point out the effectiveness of the education programme Knotso- fast and the decision making wheel. The lack of written medical orders in the study put the onus on the nursing staff to decide when to stop restraint, and they may therefore be reluctant to take that decision.

#### **Conclusion**

As the way we nurse our ICU patients changes, with less sedation and more emphasis on early physical rehabilitation and the prevention of delirium, then the use of therapies such as physical restraint also has to be revised. If we are to ensure that our patients recover with the minimum of physical and psychological sequelae then using the least traumatic method of keeping our patients safe is a necessity. Thinking before automatically turning to physical restraint can only be of benefit to our patients in the long run.

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