intensive care society

50 YEARS

proud to be the voice of critical care since 1970

Guidance For:

The Use of Physical Restraints in UK Adult Intensive Care Units

intensive care society
proud to be the voice of critical care since 1970

Endorsing organisations

BACCN™
British Association of Critical Care Nurses

CCNN
Critical Care Networks-National Nurse Leads

ICUsteps

Published date: March 2021
Review date: March 2024

intensive care society
proud to be the voice of critical care since 1970

Guidance For: The Use of Physical Restraints in UK Adult Intensive Care Units

List of Contributors

Dr Nitin Arora – Consultant Intensive Care Medicine, University Hospitals Birmingham NHS Foundation Trust

Dr Dan Harvey – Consultant Intensive Care Medicine, Nottingham University Hospitals NHS Trust

Dr Thea De Beer – Consultant Anaesthetics, ICM and Neuro-ICM Clinical Director Acute Care, Nottingham University Hospitals NHS Trust

Dr Mahesh Ramanan – Consultant Intensivist, Caboolture Hospital, Queensland, Australia

Mr Rob Tobin – Partner for Kennedys Law

Mrs Nicki Credland – Chair, British Association of Critical Care Nurses

With thanks to the ICS Legal and Ethical Advisory Group (LEAG) and the ICS Standards and Guidelines Committee for their input in this guideline.

Definitions

Delirium - Delirium is often described as a temporary disturbance of consciousness characterised by acute onset and fluctuating course of inattention accompanied by either a change in cognition or a perceptual disturbance, so that a patient's ability to receive, process, store, and recall information is impaired.

Restraint - Restraint is an intervention that prevents a person from behaving in ways that threaten to cause harm to themselves, to others, or to hospital property and/or equipment.

Chemical Restraint - A drug or medication used to manage a patient's violent or aggressive behaviour which is administered, if necessary, against an incompetent patient's wishes. Such drugs may of course also be used in circumstances in which the threat of harm is less immediate, with the patient's consent, or in the assessed best interests of a patient who lacks capacity.

Physical Restraint - Any manually applied method (physical or mechanical, material, or equipment) that immobilises or reduces the ability of a person to move his or her arms, legs, body, or head freely. These may be further classified by degree of restriction from mildly restrictive (e.g.mittens), to very restrictive (e.g. body nets, posey vests, etc).[6]

Introduction

This guideline addresses the use of restraint in the critically ill patient in adult intensive care units. It aims to advise intensive care professionals in the use of physical restraints. As such, it seeks to safeguard patients, staff and visitors from acts that may cause harm.

The severity of illness manifested by patients in critical care and the need for nursing and therapy interventions account for many of the unique issues related to the use of restraint, the most common being delirium or agitation.

The reported incidence of ICU delirium is wide at 15-80%[1]. It is recognised that delirium can increase the difficulties faced in treating critically ill patients and if left unmanaged can lead to an increased length of stay which is associated with increased morbidity and mortality.[1,2]

Restraint can be either chemical or physical and should only be used in situations where all other simple interventions have failed. The least restrictive and proportionate response should be chosen, and utilised for the least amount of time possible. Restraint must never be used as an acceptable strategy for addressing a shortfall in staffing.

Standards

1. Restraints must not be used if the patient has capacity. Regular reviews of capacity must be conducted for these patients. Although there are occasions when patients detained under the Mental Health Act may need to be restrained, even though they have capacity. The same principles set out in this guidance still apply.
2. When patients regain capacity, they must be provided with information about the restraints used.
3. ICUs must use the least restrictive form of restraints to maintain patient and staff safety. In practice, only mildly restrictive restraints are commonly used in the UK.
4. Physical restraints must only be used when clinically appropriate, and not as routine (bed rails are not considered physical restraints in this guidance).
5. Individual units must develop a formal policy for the use of physical restraints.
6. Physical restraints must be authorised by the senior nurse, and doctor on the shift, and reviewed by a consultant within 12 hours. The need for restraints must be continually reviewed, formally documented at least once every 12 hours, and regularly audited.
7. Appropriate analgesia and anxiolysis must be provided for patients who are restrained.
8. Patients must be assessed routinely for complications resulting from physical restraints and in relation to maintaining their personal care.

Recommendations

1. Patients should be carefully assessed to see if there is a treatable cause for their agitation, and whether treating the existing problem would eliminate the need for restraints (e.g. alcohol withdrawal, pain, need for toilet).
2. Appropriate sedation as an adjunct should be considered for patients who are physically restrained.
3. Nonpharmacological means of preventing and treating delirium should be in place. This includes, but is not limited to, measures like noise management, lights, sleep hygiene and orientation.
4. Support for the families or carers of these patients should be available. This includes clear communication, as well as psychological support. In addition, provision of online resources for patients, families and carers (for example, Delirium and Intensive Care from ICU Steps[3]) may be useful.
5. Where future restraint is anticipated, consent ought to be taken either from the patient, if they have the capacity, or a person or persons authorised to consent under a Lasting Power of Attorney.
6. Each unit should have a delirium assessment and management guideline.
7. Each unit should have guidelines on drug, nicotine, and alcohol withdrawal regimes.

Nursing implications

1. The purpose of restraint is to facilitate optimal care of the patient.
2. Use of restraint must not be an alternative to inadequate human or environmental resources.
3. Restraint should only be used when alternative therapeutic measures have proved ineffective to obtain the desired outcome.
4. Restraint should be proportionate, and the least restrictive option as is safe to implement.
5. Decisions regarding use or non-use of restraint must be made following a detailed patient assessment, by the inter-disciplinary team.
6. A full delirium assessment Confusion Assessment Method in the Intensive Care Unit (CAM-ICU) for all patients who are being assessed for restraint and implementation of evidence-based delirium care bundles should be utilised with ongoing assessment for delirium whilst restrained.
7. Intensive Care Units must develop and implement protocol /guidelines to assist nurses and others in this process.
8. Whatever form of restraint is used there must be appropriate, continual assessment tools used, and the findings acted upon.
9. Clear, concise documentation of decision plans, and treatment must be held within the patient's record.
10. The patient and their family should be engaged in discussions to inform them of the reason for choice of the restraint method.
11. Education for all staff regarding chemical, physical and psychological restraint must encompass training and competency programmes in critical care units.

Background and literature review

Delirium and restraints

The prevalence of delirium reported in ICU is up to 80% depending on severity of illness observed and diagnostic criteria used.[4] The condition, however, is generally under recognised by ICU clinicians.[1]

Delirium in the ICU may be purely hyperactive (incidence 1.6%), hypoactive (43.5%) or mixed (54.9%).[5] Of these sub types, people with hyperactive or mixed delirium are most likely to pull at tubes, lines and catheters, thus resulting in patient-initiated device removal which is potentially life threatening. Of all forms of patient-initiated device removal, removal or displacement of tracheal tubes has been most well studied, probably because it has the potential to cause immediate harm.

Agitation can cause other problems like interference with mechanical ventilation, monitoring, difficulty in physical examination and may also interfere with performance of procedures.[6]

Restraints aim to prevent complications by restricting patients' movement or preventing access to their body. These may be physical or pharmacological. Physical restraints are mechanical devices that restrict patients' movements. The most commonly used restraints include 'boxing gloves', soft wrist and ankle restraints, upper body vests or body webs.[7]

Physical restraints have been sparingly used in the UK, compared to many other European countries.[8]

Physical and chemical restraints – benefits and risks

There are benefits and risks with both physical and chemical restraints.

- Physical restraints: May decrease incidence of patient-initiated device removal and decrease the use of sedation as chemical restraint but they may cause injuries, appear 'unkind' and may be associated with PTSD (Post Traumatic Stress Disorder).[9]
- Chemical restraints: May reduce incidence of patient-initiated device removal but the most commonly used are sedative-hypnotics that may increase time on ventilator and in ICU and may also be deliriogenic. Some units use antipsychotics, but there is no clear evidence they are effective.[10]

Professional organisations have attempted to provide guidance for the use of physical restraints in intensive care[7,11], but these have not been updated for quite some time, and are not directly applicable to UK practice.

Do physical restraints help with preventing self-extubation?

We were unable to find high quality evidence to answer this question.

In a number of case control and observational studies, self-extubation was actually higher in patients who were restrained.[12–17] Surveys of ICU staff have also reported that physical restraints are correlated with self-extubation.[18]

From the available evidence, it seems unlikely that restraints prevent self-extubation. However, the literature suggests there are multiple factors which may have been insufficiently controlled for. Restrained patients are more likely to be agitated and, therefore, restrained for safety. Most case control studies have not attempted to match for delirium/agitation or sedation.

Do physical restraints help with preventing removal of other medical devices- NG tubes, arterial, venous and urinary catheters?

The evidence available is insufficient to draw firm conclusions but one study reported a significant decrease in patient initiated removal of medical devices including arterial lines, central venous catheters and nasogastric tubes with a programme of restraints, staff vigilance, and taping nasogastric tubes to the forehead.[19]

What are the risks of physical restraints?

There is little high-quality evidence to define the risks of physical harms from restraint, although anecdotal evidence exists to confirm a degree of risk is inevitable. Bed rails are not generally considered restraints but still carry a risk of injury or even death, and 'Entrapment in bedrails' is on the 'never events' list published by the Department of Health.[20]

There are a number of studies about injuries caused by physical restraints, although most are not ICU based.

A prospective observational multi-centre study suggested that patients who are physically restrained without sedation are at risk of developing post-traumatic stress disorder (PTSD) even without recollection. Also, some patients were restrained before testing for delirium and were later not found to be delirious. These patients were at higher risk of developing PTSD.[9] A recent systematic review and meta-analysis also suggests that physical restraint use may be associated with PTSD in ICU survivors, and is also associated with delirium and longer duration of mechanical ventilation.[21]

Another study has suggested that physically restraining patients who are not delirious is a risk factor for ICU delirium.[22]

Legal Considerations

In England and Wales, The Court of Appeal[23] has ruled (in the case of Ferreira) that treatment in ICU with urgent unavoidable life-saving physical treatment can be given to patients lacking capacity without a violation of their Article 5 deprivation of liberty rights. Treatment would need to be necessary to avoid serious injury and kept to the minimum required for that purpose. Therefore, if a patient in ICU suffered temporary delirium, which in itself could be life-threatening (e.g. it may cause the patient to pull out life-saving tubes required for the underlying condition), then treatment to manage that delirium can be provided without depriving a patient of their liberty but 'merely' restricting their liberty, for the least restrictive minimal time period in those circumstances.

This could well be different though if the patient's disorder of the mind is irreversible and is the primary cause of the patient's anxiety or delirium rather than secondary to an underlying condition for which the patient is receiving ICU treatment. In these circumstances, if the use of restraint for that patient is to be a long-term feature of their care and treatment, a Deprivation of Liberty authorisation ought to be considered as such a patient would likely be subject to supervision and control, preventing them from leaving the unit.

References

(1) Ely EW, Stephens RK, Jackson JC, Thomason JWW, Truman B, Gordon S, et al. Current opinions regarding the importance, diagnosis, and management of delirium in the intensive care unit: A survey of 912 healthcare professionals*. Crit Care Med [Internet]. 2004 Jan [cited 2019 Apr 17];32(1):106–12. Available from: http://www.ncbi.nlm.nih.gov/pubmed/14707567

(2) Dubois MJ, Bergeron N, Dumont M, Dial S, Skrobik Y. Delirium in an intensive care unit: A study of risk factors. Intensive Care Med. 2001;27(8):1297–304.

(3) ICU Steps (2009). Delirium and Intensive Care. Available from: https://icusteps.org/assets/files/information-sheets/delirium.pdf. 'I want to know about ICU delirium' https://icusteps.org/.

(4) Girard TD, Pandharipande PP, Ely EW. Delirium in the intensive care unit. Crit Care http://ww[Internet]. 2008 [cited 2019 Apr 17];12(Suppl 3):S3. Available from: w.ncbi.nlm.nih.gov/pubmed/18495054

(5) Peterson JF, Pun BT, Dittus RS, Thomason JWW, Jackson JC, Shintani AK, et al. Delirium and Its Motoric Subtypes: A Study of 614 Critically Ill Patients. J Am Geriatr Soc [Internet]. 2006 Mar [cited 2019 Apr 17];54(3):479–84. Available from: http://www.ncbi.nlm.nih.gov/pubmed/16551316

(6) Harris J, Nirmalan M, Nightingale P, Dark PM. Editorial IV: Physical and pharmacological restraint of critically ill patients: clinical facts and ethical considerations. BJA Br J Anaesth [Internet]. 2004;92(6):789–92. Available from: https://doi.org/10.1093/bja/aeh138

(7) Maccioli GA, Dorman T, Brown BR, Mazuski JE, McLean BA, Kuszaj JM, et al. Clinical practice guidelines for the maintenance of patient physical safety in the intensive care unit: Use of restraining therapies—American College of Critical Care Medicine Task Force 2001–2002. Crit Care Med [Internet]. 2003 Nov [cited 2019 Apr 17];31(11):2665–76. Available from: http://www.ncbi.nlm.nih.gov/pubmed/14605540

(8) Benbenbishty J, Adam S, Endacott R. Physical restraint use in intensive care units across Europe: The PRICE study. Intensive Crit Care Nurs. 2010;26:241–5.

(9) Jones C, Bäckman C, Capuzzo M, Flaatten H, Rylander C, Griffiths RD. Precipitants of post-traumatic stress disorder following intensive care: A hypothesis generating study of diversity in care. Intensive Care Med. 2007;33(6):978–85.

(10) Girard TD, Exline MC, Carson SS, Hough CL, Rock P, Gong MN, et al. Haloperidol and Ziprasidone for Treatment of Delirium in Critical Illness. N Engl J Med [Internet]. 2018 Dec 27 [cited 2019 Apr 17];379(26):2506–16. Available from: http://www.nejm.org/doi/10.1056/NEJMoa1808217

(11) Bray K, Hill K, Robson W, Leaver G, Walker N, O'Leary M, et al. British Association of Critical Care Nurses Position statement on the use of restraint in adult critical care units. Nurs Crit Care [Internet]. 2004;9(5):199–212. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1362-1017.2004.00074.x

(12) Chang L, Wang KK, Chao Y. Influence of physical restraint on unplanned extubation of adult intensive care patients: A case-control study. Am J Crit Care. 2008;17:408–16.

(13) Chang L-C, Liu P-F, Huang Y-L, Yang S-S, Chang W-Y. Risk factors associated with unplanned endotracheal self-extubation of hospitalized intubated patients: A 3-year retrospective case-control study. Appl Nurs Res. 2011;24:188–92.

(14) Chevron V, Ménard JF, Richard JC, Girault C, Leroy J, Bonmarchand G. Unplanned extubation: risk factors of development and predictive criteria for reintubation. Crit Care Med [Internet]. 1998 Jun [cited 2019 Apr 17];26(6):1049–53. Available from: http://www.ncbi.nlm.nih.gov/pubmed/9635654

(15) Atkins PM, Mion LC, Mendelson W, Palmer RM, Slomka J, Franko T. Characteristics and outcomes of patients who self-extubate from ventilatory support: A case-control study. Chest. 1997;112(5):1317–23.

(16) Birkett KM, Southerland KA, Leslie GD. Reporting unplanned extubation. Intensive Crit Care Nurs. 2005;21(2):65–75.

(17) Ai ZP, Gao XL, Zhao XL. Factors associated with unplanned extubation in the Intensive Care Unit for adult patients: A systematic review and meta-analysis. Vol. 47, Intensive and Critical Care Nursing. Churchill Livingstone; 2018. p. 62–8.

(18) Tanios MA, Epstein SK, Livelo J, Teres D. Can we identify patients at high risk for unplanned extubation? A large-scale multidisciplinary survey. Respir Care [Internet]. 2010;55(5):561–8. Available from: http://www.ncbi.nlm.nih.gov/pubmed/20420726

(19) Carrión MI, Ayuso D, Marcos M, Paz Robles M, de la Cal MA, Alía I, et al. Accidental removal of endotracheal and nasogastric tubes and intravascular catheters. Crit Care Med [Internet]. 2000 Jan [cited 2019 Apr 17];28(1):63–6. Available from: http://www.ncbi.nlm.nih.gov/pubmed/10667500

(20) Revised Never Events policy and framework | NHS Improvement [Internet]. [cited 2020 May 27]. Available from: https://improvement.nhs.uk/resources/never-events-policy-and-framework/

(21) Franks ZM, Alcock JA, Lam T, Haines KJ, Arora N, Ramanan M. Physical Restraints and Post-Traumatic Stress Disorder in Survivors of Critical Illness: A Systematic Review and Meta-analysis. Ann Am Thorac Soc [Internet]. 2020 Oct 19; AnnalsATS.202006-738OC. Available from: https://www.atsjournals.org/doi/10.1513/AnnalsATS.202006-738OC

(22) Van Rompaey B, Elseviers MM, Schuurmans MJ, Shortridge-Baggett LM, Truijen S, Bossaert L. Risk factors for delirium in intensive care patients: A prospective cohort study. Crit Care. 2009;13(3):1–12.

(23) Ferreira, R (On the Application Of) v HM Senior Coroner for Inner South London [2017] EWCA Civ 31 (26 January 2017) [Internet]. [cited 2020 May 8]. Available from: http://www.bailii.org/ew/cases/EWCA/Civ/2017/31.html

Intensive Care Society I Churchill House I 35 Red Lion Square I London I WC1R 4SG
T: +44 (0)20 7280 4350 E: info@ics.ac.uk W: www.ics.ac.uk

Registered as a Company limited by Guarantee
Registered No: 2940178 (England) Registered Office as above
Registered as a Charity in England and Wales No: 1039236 and in Scotland No: SC040052