Intensive & Critical Care Nursing 54 (2019) 23–28

Contents lists available at ScienceDirect

Intensive & Critical Care Nursing

journal homepage: www.elsevier.com/iccn

Research Article

The management of agitation in adult critical care: Views and opinions from the multi-disciplinary team using a survey approach

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ARTICLE INFO

Article history:
Received 2 December 2018
Revised 31 May 2019
Accepted 31 May 2019

Keywords:
Agitation
Intensive Care
Multi-disciplinary team
Questionnaire survey design

ABSTRACT

Objectives: To better understand the current strategies employed to manage patient agitation by capturing the views and opinions of the multi-disciplinary team within general Adult Critical Care Units in the UK.
Research methodology: Web-based questionnaire survey.
Setting: General Adult Critical Care Units in one region of the United Kingdom
Main outcome: The online survey was circulated to approximately 900 members of staff at eight sites in the UK. The online survey was accessed by 239 (26.5%) clinicians, 163 (18.1%) completed the first two screening questions rendering them valid for inclusion. For those who responded, 98.5% acknowledge the increased risk of harm in the presence of agitation. Additionally, 76.3% felt the management of agitated patients could be improved. Many participants felt equipped in the recognition of delirium and agitation but did not feel they had the knowledge to support decision-making around acute agitation management. There is concern about the use of physical restraint and the over-reliance on sedation. There appears to be inconsistent care delivery exacerbated by staff rotational changes.
Conclusion: There are valid concerns raised surrounding the legality of physical restraint and what level of restrictive action is permissible. Currently, we have no robust evidence to determine the effectiveness of one intervention to prevent treatment interruption over another. There is a need to explore the clinical decision-making process that underpins the care of a patient experiencing agitation in Adult Critical Care.

Implications for clinical practice

- The context and team dynamic within the individual critical care units may impact approaches and care decision-making.
- Prior to agitation developing, multidisciplinary teams should discuss and consider what approaches are available to manage agitation should it occur
- There are indications that certain patient groups may become agitated and this needs prompt assessment and intervention to minimise agitation development. Where this is not possible and agitation develops prompt effective action is required to manage a high-risk event such as pulling out lines.

Introduction

Experiencing critical illness is a traumatic event. For some patients, it results in episodes of acute agitation. Agitation is described by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), as *excessive motor activity*", which is usually "*non-productive and repetitious*" (Cooper, 2018). A recent review of the literature exploring patient agitation and its management in adult critical care concluded that management is multifactorial and hampered by a limited evidence base (Freeman et al., 2018).

Agitation within Adult Critical Care Units (ACCU) can lead to intravenous line displacement or early self-extubation which in turn can result in harm to the patient and even death (Burk

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https://doi.org/10.1016/j.iccn.2019.05.004
0964-3397/

et al., 2014a,b). There is also the potential risk to staff and visitors when a patient becomes agitated. The American College of Critical Care Medicine (2013) published a set of clinical practice guidelines around the management of pain, agitation and delirium in the ACCU (Barr et al, 2013). These guidelines focus on the importance of assessment, prevention, and treatment, providing strategies for patient management. The guidance updated in 2018 focuses on patient assessment and offering pharmacological and non-pharmacological strategies for the prevention and management of agitation (Devlin et al., 2018). What is also recognised is the guidance contains minimal evidence related to the use of physical restraint, its effectiveness and long term impact.

The aim of this study was to better understand the current strategies employed to manage patient agitation by capturing the views and opinions of the Multi-Disciplinary Team (MDT) across a regional network of general Adult Critical Care Units (ACCU).

The specific objectives were:

- To ascertain current practice across general ACCU in one UK regional critical care network in the management of agitation
- To identify supporting guidance and/or education ACCU teams access to aid their decision making in relation to agitation management
- To identify how existing department policy, and national/international guidance is implemented by the ACCU team
- To explore the view of the MDT in relation to the effectiveness of current guidance and/or policy

Assumptions were made that different occupational groups and the presence of education support would impact on decision-making process.

Methods

Survey design using a web-based mixed methods questionnaire of quantitative responses and free text. This method of collecting data is widely utilised in health research due to the relative ease in accessing a large number of participants (Edwards, 2002). The study was conducted between November 2016 and February 2017 across eight general ACCU and was approved by the University Research ethics board (University of Manchester 16279).

Questionnaire development

The questionnaire generated was based on the Freeman et al. (2015) survey relating to ACCU staff opinion of physical restraint. The questionnaire was presented to a clinical advisory group to ensure content validity. They explored the questions and content aligning the questions with the study aims. The questionnaire was generated using the University of Manchester 'My Survey' tool. To test for reliability this was then circulated to key clinical colleagues, not recruited for the study, to give feedback on the survey design. Revisions were made and the final questionnaire generated. The questionnaire was split into sections, which focused on:

- Education and Training
- Policy
- Management strategy and decision-making
- Key components of care
- Views and Opinion

Sampling and study sites

To ensure the selected units encompassed a wide case mix the ACCU were purposively sampled, included units needed to provide care to unselected acute admissions. A total of eight ACCU were included. All staff within the units selected were sent the questionnaire. For a detailed inclusion and exclusion criteria see Table 1.

Recruitment

Posters were placed in each department a month before study initiation. Each department appointed a member of the nursing team to act as a contact with the research team. These self-appointed nurses sent emails on the research teams behalf. They informed staff of the questionnaire and circulated the participant information sheet. They also emailed the web-based survey. After two weeks a reminder email was circulated to help improve response rates.

Data collection

The questionnaire contained a mixture of closed and open questions as well as opportunity for free text comment. In addition, it used a scale of agreement to identify the strength of feeling associated with particular statements. The questionnaire captured demographic data such as hospital site, participants professional group, length of time working within critical care and level of education. The participant was asked to indicate the level of care delivery within their area of practice. In the United Kingdom (UK) care is classified into four levels, Level 0 referring to care delivered at ward level in an acute hospital moving up to level 3, the most acutely unwell (Devlin et al., 2018). Intensive Care Units (ICU) Level 3 care or High Dependency Units (HDU) level 2 are collective referred to as Critical Care (Department of Health, 2000). The term Adult Critical Care Unit (ACCU) is used as both level 2 and 3 areas are the focus.

Ethical considerations

Ethical approval was granted for the study [Ref: 16279]

The research team did not have access to individual staff email address. The only details available to the research team were the hospital where the participant was employed. Responses were anonymously given via a secure survey tool. All staff were provided

Table 1
Inclusion and Exclusion criteria.

Inclusion criteria	Exclusion criteria
All grades of medical staff currently working in level 2 and/or level 3 care within Greater Manchester	Staff from non-selected ACCU such as specialty ACCU such as cardiac, neurological or cancer
All grades of nursing staff currently working in level 2 and/or level 3 care within Greater Manchester	Other professional groups within the MDT not listed such as speech and language therapist
Nursing support staff currently working in level 2 and/or level 3 care within Greater Manchester	Staff not involved in direct patient care such research staff or those with an educational focus
Physiotherapist linked to level 2 and/or level 3 care within Greater Manchester	ACCU not within the Greater Manchester region
Pharmacist linked to level 2 and/or level 3 care within Greater Manchester	

with study information via the cover letter and a participant information sheet. The staff could choose if they wanted to complete. Completion of the questionnaire was taken as implied consent to participate in the study as approved by the ethics committee in advance.

Data analysis

The survey tool was designed to automatically generate a numerical and text database as the questionnaires were returned. This database was then uploaded to Statistical Package for Social Sciences (SPSSTM 20, Armonk, New York) for analysis. To test the research assumptions, associations between variables, and the view and opinions generated were explored. For example, the ordinal variables of the individual's occupational group tested using *Kendall* correlations. The dichotomous data of presence of educational support tested using *Mann-Whitney U* test. The probability value for significance was set at $p = <0.05$ (Chrichton, 2001). Data generated from the free text responses were analysed using thematic analysis. This involved identifying recurring themes within the collected data (Saks and Allsop, 2013). The themes were however intrinsically linked to the framework of the questionnaire design.

Results and findings

Due to fluctuating staffing numbers and questionnaire circulation carried out by the self-appointed contact nurses within each unit circulation numbers can only be estimated It is approximated that the questionnaire was circulated to approximately 900 members of staff. Of these 239 (26.6%) were accessed with 163 (18.1%) completing the first two screening questions making them valid for inclusion. Participants predominantly worked in mixed level units caring for patients receiving both level 2 and 3 care with only 21.9% working in level 3 only department and 2% in level 2 only departments. There was representation from each of the occupational groups approached, detailed in Table 2. Participants had a range of years of experience within the critical care setting from 9.2% being less than a years experience to 27% of more than 15 years experience. The majority of participants (26.4%) had 1–5 years experience.

Following cross-tabulation of the data there were no statistical significant differences across the variables, subsequently, the data set was analysed as one. The data from the questionnaire is now presented utilising the structure of the five sections

Education and training

Participants were asked; *Have you completed any specific training in the management of an agitated patient in critical care?* Of the 140 participants responded to this question 6% % [8] said yes, 94% [132] said no. When asked to expand on their response the main issues expressed when training was inadequate were:

Table 2
Number and percentage of Participants by occupation group.

Occupational group	Count	Percentage
Nurse	114	69.9%
Doctor	25	15.3%
Physiotherapist	13	8.0%
Health Care Support Worker	6	3.7%
Pharmacist	5	3.1%
Total	163	100

- What was taught differed from the reality of current practice
- Participants had carried out their own research or felt they were self-taught
- The training session they attended was too short and lacking key content

Participant provided comments such as, "*Its too complex an issue to be treated with a one hour session on scoring*" [ID43 Nurse], "*We have a long way to go to get an agreed response across Trust*" [ID99 Physiotherapist], "*Need more training and education*" [ID80 Doctor].

Many felt they were skilled in the recognition of delirium and agitation but did not have the knowledge to support decision making for the management of agitation one comment being, "*Although trained in the recognition and management of patients with delirium we do not have specific training regarding management of agitated or aggressive patients*" [ID 163 Nurse]. Those who had felt their training was adequate were largely from medical staff; more specifically consultants grade doctors who felt there was robust training in anaesthetics.

Policy

Participants were asked a series of questions which related to agitation management, delirium management, sedation management and physical restraint practice policy. They were asked if they had a policy, had they read it and did it support their decision-making. Table 3 outlines the responses of those who said Yes; they were aware of a policy how many had read it.

Participants felt the policy did aid decision-making but the two key issues expressed in the free text was that:

1. Current policies in place were difficult to follow and long, leading to perceived poor compliance especially in relation to physical restraint use. Comments such as *"…not very user-friendly or clear what MDT responsibility are. Does not included prompt of line care/pressure ulcer prevention or anywhere to document patient baseline prior to commencing restraint so hard to evaluate on going effect"* [Nurse ID 118] and in relation the physical restraint policy *"long policy and is a big undertaking. Much easier to chemically restrain the patient*" [Medical consultant ID 111]
2. Policy existed but due to lack of agreement across the medical consultant body decision-making was not guided by policy but by individual preference. One doctor participant said, *"it depends on the consultant what approach we use*" [ID 33].

Management strategy and decision-making

The participants were asked if a management strategy was planned and in place when caring for an agitated patient. Of the 136 who responded to this question, 8.8% [12] said yes always; 40.4% [55] said yes mostly; 41.2% [56] said yes sometimes 9.6% [13] said no never. When asked who led the decision making around the initiation of physical restraint as a management strategy all participants responded, 39.9% [n = 65] felt the nursing staff led on this followed by 31.9% [n = 52] believing doctors led this decision, 28.2% [n = 46] felt this was a joint/team decision.

Key components of care

Participants were asked to note three key components of care required for managing an agitated patient safely. The most common phrase was "patient safety" with the three commonly sited components of care being:

Table 3
Responses to the question, If yes, have you read all, some or none of the policy?

Policy	Read all	Read some	None of it	Total
Agitation management	32 34.8%]	44 [47.8%]	16 [17.4]	92 [100%]
Delirium management	61 [48.8%]	53 [42.4%]	11 [8.8%]	125 [100%]
Sedation management	51 [42.5%]	47 [39.2%]	22 [18.3%]	120 [100%]
Physical restraint use	62 [48.4%]	37 [28.9%]	29 [22.7%]	128 [100%]

1. Timely assessment, plan, implementation evaluation, and re-evaluation
2. Appropriate staffing knowledge, experience, and awareness
3. Senior Doctor/Nurse support to support a consistent team approach

Participants were asked if the management of agitated patients could be improved of a 135 responses; 76.3% [n = 103] said "Yes", 16.3% [n = 22] stating they "Don't know" and 7.4% [n = 10] stating "No".

Views expressed in the free text comment were by those who felt management of agitated patient could be improved. A commonly sited view that current care was poor, ineffective and decisions were made too late with comments such as,

"*There isn't always coordination between Dr and nursing staff*" [Physiotherapist ID 99] "*Care is hit and miss*" [Nurse ID 68].

It was noted that staff should be more proactive in the prevention of agitation and an acknowledgement of the increased risk of harm that this patient group is exposed to.

There were several responses that noted a perceived lack of support for nursing staff, "*Nurses are expected to just "cope". Medical staff are reluctant to re-sedate etc. but this can lead junior nurse struggling in their own*" [Nurse ID 27], and "*There is a lack of understanding of the emotional and physical requirements of the nurse dealing with an agitated patient and how draining this can be over 12 hrs. I feel we often get blamed for not managing a patient well enough but are not given the medial support to do so*" [Nurse ID 45] and that the nursing allocation to patient may impact in the care delivered, "*Nursing allocation does not appear to be tailored toward more senior nurses managing excessively agitated patients. Depending on which nurses is in charge of these patients' leads to different management, some will opt rightly or wrongly for pharmaceutical management in the first instance*" [Physiotherapist ID 60].

There were some suggestions that a flowchart, algorithm or care plan would support care with one respondent writing, "*having an easily accessible guide and plan on admission as to how to treat if the patient gets agitated*" [ID20] and another respondent noting that care, "*needs to be proactive rather than reactive? a flow chart for management*" [ID42]

Participants who felt agitation management did not need improvement felt that the policy was in place and appeared to be working *the current management improves the agitation in most occasions*' [ID 31- Nurse]. There was acknowledgment across responses that care had improved significantly and old practices such using bandages on patient's hands to prevent treatment interference had now stopped.

Views and opinion

The questionnaire had nine statements relating to agitation management approaches and the Participants were asked to identify how much they agreed or disagreed with each of the statements via a Likert scale. The responses are summarised in Table 4 below.

Participants then had the opportunity to expand on any previous questions.

What's needed?

- A quicker and comprehensive approach to agitation management,

Pragmatic and multifaceted approach is required rather than relying on a single intervention such as restraint or drugs [ID54 Doctor], *multi-pronged attack* [ID72 Physiotherapist] Decision-making needs to be prompt and individual to the patient "*highlight patients who may at risk of agitation to try to have a management strategy in place already possibly working alongside other MDT members*" [ID7-Nurse]. One participant felt that agitation management was only addressed when there was an actual risk, "*seen as a minor side issue instead of being seen as a more important factor in the persons care. Drs whilst happy to prescribe meds tend not to deem the issue important until the patient either pulls out CVC, NGT or trache/ETT*" [ID4 Nurse].

- More support for the staff when caring for agitated patient,

"*Sometimes you feel like senior nurses and doctors don't take you seriously about the patient being agitated and don't help you with prescribing appropriate medication and appropriate staff allocation*" [ID89 Nurse] and further articulated by Nurse [ID 96] "*The requirement for individual staff members caring for an agitated patient to*

Table 4
Responses to the nine statements via Likert scale.

Statement	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
1. An agitated patient is at risk of harm	104 [79.4%]	25 [19.1%]	2 [1.5%]	–	–
2. Having family member present reduces agitation	19 [14.5%]	64 [48.9%]	39 [29.8%]	8 [6.1%]	1 [0.8%]
3. Holding the patient hand when agitated is more beneficial than increasing sedation or applying physical restraint	13 [10. %]	44 [33.6%]	57 [43.5%]	16 [12.2%]	1 [0.8%]
4. Holding the patients hand when agitated is as effective as increasing sedation or applying physical restraint	8 [6.1%]	34 [26.0%]	64 [48.9%]	23 [17.6%]	2 [1.5%]
5. When managing an agitated patient increasing the sedation is the preferred method to maintain safety	4 [3.1%]	36 [27.5%]	39 [29.8%]	41 [31.3%]	11 [8.4%]
6. By applying physical restraints means a patients sedation can be reduced more safety	2 [1.5%]	57 [43.5%]	39 [29.8%]	28 [21.4%]	5 [3.8%]
7. It is preferable to apply physical restraint than increase sedation	2 [1.5%]	37 [28.2%]	46 [35.1%]	38 [29.0%]	8 [6.1%]
8. Families don't mind the use of physical restraint as its for the patient safety	3 [2.3%]	50 [38.2%]	50 [38.2%]	21 [16.0%]	6 [5.3%]
9. I don't believe in the use of physical restraint in the critical care environment	4 [3.1%]	7 [5.3%]	33 [25.2%]	57 [43.5%]	30 [22.9%]

receive relief, support and time away from the agitated patient is sometimes not acknowledged by the wider team. This needs to be built into guidance advice to prevent burn out. Or risk staff becoming "exasperated" with the patient furthering agitation and reducing the ability to effectively manage care." A physiotherapist commented that *"Support worker and nursing staff present at all times. That nurse should not be allowed or asked to leave his/her bed space if their patient has identified at risk delirium to assist others*" [ID60].

- Consistency in care and improvement of sedation practice

"persistent temptation by inexperienced nurses and doctors to sedate their way to the end of the shift!" [ID54 Doctor] and *"inexperienced staff often use benzodiazepine early leading to worsening of symptoms once these drugs have worn off*" [ID14 Doctor]

- Clarity and guidance on physical restraint use.

"Ethically people struggle with the term 'restraint' and feel uncomfortable when physically restraining patients albeit for their own safety" [ID24 Nurse] as well as the effectiveness of the use of the restraint product. Two opposing views were, *"the posey mitts*[1] *we do use at present are next to useless. They do not prevent the patient from pulling at lines. We always go straight for haloperidol without thinking*" [155 Nurse] and *"Posey mitts are considered too much of a restraint. . .I feel they are worthwhile intermediates to progress sedation weans whilst ensuring safe airway management and preferable to 3–5 days failed sedation weans as quite nervous (understandably) nursing staff. Which then results in Traches and long term Rehab patient with severely reduced step-down/wards/tertiary Rehabilitation options*" [ID 60 Physiotherapist]

Preferred method of managing an agitated patient?

Non-pharmacological approaches were viewed as the first intervention such as reassurance, handholding, and distraction, "*reassurance, quiet calm environment, promoting sleep routine, involve family/carers if appropriate*" [ID152-Nurse]. Some referred to good nursing care without specifying what this constituted.

Participants who listed the use of non- pharmacological interventions used phrases such as, *"if we had the time*", or *"in an ideal world*". The use of medication was noted but in *low, safe, small* doses in conjunction with physical restraint. Medications listed were haloperidol, lorazepam and dexmedetomidine but noted was the avoidance of the use of benzodiazepine due to the link with delirium development. The involvement of family in care or being present was mentioned four times in total.

This comment summarises some of the tensions between workload and care provision,

"There are times when I do feel (have felt) staff go for an increase in sedation above using alternative methods. Is this the easy option? A short term solution to a problem someone else will manage later or alternatively is it very necessary in the face of a patient under huge physiological stress at that moment or required at a time when their safety is compromised due to unavailability of staff and/or because the needs and activity in the unit take priority at that moment. There is a balance that has to be struck between individual patient and whole unit priorities at times where safety is the issue" [ID96- Nurse].

Discussion

There is an acknowledgment in the responses of the increased risk of harm in the presence of agitation, 98.5% of participants either agreeing or strongly agreeing to the statement *'An agitated patient is a risk of harm'*. Additionally, 76.3% of respondents felt the management of agitated patients could be improved. Many participants felt equipped in the recognition of delirium and agitation but did not feel they had the knowledge to support decision-making around acute agitation management.

Despite the apparent nervousness expressed within the free text, 66.4% of respondents disagreed or strongly disagreed with the statement *"I don't believe in the use of physical restraint on the critical care environment*" with 25.2% neither agreeing nor disagreeing. Decision-making around the use of physical restraint appears to be influenced by the individual's view and experiential knowledge.

The rationale for physical restraint application offered in other studies is to ensure patient care was delivered (96.1%) (Langley et al., 2011). Mirroring our findings, staff participating in the Luk et al. (2014) study expressed uncertainty as to the effectiveness of physical restraint. Both these authors hypothesised that the presence of agitation was a predictor of physical restraint use and that agitated patients received more medications in combination with restraint for symptom management.

There appears to be a degree of tension between professional groups and decision-making regarding the use of physical restraint, which is also noted across the literature. Nurses commented on the reluctance of medical colleagues to prescribed physical restraint due to the fear of litigation. Whereas, medical staff deeming a prescription unnecessary as there was a policy in place to '*cover them*' (Langley et al. 2011).

There was minimal reference made to the involvement of family involvement in caregiving although 63.4% of respondent either agreed or strongly agreed with the statement that having family presence reduced agitation. This was the view of patients and family in the Tate et al., (2012) study. Yet in this study the clinical staff reported the main trigger for agitated behaviour in patients was attributed to family members visiting.

Alternative approaches such as cognitive simulation, music therapy, prophylactic haloperidol and early mobilisation study have been recommended from previous studies (van den Boogaard et al., 2011). These non-pharmacological methods noted by participants as preferred approaches yet implementation appears constrained by resources.

Strengths and limitations

The study used a revised version of an existing questionnaire, with the support of clinical specialist, we assessed if the questionnaire was fit for purpose and user-friendly. Self-appointed contact staff from all selected sites were used and information sessions provided. Support for the study was sought from the regional network of senior nurse and medical colleagues. Several measures were taken to support a positive response rate such as reminders, local advertisement and the use of an online tool rather than paper copy questionnaires.

There was a limited response rate and within the survey some participants did not answer all questions. Those who did respond may have an interest in the subject area potentially skewing the findings.

The critical care units selected are from one region within the UK. The approaches to care are significantly different over what is a relatively small geographical area and may not be representative of the care delivery across the country or internationally. Policy was inconsistent across the region however due to varied response rates from individual department inferences as to the impact of this could not be drawn. This variance in responses may be reflective of the working pressures within the department

[1] Posey mitts are manufactured soft wrist restraints.

or the engagement with the research project from the self-appointed contact nurse acting as a gatekeeper.

These limitations aside, the study has shone a light on an area of practice, which staff find challenging.

Conclusion

The study has highlighted the need to explore the clinical decision-making process that underpins the care of a patient experiencing agitation. There is a perception that junior members of the team have an over-reliance on the use of sedation and care can be inconsistent due to rotational changes within the MDT, particularly with senior members.

There is an uneasiness regarding the use of physical restraint with valid concern surrounding the legality of physical restraint and what level of restrictive action is permissible. We currently have no evidence to determine the effectiveness of one intervention to prevent treatment interruption over another, which may promote inconsistent care. Yet, there is an element of predictability of agitation development and in these patient groups, early assessment and preventative strategies may negate the need for drastic intervention.

Funding

No funding.

Author contribution

Author Agreement Study design: SF, JY, PD; data collection and analysis: SF, JY, PD; manuscript Preparation: SF, JY, PD.

Declaration of Competing Interest

There are no conflicts of interest to declare.

Acknowledgment

We would like to thank all those who participated in the survey. We would also like to acknowledge the support given from the Greater Manchester Critical care network and The clinical advisory group, Donna Cummings, Rebecca McIntyre, Callum Cox, and Lisa Hinde.

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