The Uptake and Utility of a Protocol for Delirium Prevention: An Evaluation Study

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Abstract
Purpose: The purpose is to report the findings of a study designed to evaluate the uptake and utility of a delirium alert protocol for delirium prevention.

Research design: A mixed methods design was used in this evaluation study.

Intervention: An audit of patient records provided evaluation data before and after implementation of the Delirium Alert Protocol (DAP). Clinical nurses were surveyed to determine uptake and utility of the DAP. A focus group was conducted with clinicians to determine their perceptions of the DAP.

Context: The setting for the study was a busy medical ward in a large tertiary referral hospital in NSW Australia.

Participants: Participants for the study included 26 clinical nurses.

Outcomes: Findings revealed an increase in the diagnosis of delirium and use of interventions for the prevention of delirium. The survey revealed an increased knowledge of delirium and a high level of satisfaction with the DAP. The focus group suggests that “delirium” is referred to more often and that nurses took a more active role in preventing delirium.

Conclusion: The findings of this study suggest Participatory Action Research (PAR), used to develop the DAP, may be an effective approach to practice change.

Key words: Clinical research, mixed methods, protocol, guidelines, delirium prevention, older people, acute care.

INTRODUCTION

Delirium is a common condition experienced by older people who are medically ill and admitted to acute care hospitals (Adamis, Treloar, Martin & Macdonald, 2006). It is an acute condition lasting a few hours but possibly lasting weeks (Blazer, 2008) and whilst highly interrelated with dementia, it contrasts with dementia as a chronic confusional state (Inouye, 2006). The American Psychiatric Association Diagnostic Criteria from DSM-IV (1994) defines delirium as a:

- Disturbance of consciousness (i.e. reduced clarity of awareness of the environment) with reduced ability to focus, sustain, or shift attention. A change in cognition (such as memory deficit, disorientation, language disturbance) or the development of a perceptual disturbance that is not better accounted for by a pre-existing, established or evolving dementia. The disturbance develops over a short period of time (usually hours to days) and tends to fluctuate during the course of the day. (p84)

Delirium is often misdiagnosed and falsely attributed to dementia or depression (Inouye & Young, 2007; Schuurmans, Duursma & Shortridge-Baggett, 2001; O’ Keeffe & Lavan, 1999), or is not detected at all (Maier & Almeida, 2002). Nurses and medical practitioners also mistake the signs and symptoms of delirium as signs of normal ageing (Schuurmans, Duursma & Shortridge-Baggett, 2001). Non-detection rates for delirium have been reported to be between 32 and 67% (Inouye, 1994). With the underlying cause or causes of delirium overlooked, the older person’s illness is under-treated and mismanaged (Schuurmans, Duursma & Shortridge-Baggett, 2001). As a result there is increased risk of morbidity and mortality amongst older patients and increased length of hospital stay and time for rehabilitation resulting in ever-increasing health care costs (Young & Inouye, 2007). It also impacts on the older person’s quality of life.

At admission to hospital the occurrence of delirium in older people is reported to be between 14% and 24%, whilst during hospitalization it is reported to be between 6% to 56% (Inouye, 2006). Among general medical in-patients, the incidence is between 11% and 42% (Inouye & Young, 2007). Between 60% and 80% of hospitalized older people experience at least one preventable episode of delirium (Gillis & MacDonald, 2006) and 30% to 90% are discharged from hospital with the delirium unresolved (Foreman, Wakefield, Culp & Milisen, 2001).

Delirium can be prevented during hospitalization with judicious assessment and management of the predisposing and precipitating factors (Inouye, et al. 1999; Inouye, 2006; Weber, Coverdale & Kunik, 2004). Prevention of delirium reduces its frequency and the associated complications and adverse events of acute hospitalization such as death, falls, and pressure areas (Inouye, 2006). Prevention strategies for delirium focus on identifying and reducing predisposing and precipitating risk factors through the use of multi-component intervention strategies (Inouye, et al., 1999; Inouye, 2006; Milisen, Lemiengre, Braes & Foreman, 2005).

Unfortunately there is a gap between the uptake of best practice guidelines and clinical practice (Grol & Wensing, 2004). Studies show that up to 20% or more of the care given is either unnecessary or it is potentially harmful, whilst 30% to 40% of patients’ care is not based on scientific best practice (Grol & Grimshaw, 2003).

Background to the Study

The DAP was developed by a participatory action research (PAR) group comprising clinical nursing and allied health staff and academic researchers during a research pilot study in 2007 that explored how clinicians might redesign practice for the care of older people with delirium (Day, Higgins & Koch, 2008, 2009a,b).
This paper reports the findings of an evaluation of the uptake and utility of the DAP by nursing staff ten months after its implementation on the ward involved in the PAR pilot study.

THE STUDY

Aim

The aim of the study was to evaluate the uptake and utility of the DAP by nursing staff. The research questions were:

• Has the DAP increased staff members’ knowledge about delirium, its prevention and detection?
• Are clinical staff members aware of the risk factors for delirium?
• Is the DAP utilised by clinical staff?
• Has there been an increase in the use of preventative nursing strategies for delirium?
• What are the staff members’ perceptions of the utility of the DAP?
• What are the staff members’ perceptions of the impact of the DAP?
• What impact has the protocol had on the identification of delirium?

Research Design and Method

A mixed methods design was used in this evaluation study. In choosing mixed methods the researchers believed that the most appropriate approach to answering the research questions was to use ‘what works’ (Tashakkori & Teddlie, 1998, p. 21). In mixed methods approaches both qualitative and quantitative forms of data are collected at the same time and integrated to provide an overall picture of the research problem (Creswell & Plano Clark, 2007).

A repeat retrospective audit of patients’ charts (post-DAP audit) was undertaken to compare the audit of patients’ charts conducted in the 2007 PAR pilot project (pre-DAP audit). The pre-DAP audit was trialled before data collection to determine face validity. A 23 item questionnaire administered to all nursing staff and a focus group interview with clinicians involved in the 2007 pilot was also used. The nursing staff questionnaire was designed to explore the uptake and utility of the DAP on the ward and was developed by the first author in consultation with the researcher team. Face validity was assessed by a panel of expert clinicians. All nurses working on the ward were invited to complete the questionnaire which included questions relating to nursing experience, educational background, and knowledge and awareness of delirium and the DAP and its perceived utility. The focus group explored the perceptions of clinicians from the 2007 pilot regarding changes in practice following the implementation of the DAP. Nine clinical staff members who participated in the PAR project were invited to participate in the focus group interview.

Data Collection

Chart audit: The post-DAP audit was carried out 12 months following the pre-DAP audit. Thirty-seven charts were chosen randomly from patients who were aged 65 years. Demographic data, including age, gender, and diagnoses were collected as well as risk factors for delirium. Documented care, assessment and treatment strategies were also identified.

Staff questionnaire and focus group: Information sessions were provided prior to distribution of the questionnaire. Flyers about the study were also posted on ward notice boards. All nursing staff members were provided with a study information letter and questionnaire with a return self addressed envelope. The nine clinicians who comprised the 2007 PAR group were invited to participate in a focus group. Three members of the PAR group attended the focus group which was held in a private room close to the ward. Participants of the focus group were asked to discuss their perceptions of the uptake and utility of the DAP and the changes they had observed since the use of the DAP.

Data Analysis

Post-DAP audit data were compared with selected items from the pre-DAP audit results. Descriptive and chi-squared statistical analyses were used to identify changes in the awareness, identification and documentation of delirium in the pre and post groups using SPSS version 12. Responses to the survey were analysed descriptively and are described in terms of the number and percentage responses. The focus group meeting was transcribed and was analysed using a process of thematic content analysis to elicit key issues. Significant statements from the qualitative data set were highlighted, clustered, categorised and organized into themes.

Findings

Chart audit: Results from the pre and post-DAP audits are presented in the Table 1 and Figure 1. Patient gender, age and length of hospital stay data are outlined in Table 1. There were no differences in gender or age in the two groups. Despite limiting the age of patients included in the post-DAP chart audit to 65 years and over, the median ages for both groups are similar (pre-DAP 80 years, post-DAP 81 years). There was, however a difference in the mean. In the pre-DAP audit the mean age was 56 years and in the post-DAP it was 81 years. This difference reflects the different sample approaches taken in the pre and post-DAP audits and the uncontrollable influence of a natural disaster on the profile of ward patients during the pre-DAP audit period (age range 29-95 years). Given these differences only selected results are presented.

Ethical Considerations

Ethics approval was given to proceed with the study by the Area Health Service ethics committee. Permission was also obtained from the Hospital Executive and Divisional Manager and the Nursing Unit Manager of the ward selected. Participants were informed that participation was voluntary and that they could withdraw from the study at any time. Consent for participation in the survey was implied through the return of questionnaires to the researchers. Consent for participation in the focus group was sought in writing. Data from audits were de-identified. Confidentiality was assured for all data sources.
Table 1: Patient demographics

<table>
<thead>
<tr>
<th>Patient demographics</th>
<th>Pre-DAP n= 37</th>
<th>Post-DAP n= 37</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19 male (51%)</td>
<td>15 male (41%)</td>
</tr>
<tr>
<td></td>
<td>18 female (49%)</td>
<td>22 female (59%)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Range 29-95 years*</td>
<td>Range 65-99 years</td>
</tr>
<tr>
<td></td>
<td>Mean 56 years</td>
<td>Mean 81 years</td>
</tr>
<tr>
<td></td>
<td>Median 80 years</td>
<td>Median 81 years</td>
</tr>
<tr>
<td>Length Of Stay (LOS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Range 2-49 days*</td>
<td>Range 1-27 days</td>
</tr>
<tr>
<td></td>
<td>Mean 10 days</td>
<td>Mean 11 days</td>
</tr>
<tr>
<td></td>
<td>Median 27 days</td>
<td>Median 9 days</td>
</tr>
</tbody>
</table>

*During the 2007 PAR project, flooding in surrounding areas resulted in an increased length of stay (LOS) for patients from the local area. In light of this we did not compare (LOS) data.

Whilst the purpose of the DAP was to raise awareness of delirium and contribute to its prevention there was an increase in the diagnosis of delirium recorded in the patient charts. In the pre-DAP audit, one patient had a formal diagnosis of delirium identified during the emergency phase of their admission compared to the post-DAP group where five patients had a formal diagnosis of delirium. Whilst this result cannot be directly attributed to the DAP it was encouraging to find delirium documented as a diagnosis on several occasions.

Pre and post-DAP documentation of nursing interventions for the prevention of delirium were compared (see Figure 1). There was an increase in the overall number of nursing interventions documented. Figure 1 suggests that there was more attention paid during the patient’s admission to all categories of preventative care and that this care was documented in the patient’s chart.

Figure 1: Pre and Post-implementation of the DAP Preventive measures and nursing care for Delirium

Nursing Staff Questionnaire

The nursing staff questionnaire was distributed to all clinical nursing staff on the ward (n=37). Twenty-six questionnaires were completed and returned (response rate 70%). The majority of the responses (69%; n=18) were from Registered Nurses. More than half of the responding nurses (54%; n=14) had more than 6 years of nursing experience. Table 2 details respondent demographics.

Twenty-two of the staff (85%) were aware of the DAP. Seventy-three percent (n=19) of staff reported that the DAP was easy to understand and 65% (n=17) reported that it was easy to follow when they first encountered it. When asked if the...
DAP was easy to explain to others, 58% (n=15) agreed, 15% (n=4) were undecided and 8% (n=2) disagreed. Forty-six per cent (n=12) believed the DAP had changed the way they assessed patients. Fifty-four per cent (n=14) of staff perceived they had a greater awareness of the risk factors for delirium with 50% (n=13) aware of the subtypes of delirium (see Table 3). Fifty per cent of the staff indicated that they referred to the DAP often or always. Overall, 65% (n=17) of the staff believed the DAP was useful in identifying patients with delirium and 65% agreed that the DAP was a practical tool. Sixty-nine per cent (n=18) of staff believed the DAP should be kept in its current form.

Table 2: Nursing staff demographics

<table>
<thead>
<tr>
<th>Classification</th>
<th>N=26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Nurse</td>
<td>18 (69%)</td>
</tr>
<tr>
<td>Enrolled nurse</td>
<td>6 (23%)</td>
</tr>
<tr>
<td>Assistant in Nursing</td>
<td>2 (8%)</td>
</tr>
<tr>
<td>Years of experience: &lt;1</td>
<td>3 (12%)</td>
</tr>
<tr>
<td>1-2</td>
<td>4 (15%)</td>
</tr>
<tr>
<td>3-5</td>
<td>5 (19%)</td>
</tr>
<tr>
<td>6-8</td>
<td>2 (8%)</td>
</tr>
<tr>
<td>&gt;8</td>
<td>12 (46%)</td>
</tr>
</tbody>
</table>

Table 3: Staff knowledge

<table>
<thead>
<tr>
<th>Knowledge about subtypes of delirium:</th>
<th>Before the implementation of DAP (n=26)</th>
<th>After the implementation of DAP (n=22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperactive</td>
<td>10 (39%)</td>
<td>13 (59%)</td>
</tr>
<tr>
<td>Hypoactive</td>
<td>5 (19%)</td>
<td>12 (55%)</td>
</tr>
<tr>
<td>Mixed</td>
<td>7 (27%)</td>
<td>13 (59%)</td>
</tr>
<tr>
<td>Awareness of risk factors of delirium</td>
<td>15 (58%)</td>
<td>14 (63%)</td>
</tr>
</tbody>
</table>

Findings from the focus group

Analysis of the focus group data revealed three themes: “using the delirium word”; “taking an active role: recognising triggers”; and “ongoing challenges”.

Using the “delirium” word

Following the PAR project and the introduction of the DAP, participants were more conscious of the possibility that a patient might have delirium or may have risk factors for delirium. Being more conscious of delirium and being armed with the evidence, nurses were more assertive with medical officers when seeking clarity about whether acute confusion was indeed delirium as the following shows:

So when they [referring to medical staff] say, “oh they’re a bit confused”, I’d say, “so we’re talking delirium here? Or are we talking dementia? What are we talking here?” And it’s usually, they’d [medical officer] say,” oh, it probably is delirium, or it is delirium, because they’re ureaseptic or whatever.”

Taking an active role: recognising the “triggers”

Participants said they paid more attention to assessing their patients for risk factors of delirium and that they were pro-active in this regard. They ensured communication across shifts and with all health care staff and they monitored and documented their concerns. They looked out for the risk factors of delirium, discussed these at nursing handover, urged action and followed up. For example, they routinely monitored bowel patterns, the presence of pain and pain medication, and the older patients’ nutrition and hydration status. Once risk factors were detected, they implemented nursing interventions according to the DAP.

People [nursing staff] are actively saying at every handover, “bowels open, bowels not open”, and then saying, “it’s been three days, we need to do something about this”. So things are being passed on, because that’s our primary [concern] with delirium, those are the triggers that we’ve noted over the last year or so, since we’ve taken an active role in recognising the triggers.”

Participants also believed that that there were important changes in nursing care and improved patient outcomes, particularly in the use of physical and chemical restraints, and a multidisciplinary approach to care.

We don’t use restraints a lot any more. It’s really different management; the actual use of restraint, because they have developed delirium on the ward, it is, I would say, nearly non-existent, I’d be comfortable in saying that it would be nearly non-existent now…./..So we’re starting to get the interrelationships going on between the… multidisciplinary team.

Ongoing challenges

On the other hand, participants also noted ongoing challenges with the implementation of the DAP and the prevention of delirium. Casual staff and medical staff roster rotations meant that the participants were constantly revisiting the prevention of delirium and maintaining awareness of the need for assessment of risk factors and management of these in a timely manner.

That’s a challenge to the ward to continue to put it [delirium prevention] forward… every new person who comes or someone who doesn’t work here regularly [needs to be reminded of the prevention of delirium and the DAP]. So you’re kind of leading them [with reference to the resident medical officer] a little bit along that way. Because our doctors rotate every two months it is a bit of a challenge.

DISCUSSION

Limitations

There were several limitations to the study. This study and the PAR study were designed as pilot studies to test methods and measures for a multi-site PAR study. The number of charts audited for this study was small (n=37) and therefore the results should not be considered predictive or generalisable. Unfortunately sampling methods between the groups differed so that the results could not be meaningfully compared. The post-DAP audit tool was adapted from the pre-DAP audit and focused only on data relevant to the study’s aims. In addition, only nursing staff were surveyed regarding the uptake
and utility of the DAP. A survey of medical and allied health staff who work on the ward concerned would have provided a more complete picture of the impact of the DAP. Further, there were only three participants of the original PAR group (n=9) who attended the focus group meeting, and these participants may have been highly committed to positive results for the DAP.

Uptake and utility of the evidence-based protocol

The findings of this study suggest that implementation of evidence-based practice is achievable using PAR and that it has been achieved through the collaborative development of the DAP based on evidence-based guidelines in this small study. The findings show an increase in the documentation of preventative nursing strategies for delirium and diagnosis of delirium. The increased detection of delirium suggests an increased knowledge of delirium and its risk factors.

The focus group findings suggest that clinicians were empowered to promote prevention amongst staff, to communicate their new-found knowledge and assert themselves during nursing and medical handover. The combined impact of placing the DAP on each patient’s bed side chart, monitoring risk factors, such as elimination patterns, and using the word “delirium” as a prompt for diagnostic consideration at handover raised awareness and knowledge amongst clinical staff.

CONCLUSION

The findings of this study highlight the potential for practitioner-led adaptation of best practice guidelines and suggest PAR, used to develop the DAP, is an effective approach to practice change. In addition, the apparent utility of the DAP provides insight into ways in which practitioners might adapt evidence-based guidelines for practice. Given that the DAP focuses on risk factor identification and multidisciplinary approaches to the prevention of delirium it may pave the way forward for more comprehensive and effective assessment of all older patients in the acute care setting. Further research needs to be directed towards exploring the potential of practitioner-led change on the health outcomes for older people. The effectiveness of the DAP also needs to be implemented and evaluated in other relevant acute care settings.

ACKNOWLEDGEMENTS

The authors would like to acknowledge the health care professionals and researchers who actively participated in the PAR pilot study and who continue to redesign their clinical practice using the actions from this PAR process. The authors also acknowledge the support of the School of Nursing and Midwifery, Faculty of Health, Newcastle University, Australia and the Division of Medicine at the John Hunter Hospital, Newcastle, Australia.

References


