Delirium in the elderly. A survey of environmental policies and procedures in Melbourne hospitals

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Abstract

This study aimed to review the presence of policies for management of behavioural symptoms and physical restraints, the availability of delirium management protocols and educational programs, and accessibility of a physical environment appropriate for the management of delirium in Melbourne hospitals. A structured survey tool was developed, and 70 Melbourne hospitals were surveyed seeking responses from a senior member of the nursing staff. Overall, 90% of Melbourne hospitals responded to the survey. It was found that smaller hospitals have fewer policies relating to the management of behavioural symptoms, and fewer delirium management protocols. Some education is available for nursing staff; however, less for the night staff, who often manage behavioural symptoms associated with delirium. Physical restraint policies exist at most hospitals. Single rooms and night lights are generally available, but low-low beds and orientation devices are relatively uncommon.

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What is known about the topic?

Delirium is associated with poor outcomes in hospitalised older patients. Environmental strategies are an important part of delirium management, but few studies address this.

What does this paper add?

This paper is the first to report the results of a survey of environmental policies and procedures relating to the management of delirium in Melbourne hospitals. Most Melbourne hospitals do not have a delirium management protocol. There is variation in policies surrounding management of behavioural symptoms, including physical restraint policies.

What are the implications for practitioners?

This study suggests that the level and effectiveness of policies relating to delirium management should be assessed. Education surrounding the implementation of policies and procedure is important, particularly for night-nursing staff. Increased use of some simple environmental modifications should also be considered.

DELIRIUM IS A COMMON and serious clinical condition among hospitalised elderly patients. The development of delirium is associated with higher rates of morbidity and mortality, prolonged hospital stay and the need for long-term residential care.[1-3] The cause of delirium is usually multifactorial. It results from the interaction between an individual's predisposing factors or vulnerability (eg, advanced age, cognitive impairment) and precipitating factors or insults (eg, medications, physical restraints).[4] Many risk factors for delirium in hospitalised elderly patients relate to the setting. These include immobility, sleep deprivation, sensory impairment and iatrogenic events.[4,5] These can either be a direct cause of delirium or influence an individual's underlying vulnerability. However, few of these factors have been systematically studied, and recommendations are based largely on expert opinion.[5]

1 Survey tool (abbreviated version)

Policy

- Is there a hospital policy for management of aggression or severe agitation?
- Are one-to-one nursing specials/constant observation available for patients with agitation?
- Is there a hospital policy for use of physical restraints?
- What types of restraints are available? (vests, mittens, wrist and ankle, concave chairs, bed rails)
- How often are restraints released?

Education

- How often do nursing staff receive education regarding the use of hospital protocols, procedures and policies relating to delirium management?
- Do night staff receive education regarding the use of hospital protocols, procedures and policies relating to delirium management?

Models of care

- Is there a delirium unit? Is it part of an "acute care of the elderly" unit?
- Is there a hospital protocol for delirium management?

Physical environment

- Are single rooms available?
- How many low-low beds does your hospital/ward possess?
- What proportion of patient rooms have natural light?
- Are night lights available (eg, bedside lights)?
- Are clocks present in the majority of rooms?
- Are orientation boards available for use?

A prospective observational Canadian study of medical inpatients found that physical restraints, absence of a clock or watch, absence of reading glasses, multiple room changes and care in an intensive care unit or a long-term care ward were associated with higher delirium symptom severity scores.[6] The Yale Delirium Prevention trial was the first clinical trial to show that delirium can be prevented in hospitalised older patients. It involved a multicomponent strategy using standardised protocols to manage six risk factors for delirium including cognitive impairment, sleep deprivation, visual and hearing impairment, immobility and dehydration. It lowered the incidence of delirium, duration of delirium and episodes of delirium in the intervention group compared with the control group.[7]

The National Clinical Practice Guidelines for the Management of Delirium in Older People have been recently developed.[5] The implementation of guidelines needs support from structural determinants through organisational policies, education and training programs and appropriate environmental assessment and modification. This is an important area to explore, as simple modifications could potentially reduce the length and severity of delirium. This may also have future implications when considering hospital ward restructuring or the building of new health care facilities.

This study reviews the presence of policies for the management of behavioural symptoms and use of physical restraints; the presence of delirium management protocols; availability of education programs and aspects of the physical environment in Melbourne hospitals.

Methods

This study involves all public and private Melbourne hospitals, identified from the Department of Human Services website.[8,9] The subacute care inpatient services, geriatric evaluation and management and rehabilitation, were included in the survey (interim care and subacute ambulatory care services were excluded).[10] Hospitals *primarily* for paediatrics, obstetrics and gynaecology, psychiatry, and day-procedure units and palliative care units were excluded. Overall, 70 Melbourne hospitals were eligible for inclusion in the study.

Survey development

A structured survey tool was developed by the authors following a review of the literature and the recently developed clinical practice guidelines.[5] The domains of enquiry included: organisational use of policies relating to management of behavioural symptoms and physical restraints; availability of organisational protocols for delirium management; use of delirium education and training programs; and availability of delirium rooms/units, single rooms, night lights, low-low

beds and orientation devices (Box 1). The survey tool was designed for a target audience of senior members of nursing staff to be completed by telephone, email or mail.

Survey dissemination

Multiple methods of dissemination were used to optimise the survey response rate. An initial telephone call to the Director of Nursing (DON) or another senior member of the nursing staff was followed by a mailed survey or email, then a further phone call. Respondents were able to respond using their choice of communication.

The survey results were entered into a database and analysed using the statistical software Minitab (Minitab Inc, State College, PA, USA). Simple descriptive analysis was undertaken.

2 Demographics

	Hospital size			
	Small (<100)	Medium (100-200)	Large (>200)	Total
No. of hospitals	30	18	15	63
Public	9	8	10	27
Private	21	10	5	36
Type of care provided				
Subacute	14	6	2	22
Acute	16	12	13	41
Respondent				
NUM	16	8	4	28
DON	7	6	7	20
Other	7	4	4	15
Facilities/ service				
ED	3	6	11	20
CCU	0	8	13	21
HDU/ICU	7	9	13	29
Ortho	15	9	14	38
CT/Surg	0	3	8	11
N/Surg	1	3	7	11

NUM = nurse unit manager. DON = Director of Nursing. ED = emergency department. CCU = coronary care unit. HDU/ICU = high dependency unit/intensive care unit. Ortho = orthopaedic surgical service. CT/Surg = cardiothoracic surgical service. N/Surg = neurosurgical service.

Results

The overall response rate to the survey was 63/70 (90%): public hospitals 27/31 (87%), private hospitals 36/39 (92%). The initial telephone surveys took place between March and May 2007. Following this, 16 hospitals who failed to respond were sent the survey addressed to the DON and were then followed up with a telephone call. As a result, a further nine hospitals responded. Seven hospitals did not respond to the survey: three were private hospitals and four were public hospitals. Of the private hospitals, both acute care and subacute care hospitals were included. The public hospitals that did not respond were all large acute care hospitals and were spread across hospital networks (ie, different areas of Melbourne).

Demographics

Surveys were completed by various senior members of nursing staff and included; DONs/Associate DONs, (32%); Nurse Unit Managers/Associate Nurse Unit Managers (NUM) (44%); Nursing Coordinators (14%); Consultation–Liaison Psychiatric Nurses (3%); Director/Managers Clinical Services (3%); Operations Directors (2%) and Patient Access Managers (2%) (Box 2).

Most hospitals in the survey were small — 48% had less than 100 beds (Box 2). The private hospitals tended to be small: 58% of private hospitals were small, while only 33% of public hospitals were small. Of the hospitals that responded, 35% were subacute facilities (rehabilitation or subacute aged care). The facilities available at each of the 63 hospitals included in the survey were orthopaedic surgery (60%), intensive care unit or high dependency unit (46%), coronary care unit (33%), emergency department (32%), cardiothoracic service (17%) and neurosurgical service (17%) (Box 2).

Given that 44% of respondents were NUMs, additional information was collected related to the ward they managed. The majority of the

3 Survey response by hospital type

Policy or environmental factor	Type of hospital, no. (%)				
	Subacute (*n*=22)	Acute (*n*=41)	Small (*n*=30)	Medium (*n*=18)	Large (*n*=15)
Aggression/agitation policy	20/22 (91%)	30/40 (75%)	20/29 (69%)	15/18 (83%)	15/15 (100%)
One-to-one nursing available	16/22 (73%)	38/41 (93%)	22/30 (73%)	17/18 (94%)	15/15 (100%)
No restraint policy	6/22 (27%)	6/40 (15%)	6/29 (21%)	3/18 (17%)	3/15 (20%)
Minimal restraint policy	9/22 (41%)	8/40 (20%)	10/29 (34%)	4/18 (22%)	3/15 (20%)
Delirium management protocol	7/22 (32%)	12/39 (31%)	6/29 (21%)	4/18 (22%)	9/14 (64%)
Annual education policy	14/21 (67%)	22/37 (59%)	15/29 (52%)	7/14 (50%)	14/15 (93%)
Night-staff education	20/21 (95%)	27/40 (68%)	26/30 (87%)	13/18 (72%)	8/13 (62%)
>5 low-low beds	13/22 (59%)	13/41 (32%)	11/30 (37%)	5/18 (28%)	10/15 (67%)
Clocks	12/22 (55%)	6/40 (15%)	11/30 (37%)	5/17 (29%)	2/15 (13%)
Orientation boards	16/22 (73%)	13/41 (32%)	14/30 (47%)	9/18 (50%)	6/15 (40%)

Varying denominators due to incomplete response.

4 Physical restraints

Types of physical restraints available	No. of hospitals (%)	
Bed rail	58/62 (94%)	
Belts	27/59 (46%)	
Wrist and ankle	23/59 (39%)	
Concave chairs	23/59 (39%)	
Mittens	18/59 (31%)	
Vests	3/56 (5%)	
Release of physical restraints	**(*n*=51)**	**VCH**
Half hour	2 (4%)	0
1 hour	15 (29%)	4
2–4 hours	8 (16%)	2
8 hours	2 (4%)	1
Variable (case by case)	4 (8%)	0
No time specified	10 (20%)	3
Don't know	10 (20%)	0
Not applicable (NRP)	12	

NRP = no restraint policy; VCH = visual checks performed at least hourly.

wards represented were medical, surgical or combined (71%), with a fairly even representation.

Nearly one-third (32%) of hospitals identified that they have a dementia consultant. For some respondents, a "dementia consultant" was a geriatrician, for others, a consultation–liaison psychiatric nurse. One hospital identified a cognitive nurse (Clinical Nurse Consultant) as a dementia consultant.

Policy

There was a hospital policy for management of aggression or severe agitation (ASA) at 83% of hospitals surveyed. Public hospitals were more likely to have an ASA policy (96%) when compared with private hospitals (74%); however larger hospitals were also more likely to have an ASA policy (Box 3).

One-to-one nursing specials were available at 86% of the hospitals surveyed. They were slightly more likely to be available in public hospitals (89%) when compared with private hospitals (83%); and were also more likely to be available at acute care hospitals (93%) when compared with subacute care hospitals (73%) (Box 3).

Physical restraints

The majority of Melbourne hospitals reported a policy for use of physical restraints (97%). Overall, 19% have a "no restraint" policy (NRP) and 27% of subacute hospitals have an NRP. A number of hospitals reported using physical restraints infrequently, mainly in emergency situ-

ations such as when security staff are required. This is referred to as a minimal restraint policy (MRP). Note that MRP includes NRP (Box 3).

The most common type of physical restraint available for use was the bed rail (94%). The question asked specifically about the types of restraints available, listing the options described in Box 4. Some hospitals have bed rails available despite having an NRP. In a few instances, it was specified that the bed rail was used for transporting patients or at patient request. Other hospitals also report the use of concave mattresses and table overlays as forms of physical restraints.

Physical restraints are released hourly (or more frequently) in 33% of Melbourne hospitals that use restraints. Of the ten hospitals with no time specified, seven indicate that they release restraints on shift change or when supervised. Although not specifically asked, ten hospitals reported that visual checks are performed at least hourly while a patient is physically restrained (Box 4).

Education

Questions were asked about the availability of education for nursing staff concerning hospital protocols, procedures or policies relating to the management of delirium. The responses to these questions were quite variable. Sixty-two percent of hospitals report that nursing staff receive education relating to an aspect of delirium management on at least an annual basis (Box 3). This varies from self-directed learning packages and manuals being available on the ward to ongoing education at ward level. Night staff receive education regarding use of hospital protocols, procedures or policies relating to delirium management in 77% of the Melbourne hospitals surveyed — less than the day staff (93%).

Models of care

A delirium unit is available at two of the hospitals surveyed, however not as part of an acute care of the elderly unit. A delirium management protocol is available at 31% of hospitals surveyed and is more likely to be available in public hospitals (12/26; 46%) compared with private hospitals (7/35; 20%).

Physical environment

Single rooms are available at all Melbourne hospitals surveyed and night lights are available at all but one. Thirty-two percent of Melbourne hospitals do not have low-low beds and 59% have five or less (Box 3). There are more low-low beds available for use in subacute wards. Hospitals with an NRP or MRP do not have more low-low beds than hospitals without these policies.

Clocks were present in the "majority of rooms" in 29% of Melbourne hospitals. This was more likely in small hospitals (37%) and subacute hospitals (55%) (Box 3). Orientation boards were available in 46% of Melbourne hospitals. They were more likely to be available in subacute hospitals (Box 3).

Discussion

This study is the first to document the availability of current policies and practices relevant to environmental aspects of delirium management in Melbourne hospitals and contributes important information to the body of knowledge for the management of delirium in the elderly. Overall, the interest among senior members of nursing staff was high, as reflected in the 90% response rate.

The hospital physical environment seems suboptimal for older patients with delirium. This study indicates that while single rooms and night lights are available at nearly all hospitals, there are very few low-low beds available for use and orientation devices are not commonly used.

Physical restraints are often used for agitated or confused patients as part of managing behaviour such as wandering and interference with medical equipment.[11,12] The use of physical restraints is not supported by evidence of efficacy or safety.[13] In a study by Inouye et al, physical restraints were found to be an independent risk factor for the development of delirium with an adjusted relative risk of 4.4 (95% CI, 2.5–7.9).[4] The use of physical restraints during delirium was also found to be a predictor for its persistence at hospital discharge (OR, 3.2; 95% CI, 1.9–5.2).[14]

Our study indicated that physical restraints are a part of hospital practice, with nearly all Mel-

bourne hospitals reporting having a policy for the use of physical restraints. There was variability within these policies; 33% reported that they are released hourly or more frequently and others reported that they are not released. The availability of physical restraint policies and types of restraints certainly does not indicate the frequency of use in elderly patients. It may be that some hospitals rarely use restraints and are therefore not as familiar with the hospital physical restraint policy. A reasonable number of hospitals, both acute and subacute, report having an NRP or MRP. It would be interesting to explore the factors that enable these hospitals to manage patients without physical restraints as opposed to those that choose to use physical restraints. Having an NRP or MRP did not correlate with the number of low-low beds available.

One-to-one nursing specials are available at most Melbourne hospitals, although guidelines surrounding their use is not clear and many respondents report that there are not enough available. The provision of this service seems to be less in subacute facilities. It is on these wards that staff are often managing elderly patients with complex care needs at high risk for the development of delirium and also where nurse-to-patient ratios are lower compared with acute wards.[15]

Delirium is best managed by clinicians with expertise in delirium management and should involve a multidisciplinary approach to care.[5] While this is important, it is beyond the scope of the survey and requires a more detailed enquiry. Flaherty et al first described delirium rooms as a specialised four-bed unit providing 24-hour intensive nursing, free of physical restraints as a part of an acute care of the elderly (ACE) ward along with a multidisciplinary approach to care.[16] Two Melbourne hospitals (3%) identify having a delirium room/unit although neither as a part of an ACE ward. These require further evaluation, and some have questioned the need for delirium rooms and the cost-effectiveness of the intervention.[17]

A delirium management protocol is available at less than a third of Melbourne hospitals surveyed. However, education remains central to the recognition, prevention and management of delirium: without appropriate education in guidelines, practice is not improved.[18] No clear conclusions can be drawn from the data surrounding education for day staff. However, there seems to be less education for night staff who are often managing behavioural symptoms of patients with the hyperactive subtype of delirium whose symptoms often worsen at night (sundowning).

There are a few caveats that require comment. The survey was completed by a single member of nursing staff giving responses to reflect the entire hospital. This does not allow for differences in wards within a hospital to be addressed. The different modes of communication of the survey may also be a potential source of error. The range of senior members of nursing staff represented in the study was intentional but this may also have had an influence on the answers given. For example, generally DONs were more likely to report that they had a delirium management protocol and education for staff. However, the respondent types were also fairly evenly spread in terms of acute/subacute and private/public hospitals. The study also relies on the person completing the survey to have a reasonable understanding of delirium. The literature suggests that delirium is under-recognised, in particular the hypoactive subtype where the patient is quiet and a "model patient".[19] What impact this has on the study is unclear. While a few responders said "We don't have patients with delirium" the questions were not aimed at the recognition of delirium, which is certainly also an important area. This study focused on current hospital policies and practices available as well as the physical environment.

This study provides valuable information regarding the current policies and practices relevant to the management of delirium in Melbourne hospitals. In the light of this survey, it is felt that the following could be valuable:

- Assess clinician adherence and the effectiveness of a delirium management protocol;
- Address the current level and effectiveness of education for nursing staff surrounding current policies and protocols for delirium management;

- Assess the effectiveness of no-restraint policies and use of one-to-one nursing in acute and subacute facilities to guide future recommendations;
- Assess outcomes and cost-effectiveness of a delirium room; and
- Assess the benefit of low-low beds and orientation devices in terms of functional outcomes, complications and cost.

Competing interests

The authors declare that they have no competing interests.

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