Prevalence rate of delirium at two hospitals in Western Australia

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KEY WORDS

delirium, confusion, dementia, acute care, prevalence audit, elderly patient

ABSTRACT

Objective
To estimate the prevalence of delirium in patients on 15 medical and surgical wards at two hospitals in Western Australia.

Design
Following a review of the literature on delirium a standardised data collection tool was developed and four prevalence audits were conducted over a four week period at the target hospitals. The nurse coordinator on each ward was asked to identify any patient who was experiencing a delirium or who was confused. These patient's records were then examined for documentation that confirmed the presence of delirium or confusion.

Main outcome measures
The audit measured those patients with a confirmed documented delirium and identified patients who had a possible delirium superimposed on a confirmed or suspected dementia or unconfirmed organic brain disorder. Patients with a known dementia or organic brain disorder who displayed symptoms of confusion but had no evidence of delirium were also identified.

Results
Of 1209 patients surveyed in four prevalence audits, 132 patients (10.9%) displayed behaviours suggestive of the presence of delirium; however only 48 of the 132 patients had a confirmed diagnosis of delirium. The remaining 84 patients displayed features of delirium that were superimposed on symptoms of dementia (diagnosed/undiagnosed) or an organic brain disorder. An additional 51 (4.2%) of the 1209 patients were identified with confusion resulting from other causes.

Conclusions
Accurate assessment of delirium is particularly important in elderly people where behaviours associated with delirium are often assumed to be caused by dementia. This may result in delirium going undiagnosed and untreated.

INTRODUCTION

As the population ages, nursing staff in acute hospitals are caring for an increasing number of elderly patients. Many of these patients present with confusion during their hospitalisation. The associated presenting behaviours impact on nursing care workloads and ward acuity levels. The causes of confusion can be associated with dementia, delirium, organic brain disorders or a combination of these conditions. It is acknowledged that delirium may go unrecognised and untreated in some of these patients. Therefore, it is important to identify the extent of the problem to enable development of appropriate management strategies. In order to determine the occurrence of confusion and the likelihood of delirium in this group of patients a prevalence audit was conducted at two hospitals in Western Australia.

Definition

Delirium is a short-term disturbance of consciousness which lasts for as little as a few hours to as much as a few months (Marcantonio et al 2000; Inouye et al 1999). Delirium is characterised by acute onset, inattention, and disorganised thinking, or an altered level of consciousness. To be diagnostic of a delirium, these features must fluctuate over the course of the day, be attributable to a general medical condition and/or the use of substance(s), and must not be better explained by a pre-existing or evolving dementia (American Psychiatric Association 1994).

Incidence

Delirium is a common management problem facing health professionals and is reported to occur in up to 62% of hospitalised elderly orthopaedic patients (Olofsson et al 2005). While the incidence is much lower (9.4% to 20%) in younger hospitalised patients without pre-existing cognitive impairments or other comorbidities (Milisen et al 2002; Lynch et al 1998) it may rise as high as 89% when dementia is involved (Fick et al 2002). Research suggests that delirium is undiagnosed in 25% of cases (Young and George 2003) and up to 87.5% when dementia was also involved (Fick 2000 cited in Milisen et al 2002). Delirium is often present on admission (McCusker et al 2003) and sometimes increased confusion is the first or only sign of a developing medical problem (Meagher 1998). In spite of the high incidence of delirium, many cases are not identified in clinical practice. It is also clear that some patient populations are at higher risk than others.

Mortality and Morbidity associated with delirium

Delirium remains poorly recognised and under-diagnosed and therefore often untreated (Hustey et al 2003; Inouye et al 2001; Inouye et al 1999). Some researchers have expressed concern regarding the different use of terms to describe this condition (O'Keeffe 1999) and the resulting lack of recognition of this disorder. Delirium is a serious medical problem that has profound negative effects on mortality and morbidity (Leslie et al 2005; Cole 2004; McCusker et al 2002) and health care costs, including length of stay (Olofsson et al 2005; Cole 2004; Saravay et al 2004).

Risk factors

A range of risk factors have been identified in the literature. These can be divided into predisposing factors and 'precipitating factors' which arise during or lead to admission. Predisposing factors include cognitive impairment (Freter et al 2005; Korevaar et al 2005; Morrison et al 2003; Schuurmans et al 2003); visual or hearing impairment (Schuurmans et al 2003; Elie et al 1998; Inouye et al 1993; Schor et al 1992); impairments in activities of daily living (Freter et al 2005; Korevaar et al 2005; Schuurmans et al 2003); age (Freter et al 2005; Santos et al 2004); male gender (Williams-Russo et al 1992); cigarette smoking (Santos et al 2004); alcohol abuse (Williams-Russo et al 1992); depression (Elie et al 1998); and hypertension (Santos et al 2004).

Precipitating factors include severe illness or infection (Edlund et al 2001; Inouye et al 1993); fracture on admission (Schor et al 1992); extended time from admission to surgery (Schuurmans et al 2003); abnormal blood test results (O'Keeffe and Lavan 1996); and use of neuroleptic medications or opioids

(Flacker and Marcantonio 1998). A recent literature review found evidence that inadequate use of opioids was more likely to be a risk factor than the use of opioids (Gaudreau et al 2005).

METHODS

Five researchers sought to determine the occurrence of delirium in the medical and surgical wards at two hospitals in Western Australia by conducting a prevalence audit on one day of each week for four consecutive weeks.

Data collection tool

A comprehensive review of the literature was conducted to identify the common causes, risk factors and presenting symptoms of confusional states. Following this an audit tool was designed, piloted and modified prior to data collection. The audit tool collected the following information:

a) gender, age and admission diagnosis;

b) data on behavioural descriptors associated with delirium, for example: agitated, wandering, plucking/pulling, disorientated, verbal abuse, lethargy and hallucinating;

c) data on the onset of confusion, if the confusion fluctuated or was constant, and evidence of a diagnosed dementia, aswell as other contextual data for example: a history of onset, duration and frequency of altered mental status; details of the patient's recent functional, cognitive and behavioural history; evidence of predisposing and/or precipitating factors; number and types of medications; if medications were linked to a possible delirium; and evidence of other causes of confusion; and

d) any additional comments made by the auditor.

Identifying confused patients

When piloting the data collection tool, the researchers identified that often in the clinical setting staff use the term 'confused' to describe people who were displaying symptoms highly suggestive of a delirium. Therefore on each of the four prevalence audit days, the researchers asked the nurse coordinator to identify patients on their ward that were experiencing a delirium or who were confused. As some patients with delirium may be withdrawn and quiet, the coordinators were also asked if there were any patients on the ward who had fluctuating or inappropriate behaviours that would suggest the hypoactive type of delirium.

During each audit the researchers examined the patient's records to look for written verification of a patient having been identified by a nurse as having a delirium or being confused, for example: statements such as 'delirium secondary to a urinary tract infection' and 'confusion post-operatively' or descriptors such as 'plucking/pulling, hallucinating and verbally aggressive'.

The auditors did not attempt to diagnose delirium after reviewing a patient's records but did record a diagnosis of delirium if this had been clearly documented by a health care professional. To explain the most likely cause of each patient's presenting behaviour the auditors categorised each patient into one of the following groups:

1A: a diagnosed delirium that may or may not be hospital acquired;

1B: possible delirium or yet to be confirmed dementia or organic brain disorder;

1C: possible delirium super-imposed on a confirmed diagnosis of dementia;

2: behaviour related to a confirmed diagnosis of dementia;

3A: behaviour related to an organic brain disorder that may/may not resolve; or

3B: behaviour related to a probable unconfirmed dementia.

Inter-rater reliability

During the audit each patient was assigned a category by two of the auditors based on information obtained from the record. The research team then met and discussed the rationale behind each classification to

ensure consensus. In addition, inter- rater reliability can be demonstrated throughout the audit, for example, 42 patients were identified on more than one occasion over the four week period as being confused and were assigned the same category rating by different researchers; discrepancies between rating only occurred on three (1.6%) of the 183 occasions.

Ethics

The study was registered with the hospital as a quality activity and the Chair of the hospital Human Research Ethics Committee was informed that the audit was being conducted. No name identified data were collected and the patient unit medical record number was used as a unique identifier.

RESULTS

A total of 1209 patients were reviewed during the four prevalence audits conducted over four weeks (13 April - 14 May 2006) on 15 medical and surgical wards with 183 (15%) patients identified as displaying behaviours associated with a delirium or confusion. The 183 patients consisted of 107 (58.5%) females and 76 (41.5%) males with an age range from 33 years to 96 years and a mean age of 80.5 years. Of the 183 patients, 132 (72%) displayed behaviours that could be deemed to be associated with the presence of a delirium and these patients were coded into three sub-categories, 1A, 1B and 1C (see table 1).

Table 1: Patients displaying behaviours suggestive of delirium

Descriptors	Number of patients	Category
Possible delirium superimposed on a confirmed dementia	58 (44%)	1C
Diagnosed delirium that may or may not be hospital acquired	48 (36%)	1A
Possible delirium or yet to be confirmed dementia or an organic brain disorder	26 (20%)	1B
Total	132 (100%)	

Patients in these categories all displayed behaviours related to either a documented diagnosed delirium or behavioural changes strongly suggestive of an undiagnosed delirium. The highest percentage (44%) of these patients had a co-morbidity of dementia and the acute fluctuating behaviours recorded by nursing and medical staff were strongly suggestive of a superimposed delirium. A further 20% possibly had an undiagnosed dementia or organic brain disorder but the presence of precipitating factors, such as infection, and the fluctuating nature of their behaviour were also highly suggestive of a delirium.

The remaining 51 (28%) of the 183 patients had difficult but constant behaviours that often created nursing care problems, however the patients' records clearly indicated that the most likely causes were directly attributed to a diagnosed dementia or an organic brain disorder and not a delirium (see table 2).

Table 2: Patients displaying behaviours associated with dementia or organic brain disorder

Descriptors	Number of patients	Category
Behaviour related to a confirmed diagnosis of dementia	29 (57%)	2
Behaviour related to an organic brain disorder that may or may not resolve	15 (29%)	3A
Behaviour related to a probable unconfirmed dementia	7 (14%)	3B
Total	51 (100%)	

Limitations

It was evident during data collection that nurses were desensitised to patients displaying confused behaviours particularly if the behaviours did not impact on the provision of care. Therefore it is likely that the number of patients with 'confusion' were under reported.

DISCUSSION

The ability to discern where a delirium is superimposed on dementia is an important factor to ensure

that the health status of elderly patients is not compromised during their hospitalisation.

It was clearly evident that staff do not always have adequate information on a patient's level of pre-hospital cognitive, behavioural and social functioning and as a result may assume that the presenting behaviours are 'normal' (O'Keeffe 1999). Elderly patients presenting with confusion were sometimes labelled as having dementia without a formal assessment confirming the diagnosis documented in their notes. Health professionals' ability to recognise delirium was also clouded by the complexity of presenting problems which may have accounted for changes in patients' cognition and/or behaviours such as: dementia, depression, side effects of medication and other conditions. As delirium is a predictor of mortality and morbidity particularly in the elderly (McCusker et al 2002; Inouye et al 1999; O'Keeffe 1999) it is important that documentation of pre existing cognitive functioning is accurately recorded.

A common descriptor identified in the audit was the use of the term 'confusion' by health professionals to describe clusters of behaviours originating from a variety of causes. The acceptance of the use of the term confusion as a 'diagnosis' was apparent throughout the audit. The term confusion appeared to initiate risk management strategies but there was often little evidence of further investigation to determine a cause of the presenting behaviours. Documenting behavioural descriptors beyond the term 'confused' would facilitate a more accurate assessment and diagnosis of delirium in patients.

This study found that caring for confused patients is a common occurrence in the acute care situation and it is highly probably that a percentage of these patients will experience a delirium which can go unrecognised and therefore untreated. The audit demonstrated that only 36% of patients with behaviours that were highly suggestive of delirium had a confirmed written diagnosis in their patient record. As delirium has a significant negative impact on the patient, their family, health professionals and the health care system, the lack of recognition of this syndrome may have far reaching health, social and economic costs long after the patient is discharged.

It was also evident from the audit that patients presenting with behaviours suggestive of the hyperactive form of delirium were more easily recognised than those with a presentation suggestive of a hypoactive delirium. As patients with the hyperactive form of delirium impact on the level of acuity on the ward and on health professionals' workloads (Moore et al 1995) they quickly become known within a ward population due to the resource issues that arise.

When patients experience delirium during their hospitalisation their length of stay in hospital is often significantly increased. Some researchers have quantified the increased burden placed on health professionals and the health care system by these patients. For example, one group found that non-delirious patients had a mean stay of 4.6 days but this increased to 6 days for patients who experienced a delirium (Franco et al 2001).

CONCLUSION

The findings of this prevalence audit demonstrated that delirium is a major challenge for health professionals and a frequent cause of confusion in patients in medical and surgical wards of acute care hospitals. The cost of delirium extends well beyond the patient's discharge from the acute care situation therefore it is of paramount importance that health professionals facilitate prevention or early recognition. With an increasing ageing population, health professionals will be regularly challenged to recognise and manage delirium along with other presenting confusional states.

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