

## Commentary

# Dealing with the delirium dilemma

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See related research by Thomason *et al.* in this issue [<http://ccforum.com/9/4/R375>]

### Abstract

Delirium is a frequently occurring but often under-diagnosed and under-treated problem in the intensive care unit (ICU). It has been linked to adverse outcome, increased length of stay and higher mortality in critically ill patients. A study by Thomason and coworkers published in this issue of *Critical Care* deals with the issue of delirium and its consequences in less severely ill patients. This commentary aims to provide context for this study, discussing its potential implications as well as the potential therapeutic and preventive measures in patients with hyperactive or hypoactive delirium

Until the early 1990s it was common practice to administer large doses of sedatives, analgetics and neuromuscular blocking agents (NMBAs) routinely to mechanically ventilated patients. The underlying assumption was that, without such medications, patients could not tolerate invasive intensive care unit (ICU) treatments and that sedation and paralysis would allow the patient to 'rest' and recover. Practices and treatments used for general anaesthesia during major surgery were often simply continued for longer term management in the ICU.

This attitude began to change in the mid-1990s, with the realization that prolonged use of high-dose NMBAs, sedatives and opiates was associated with increased risk for critical illness polymyoneuropathy, nosocomial infections, adverse outcomes and increased length of stay (LOS) in the ICU. Kress and coworkers [1] reported that daily interruption of sedative drug infusions to assess whether sedation could be discontinued or tapered led to reduced ICU LOS (6.4 days versus 9.9 days) and shorter duration of mechanical ventilation (4.9 days versus 7.3 days). These and other findings led to a marked decrease in the use of sedatives, and especially NMBAs, in ICUs worldwide. This development was assisted by changes in ventilatory strategies and technical improvements in mechanical ventilators. Current Society of Critical Care Medicine guidelines recommend that NMBAs be

used to manage ventilation only when all other means have been tried without success [2], and that sedation should be regularly assessed and tapered as early as possible [3].

These changes led to huge increases in the number of (semi)conscious patients in the ICU. It was soon realized that many of these patients, especially those with more severe illness, develop alterations in their mental status during the acute phase of critical illness and/or in later phases. Clinical studies showed that 70–80% of critically ill patients [4-6] and 16–22% of less severely ill patients [7,8] develop delirium at some stage in their ICU stay. Risk factors include increased severity of illness, advanced age, medical comorbidity, pre-existing cognitive impairment, sleep deprivation, and various medications [5]. Partly because of its high incidence, 'ICU psychosis' was initially regarded as an almost 'normal' consequence of prolonged ICU stay – a self-limiting morbidity due to the combined effects of the patient's illness and administration of sedatives. However, this view appears to be mistaken; numerous studies have shown that delirium is associated with increased morbidity and mortality, and prolonged LOS in the ICU [7-9]. In one study conducted in critically ill patients [10] mortality was 34% in patients who developed delirium versus 15% in those who did not. After adjusting for covariates the hazard ratio was 3.2 (95% confidence interval 1.4–7.7). However, a link between delirium and adverse outcome has not yet been demonstrated in less severely ill patients.

In this issue of *Critical Care*, Thomason and coworkers [11] assessed the impact of delirium in a group of non-mechanically ventilated patients with moderate severity of illness (median Acute Physiology and Chronic Health Evaluation II score 15). The authors observed a surprisingly high incidence (48%) of delirium, even in this 'mild' category of patients. Previous studies had reported a somewhat lower

incidence [7,8]; this may be explained by exclusion of high risk patients and shorter follow-up periods in some of these studies [8]. Thomason and coworkers [11] followed all non-ventilated patients admitted during the 11-month study period until death or hospital discharge. They reported that delirium was associated with significantly increased LOS in the ICU (average 1 day) and hospital (average 2 days). There was a trend toward greater mortality in patients who developed delirium (19% versus 6%;  $P=0.11$ ), which disappeared after adjustment for covariables. Nevertheless, the potential reduction in length of stay alone would justify a more intensive effort to screen and aggressively treat patients with delirium – even those with only moderate severity of illness.

One problem may be establishing a reliable diagnosis of delirium. Hyperactive delirium is easy to spot, but identification can be more difficult with the more frequently occurring hypoactive delirium. There may also be some discussion regarding treatment; some intensivists and psychiatrists prefer to adopt a 'wait and see' approach, partly based on fear of side effects of treatment with antipsychotics such as haloperidol. This attitude may be more prevalent when a patient has hypoactive delirium, which is less 'visible' and therefore may be less alarming to the medical and nursing staff. However, the evidence from this and other studies strongly suggests that this attitude is misguided, and that all forms of delirium should be treated promptly. In addition, a proactive approach appears warranted, with early and regular screening for delirium and basic preventive measures such as avoiding sleep deprivation, cognitive stimulation, visual and hearing aids, music listening, early mobilization, ICU noise reduction strategies, and avoiding dehydration, electrolyte disorders and hypoxaemia [12]. Pharmacological options include discontinuation of drugs that can cause or aggravate delirium (including benzodiazepines and narcotics, which are often inappropriately used in the ICU to treat 'confusion'), and if necessary treatment with antipsychotics such as haloperidol. Other neuroleptic agents with broader receptor affinities (such as risperidol, olanzapine, ziprasidone, etc.) may be (more) effective in nonagitated delirium, but have not been well studied in the ICU setting. For the moment haloperidol remains the drug of choice to treat delirium in the ICU [3]. Patients should be carefully monitored for side effects such as QT prolongation, especially because many other drugs that are commonly used in the ICU (macrolides, fluoroquinolones, azole antifungals, amiodarone, some calcium channel blockers, etc.) can also cause QT prolongation.

Assessment systems such as the confusion assessment method for the ICU (CAM-ICU) have been designed specifically to screen for delirium in patients who are unable to communicate verbally [13]. Although some key features of delirium, such as inattention and disorganized thinking, can be difficult to assess in mildly or moderately sedated patients, systems such as CAM-ICU present a great step forward in

the standardized systematic assessment of confusion and delirium. They can certainly be reliably used in nonventilated patients, as was shown in this study [11].

Currently, few intensivists routinely screen their patients for delirium. In particular, 'silent' (hypoactive) delirium is often overlooked, and even when diagnosed it is often left untreated. The report by Thomason and coworkers [11] again demonstrates that this attitude must change; inattention may be a basic feature of delirium, but it should not be a basic feature of our attitude toward delirium in the ICU.

## Competing interests

The author(s) declare that they have no competing interests.

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