

Delirium in the ICU

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Delirium is an acute organic brain dysfunction characterised by disturbances of attention and cognition with a fluctuating course, as a direct consequence of an underlying medical condition. Delirium occurs frequently in intensive care unit (ICU) patients, with a reported incidence of 20-40% in all ICU patients and of >60% in mechanically ventilated ICU patients. Delirium is associated with poor outcome, including increased mortality, duration of mechanical ventilation and length of ICU stay (1, 2). The occurrence of delirium in ICU also has a long-term impact on cognition and psychosocial function (3).

There is strong evidence that age, dementia, hypertension, pre-ICU emergency surgery or trauma, Acute Physiology and Chronic Health Evaluation II score, mechanical ventilation, metabolic acidosis, delirium on the prior day and coma, but not gender, are risk factors for delirium (4). There is low to moderate-quality evidence that Bispectral Index (BIS)-guided anaesthesia may reduce the incidence of postoperative delirium compared to BIS-blinded anaesthesia or clinical judgement (5).

Systematic delirium assessment in ICU patients is important to deliver adequate patient care by allowing clinicians to detect and treat delirium at an early stage (6-8). In a large multinational study, we developed and validated an early ICU delirium prediction model that revealed sufficient validity (9). The model enables the clinician to identify those patients likely to develop delirium following ICU admission using only nine predictors: age, history of cognitive impairment, history of alcohol abuse, BUN at time of ICU admission, admission category, urgent admission, MAP at the time of ICU admission, use of corticosteroids, and respiratory failure. Consequently, the model may allow for early delirium preventive interventions in ICU patients with a high risk of delirium.

Several promising interventions to prevent delirium are available that target cognitive impairment, sleep deprivation, immobility, and visual and hearing impairment (5, 10-13). Multi-component non-pharmacological interventions to prevent delirium have been shown to be effective in reducing delirium incidence and duration (14). Sleep disturbances and delirium appear to have a bidirectional relationship (15). The largest randomised controlled study to date to investigate the effects of prophylactic administration of melatonin to reduce delirium in ICU patients by improving sleep did not show any signal of benefit of this intervention, and routine use of melatonin in ICU patients is therefore not supported (16).

Other modifiable risk factors include minimising the use of benzodiazepines in critically ill patients (17). Surprisingly, the administration of nicotine replacement therapy in critically ill smokers has not shown a reduction in delirium incidence, and several studies have suggested possible harm of the use of nicotine replacement therapy in ICU patients (18-20). Early pharmacological interventions such as the use of prophylactic haloperidol in patients at high risk for delirium have been considered but have not shown to be effective in reducing the incidence of delirium or to improve mortality or long-term outcomes (21-23). There is currently insufficient evidence to provide a strong recommendation regarding the use of second-generation antipsychotics for the treatment of ICU delirium (24). The use of dexmedetomidine is associated with a lower delirium prevalence (4). In patients with agitated delirium receiving mechanical ventilation in the intensive care unit, we showed that the addition of dexmedetomidine to standard care compared with standard care alone (placebo) resulted in more ventilator-free hours and earlier extubation (25). In addition, dexmedetomidine may be a useful rescue drug for treating agitation due to delirium in non-intubated patients in whom haloperidol has failed, and it seems to have a better effectiveness, safety, and cost-benefit profile than does haloperidol (26).

In conclusion, delirium in critically ill patients is a frequent and significant problem, which requires a multipronged approach with careful attention to prediction, early recognition, prevention and treatment to improve short and long-term patient-centred outcomes.

Resources

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