AACN PracticeAlert™

Delirium Assessment and Management

Scope and Impact of the Problem

Delirium is an acute change in consciousness that is accompanied by inattention and either a change in cognition or perceptual disturbance.[1] Patients can have hyperactive delirium (agitation, restlessness, attempting to remove catheters, and/or emotional lability), hypoactive delirium (flat effect, withdrawal, apathy, lethargy, and/or decreased responsiveness), or a combination of both.[1] Delirium affects up to 80% of ICU patients, and it is estimated that ICU costs associated with delirium equal between $4 billion and $16 billion annually in the US.[2-6]

This form of acute brain dysfunction is associated with increased length of ICU and hospital stays, time on the ventilator, mortality, and long-term neuropsychological deficits.[7-11] Despite this high prevalence and negative outcomes, delirium in the ICU goes undetected and, thus, untreated in scores of patients.[12-17] For many years, critical care nursing and medical teams have considered delirium to be a benign problem, often even saying, "It will clear when we get them out of the ICU."

Expected Practice

Implement delirium assessment for all critically ill patients using validated tools such as the Confusion Assessment Method for the ICU (CAM-ICU) or Intensive Care Delirium Screening Checklist (ICDSC) [Level B]

Create strategies to decrease delirium risk factors, including early exercise [Level B]

Be cautious with benzodiazepine use, giving only what is needed [Level C]

Consider whether to adopt a core bundle like the ABCDE bundle [Level E]

Supporting Evidence

In the absence of a validated tool, delirium goes undetected by both doctors and nurses in more than 65% of ICU patients.[16-19] The reports underscore the need for systematic utilization of standardized assessment tools, which is in concert with the recommendations from national (Society of Critical Care Medicine) and international guidelines.[20-23] Systematic use of validated assessment tools is necessary to detect delirium, which would otherwise go undetected and consequently untreated.

- o Two tools with robust validity and reliability are the Confusion Assessment Method for the ICU (CAM-ICU)[4,24-26] and the Intensive Care Delirium Screening Checklist (ICDSC).[27,28]
- o Implementation of both tools has been described in the literature; both have high accuracy and favorable compliance, and require minimal education.[29-33]

Risk factors for ICU delirium have been understudied and underreported, with few available studies and little consensus among them.[34]

- o The following baseline risk factors are the only ones reported as significant in two or more multivariate analyses: pre-existing dementia, history of baseline hypertension, alcoholism, and admission severity of illness.[2,35-37,38,39]
- o Although age has been identified as one of the most significant risk factors for delirium development in non-ICU literature, there is conflicting evidence in critical care literature to support this claim.[34] Thus, further research is required to verify age as a risk factor for delirium in the ICU.
- o Although immobility has not been reported as a risk factor for the development of delirium in the ICU, it has been reported in non-ICU cohorts.[40] Recent studies have reported that early mobility in critically ill patients results not only in improved physical functions, but improved cognitive function as well, reducing delirium duration by 2 days.[41,42,43] "Early" is defined by these protocols as within the first 3 days of the ICU stay and focuses on progressive mobility pathways, starting with passive range of motion and progresses to active range of motion, sitting on the side of the bed, and ambulating as tolerated.[44] Early exercise is a primary nonpharmacologic intervention shown to reduce delirium duration in critical care patients and should be considered a cornerstone of any delirium-reduction protocol.
- o Iatrogenic risk factors are often modifiable and are referred to as precipitating factors.[45] Sedatives have been the only consistently identified ICU delirium risk factor and are discussed here:[3,35,36,38,46]
    - Benzodiazepines. Studies have reported benzodiazepines to be an independent risk factor for the transition to delirium.[3,36]

- Dexmedetomidine. Two recent studies, "Maximizing Efficacy of Targeted Sedation and Reducing Neurological Dysfunction (MENDS)" and "Safety and Efficacy of Dexmedetomidine Compared With Midazolam (SEDCOM)," reported a significant reduction in delirium duration in patients receiving dexmedetomidine when compared to benzodiazepines (lorazepam and midazolam, respectively).[47-49] Both studies utilized dexmedetomidine at higher doses and for longer durations than the current Food and Drug Administration (FDA) labeling approval, which is a maximum dose of 0.7 mcg/kg/hr for a 24-hour duration. These studies suggest that a benzodiazepine-sparing sedation strategy using an alternative sedative, such as dexmedetomidine, may result in better outcomes, including reduced duration of delirium.

- Opioids and propofol. The data concerning opioids are difficult to interpret, because some studies show a dose-dependent relationship, while other studies indicate there is no relationship between the use of these drugs and delirium development in the ICU.[3,36-39] Only one study has explicitly addressed propofol, and it reports no significant relationship with the drug and ICU delirium.[34,36] More research is needed with both propofol and opioids to fully understand their relationship to the development and duration of delirium.

- **Management of ICU Delirium**
  - **No drug has been approved by the FDA to treat delirium**. In fact, the FDA has issued an alert that atypical antipsychotic medications are associated with mortality risk among older patients, and another analysis has reported that haloperidol had an even higher mortality risk in non-ICU older patients than atypical antipsychotics.[50-53]
  - Clinical practice guidelines traditionally recommended antipsychotics as the medication class of choice for delirium, yet very little evidence exists to support this internationally adopted treatment.[20-23,54-57] Currently, there are only two placebo-controlled pilot studies involving antipsychotics and delirium treatment in the ICU. The "Modifying the Incidence of Delirium (MIND)" study compared haloperidol, ziprasidone, and placebo and reported no differences in regard to delirium resolution or any other outcomes or safety concerns in the three treatment groups.[58] Another study compared quetiapine to placebo in patients already determined to be delirious who had an as-needed haloperidol order and found that the patients who received quetiapine experienced a faster resolution of delirium, less delirium, less agitation, and more somnolence.[59]
  - These two studies are the first steps in understanding the best pharmacologic treatment; however, larger trials are needed to confirm these findings in order to systematically direct the choice for delirium treatment.
  - All patients receiving antipsychotics (haloperidol or any of the atypical antipsychotics) should be routinely and systematically monitored for side effects, especially QT prolongation.[20]
  - Rivastigmine, a cholinesterase inhibitor, has not been shown to be superior to placebo for the treatment of ICU delirium. A large European trial was stopped prematurely because of increased mortality in the rivastigmine group.[60]
  - The Society of Critical Care Medicine suggests identification of causes as the first step in delirium management. The following THINK mnemonic may be helpful in determining the cause when delirium is found to be present in ICU patients:
    Toxic situations
    - CHF, shock, dehydration
    - Deliriogenic meds (tight titration of sedatives)
    - New organ failure (eg, liver, kidney)
    Hypoxemia
    Infection/sepsis (nosocomial)
    Immobilization
    Nonpharmacologic interventions (Are these being neglected?)
    - Hearing aids, glasses, sleep protocols, music, noise control, ambulation
    K+ or electrolyte problems

- Putting it all together: ABCDE bundle. Several recent reviews have described the idea of implementing a core model of care combining multiple evidence-based practice strategies subsequently incorporated into routine daily care for the purpose of improving overall patient outcomes and allowing a systematic reduction in the modifiable risk factors for delirium.[61-63] The ABCDE bundle includes spontaneous awakening and breathing trial coordination, careful sedation choice, delirium monitoring, and early progressive mobility and exercise. The intent of combining and coordinating these individual strategies is to "(1) improve collaboration among clinical team members, (2) standardize care processes, and (3) break the cycle of oversedation and prolonged ventilation, which appear causative to delirium and weakness."[61] The ABCDE bundle is

a helpful paradigm for critical care nurses to consider when focusing on implementing strategies to improve patient care and reduce the impact of modifiable delirium risk factors.

- o <u>A</u>wakening and <u>B</u>reathing Trial Coordination (the Wake Up and Breathe Protocol)
- o <u>C</u>hoice of Sedative
- o <u>D</u>elirium <u>D</u>etection
- o <u>E</u>arly Progressive Mobility and <u>E</u>xercise

Actions for Nursing Practice

- Ensure that your unit has a policy for delirium assessment that includes a minimum of a once per shift assessment for all critically ill patients, utilizing a validated tool (ie, CAM-ICU or ICDSC).
- Perform, document, and communicate delirium assessments at least once per shift.
- Evaluate patients for potential risk factors for delirium, including a review of medications.
- Consider strategies to decrease benzodiazepine usage, including titration strategies (eg, sedation scale, targeted sedation protocols, and daily awakening trials) or an alternative sedative (eg, dexmedetomidine or propofol).
- Develop a protocol that incorporates early progressive mobility and exercise for all critically ill patients.
- Evaluate patients for causes of delirium – including medications (especially benzodiazepines) – using the THINK pneumonic.

AACN Levels of Evidence

Level A Meta-analysis of quantitative studies or metasynthesis of qualitative studies with results that consistently support a specific action, intervention, or treatment
Level B Well-designed, controlled studies with results that consistently support a specific action, intervention, or treatment
Level C Qualitative studies, descriptive or correlational studies, integrative reviews, systematic reviews, or randomized controlled trials with inconsistent results
Level D Peer-reviewed professional organizational standards with clinical studies to support recommendations
Level E Multiple case reports, theory-based evidence from expert opinions, or peer-reviewed professional organizational standards without clinical studies to support recommendations
Level M Manufacturer's recommendations only

Need More Information or Help?

- Contact a clinical practice specialist for additional information (www.aacn.org); then select Practice Resource Network and Ask the Clinical Practice Team.
- See www.ICUdelirium.org for delirium teaching materials and assessment tool implementation materials, including downloadables and videos.

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