

MEDTRONIC REVIEW CLINICAL SUMMARY

Using the ABCDE Bundle to Optimize Patient Outcomes

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PRODUCT DISCUSSED: Ventilators

BACKGROUND

The subject of sedation administration to patients on mechanical ventilation (MV) has received increased attention in recent years as an expanding body of evidence has demonstrated the deleterious effects of continuous sedative infusions. The proliferation of research and articles on the subject has prompted some change in clinical practice as it relates to the care of mechanically ventilated patients, including an analgesia-before-sedation approach, decreased use of sedation, and the use of alternative sedative medications.

SEDATION ADMINISTRATION FACTORS AND GUIDELINES

Sedative agents have diverse effects on different individuals. The effect of the agent can depend on patient factors such as age, kidney function, body composition, etc. In addition, clinical-related factors can influence sedative administration. Practitioner experience, education, and institutional guidelines can impact the administration of sedatives as well as the overall care given to the mechanically ventilated patient.

Because of the individualized effect of sedatives and the variations in clinical practices, some experts have developed guidelines to aid clinicians in making evidence-based care decisions. In 2002, the Society for Critical Care Medicine (SCCM) published guidelines concerning the use of sedation and analgesics on mechanically ventilated patients.¹ Among its primary recommendations are daily sedation interruption (DSI) and the use of protocols to guide drug delivery. In 2013, the American College of Critical Care Medicine published an updated version of its pain, agitation, and delirium (PAD) guidelines.² These new recommendations encourage an analgesia-before-sedation approach, maintenance of the lightest sedation level possible via protocolized administration, and implementation of DSI. The pairing of DSI with spontaneous breathing trials (SBT) is also prescribed based on evidence that this combination can improve time on MV, time in the ICU, and patient outcome.³⁻⁵

ABCDE BUNDLE

The Awakening and Breathing Coordination, Delirium monitoring/management, and Early mobility bundle is an evidence-based combination of strategies designed to manage the care of mechanically ventilated patients (Table).^{2,6,7} Recommendations include a holistic rather than a siloed approach to treatment, measured decisions about the choice of sedative agents, and the avoidance of continuous infusions or the avoidance of sedation altogether. When combined with early mobilization, DSI, and SBT, the treatment of delirium may positively impact the post-discharge cognitive function of the patient. Early mobilization can also help to reduce the severity and duration of delirium. Conversely, factors such as continuous sedative infusion can prolong the duration of MV and subsequently lead to muscle weakness, increased delirium severity, and poor sleep quality — all effects that can persist long after hospitalization ends. Consideration must be given to post-extubation short- and long-term quality of life as soon as the patient is put on the ventilator and should be kept in mind throughout the course of treatment.

AWAKENING

- Practice protocolized sedation administration
- Minimize use of sedative infusion
- Implement daily sedation interruption/spontaneous awakening trials (SAT)

BREATHING

- Practice protocolized and daily SBT

COORDINATION

- Coordinate nurse-directed SAT with respiratory therapist-directed SBT

DELIRIUM

- Use delirium monitoring tools such as Confusion Assessment Method-ICU (CAM-ICU) and Intensive Care Delirium Screening Checklist (ICDSC)
- Avoid certain sedative medications (i.e., benzodiazepines)
- Use analgesics to treat pain first

EARLY MOBILITY

- Implement protocolized activity from time of admission
- If possible, move patient from bed to chair or ambulate (activity as tolerated)
- Involve patient in grooming, self-care, and encourage active movements in bed

GUIDELINE ADHERENCE

There is a surprising lack of adherence to evidence-based guidelines, and clinician perception of practice is often incongruent with actual practice (e.g., the use of protocols, daily sedation interruptions, etc.). Translating evidence into clinical practice presents a significant hurdle. Lack of cross-disciplinary respect, educational deficits, staff turnover, and lack of collaboration are barriers to successful implementation of the guidelines. Conversely, research indicates that strong and supportive leadership, consistent multi-disciplinary participation, and institutional dedication to improved quality of patient care increase the likelihood of successful guideline implementation.

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