Management of Pain, Agitation, and Delirium in the ICU

Guideline Summary
About the Guideline
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- This guideline serves as an update to the 2002 document “Clinical Practice Guidelines for the Sustained Use of Sedatives and Analgesics in the Critically Ill Adult.” It is based on current knowledge learned since the 2002 publication including improvements in both pharmacologic and non-pharmacologic interventions and improved assessment of pain, agitation and delirium in the critically ill patient.
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- Developed by a multidisciplinary task force assembled by the American College of Critical Care Medicine to provide evidence-based, best practice recommendations for clinicians to best prevent and treat pain, agitation and delirium in the intensive care unit inclusive of literature on patient and clinical outcomes in the ICU.
About the Guideline (cont'd.)

- Recommendations were made for 4 specific foci based on key clinical questions posed by the task force in the areas of:
  - Pain and Analgesia
  - Agitation and Sedation
  - Delirium
  - Strategies for Managing Pain, Agitation, and Delirium to improve ICU outcomes

- In this guideline review, the areas of pain and analgesia, agitation and sedation, and delirium were addressed separately with the strategies to improve ICU outcomes integrated in each area.
Key Clinical Considerations

- Pain and Analgesia
- Agitation and Sedation
- Delirium
- Managing Pain, Agitation, and Delirium
Pain and Analgesia

Assessment

Treatment
Pain and Analgesia

Critically ill patients in the ICU experience pain routinely, some studies suggest the incidence of pain in medical and surgical ICU patient is 50% or greater (Chanques et al., 2007). There are negative physical and psychological impacts of unrelied pain. Physiologic effects include vasoconstriction, impaired tissue perfusion and decreased tissue-oxygen partial pressure due to catecholamine release (Granja et al., 2008). Psychological effects include PTSD symptoms and lower health-related quality of life (Barr et al., 2013). It is widely accepted that ICU patients are at high risk for pain and that patient outcomes improve when pain is addressed.
Pain and Analgesia

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The following recommendations were made in respect to pain and analgesia -->
Assessment

- Routinely monitor pain in all ICU patients
  - When applicable, pain should be assessed at rest and with activity

- Utilize valid, reliable behavioral pain scales in those unable to self-report pain
  - The following assessment tools are supported by this guideline:
    - The Behavioral Pain Scale (BPS)
    - The Critical Care Pain Observation Tool (CPOT)

- Vital signs should be used as a cue to prompt assessment of pain but not as a sole method of assessing pain. The evidence is inconsistent on the validity of vital signs for pain assessment.
Treatment

- IV opioid analgesic should be considered first line in treatment of pain in critically ill patients with the addition of non-opioid agents as adjuvant therapies in attempt to reduce side effects related to escalating doses of opioids.

- Carbamazepine or gabapentin should be added for the treatment of neuropathic pain

- When possible, ICU patients should be pre-medicated in anticipation of potentially painful procedures (i.e. chest tube removal).

- Non-pharmacologic measures such as relaxation should be used when possible prior to potentially painful procedures in the ICU.

- Thoracic epidural analgesia is recommended for treatment of traumatic rib fracture and repair of abdominal aortic aneurysm but not for intrathoracic or non-vascular abdominal surgeries.
  - There are recommendations against the use of lumbar epidural analgesia in the critically ill patient.
  - There are no specific general recommendations on the use of regional vs. systemic analgesia.
Agitation and Sedation

Assessment

Treatment
Agitation and Sedation

There are adverse clinical outcomes in patients that experience anxiety and agitation in the ICU. Underlying, treatable causes of agitation in the ICU include uncontrolled pain, delirium, hypoxia, hypoglycemia, hypotension, or withdrawal from alcohol or other drugs (Barr et al., 2013).
Agitation and Sedation

There are adverse clinical outcomes in patients that experience anxiety and agitation in the ICU. Underlying, treatable causes of agitation in the ICU include uncontrolled pain, delirium, hypoxia, hypoglycemia, hypotension, or withdrawal from alcohol or other drugs (Barr et al., 2013).

Measures should always be taken to identify and intervene for any of the above factors when assessing and treating agitation prior to initiation of sedation.
Assessment

- Light levels of sedation (arousable and able to follow simple commands), as opposed to deep sedation (no response to painful stimuli) are recommended and should be maintained in the critically ill patient; they are associated with shorter length of ICU stay and improved clinical outcomes.

- Target the lightest level of sedation possible with daily interruptions in therapy to assess neurologic status.

- Sedation management guidelines/checklists should be utilized to assist with management and standardization of measures.

- Adequacy and depth of sedation should be monitored using one of the following scales:
  - RASS (The Richmond Agitation-Sedation Scale)
  - SAS (Sedation-Agitation Scale)
  - There are recommendations against the use of objective measure of brain function to assess depth of sedation (i.e. auditory evoked potential [AEPs], bispectral index [BIS], Narcotrend Index [NI], Patient State Index [PSI], or state entropy [SE] with the exception of those who are receiving paralytic (neuromuscular blocking) agents.

- EEG monitoring is recommended to monitor for non-convulsive status epilepticus in those with known or suspected seizure activity or to titrate electrosuppressive medications to achieve burst suppression in adult ICU patients with elevated intracranial pressure (Barr et al., 2013).
Treatment

- The following recommendations were made regarding pharmacologic agents for intubated and mechanically ventilated patients in the ICU:

  - First line agent should be IV analgesics for the intubated and mechanically ventilated patient in the ICU

  - Non-benzodiazepine agents (propofol or dexmedetomidine) as opposed to benzodiazepine agents (midazolam or lorazepam) should be used for sedation
Delirium

Assessment

Treatment
Delirium

Delirium is a significant problem in the ICU, affecting an estimated 80% of patients that are mechanically ventilated (Milbrandt et al., 2004). It is defined as the acute onset of cerebral dysfunction with a change or fluctuation in baseline mental status characterized by inattention, disorganized thinking, or altered level of consciousness (Barr et al., 2013).
Delirium

Delirium is a significant problem in the ICU, affecting an estimated 80% of patients that are mechanically ventilated (Milbrandt et al., 2004). It is defined as the acute onset of cerebral dysfunction with a change or fluctuation in baseline mental status characterized by inattention, disorganized thinking, or altered level of consciousness (Barr et al., 2013).

Delirium is associated with poor patient outcomes including increased mortality, prolonged ICU and hospital length of stay, and development of post-ICU cognitive impairment (Barr et al., 2013). Thus, identifying and treating this condition is of the utmost importance for those involved in the care of the critically ill patient.
Assessment

• Assess for delirium routinely in the ICU patient.

• The following assessment tools are considered valid/reliable in monitoring delirium in both the ventilated and non-ventilated adult, ICU patient:
  • The Confusion Assessment Method for the ICU (CAM-ICU)
  • The Intensive Care Delirium Screening Checklist (ICDSC)

• The following were identified as risk factors for developing delirium: pre-existing dementia, baseline HTN, alcoholism, and high severity of illness.

• Coma is an independent risk factor for developing delirium.
Treatment

- The following non-pharmacologic measures are recommended to reduce incidence and duration of delirium:
  - Mobilization
  - Sleep promotion (interventions include: light and noise control, clustered care, low stimuli at night)
  - There are no recommendations supporting the use of specific ventilator modes to promote sleep in the adult ICU patient.

- Pharmacologic recommendations
  - Recommendations against the use of haloperidol or atypical antipsychotics prophylactically for delirium prevention
  - No recommendation for or against the use of dexmedetomidine to prevent delirium given the lack of sufficient data.
    - There is suggestion that if there is no compelling reason for opioid or benzodiazepine use for sedation, that dexmedetomidine may be given to decrease the duration of delirium.
  - Avoid rivastigmine.
  - Avoid benzodiazepines unless delirium is related to related to alcohol or benzodiazepine withdrawal.
  - Avoid anti-psychotics in those with long QT interval, or other medications known to prolong QT interval or those at risk for torsades de pointes.
Managing Pain, Agitation, and Delirium to improve ICU outcomes
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To facilitate implementation of guidelines for ICU analgesia, sedation and delirium – the guideline recommends an interdisciplinary ICU approach including provider education, preprinted or computerized protocols and quality ICU rounds checklist to facilitate the use of pain, agitation, and delirium (PAD) management guidelines or protocols in the adult ICU (Barr et al., 2013).
Managing Pain, Agitation, and Delirium to improve ICU outcomes (cont'd.)
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The task force that developed these guidelines, also developed both a pocket card to summarize guideline recommendations and a template for a PAD care bundle with metric suggestions to facilitate transfer of guidelines to the bedside. These tools are available through the following links (Barr et al., 2013):
Managing Pain, Agitation, and Delirium to improve ICU outcomes (cont'd.)

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