Sedation and Analgesia in the Critically Ill

Key Article


2018 Guidelines

• Updated the 2013 Pain, Agitation, and Delirium Guidelines
• Added immobility and sleep (PADIS)
• Included patients as collaborators and coauthors
• Invited panelists from high-income countries as an early step towards incorporating more diverse practices and expertise from the global critical care community
• 37 Recommendations
  o Only 2 are “strong”
  o Remainder are “conditional”
    ▪ Apply to most but not all critically ill adults
    ▪ Made when evidence is conflicting, low quality, insufficient or applicable to 1 patient subgroup
    ▪ Or when potential benefits require weighing almost equal risks
• 2 Good Practice Statements
• 32 Additional Statements

Recommendations

• Pain/Analgesia
  o Overview
    ▪ Consistent approach to pain assessment and management is paramount
    ▪ Inability to communicate clearly does not negate a patient’s pain experience or the need for appropriate pain management
    ▪ Severe pain negatively affects critically ill adults
    ▪ Implementation of assessment-driven and standardized pain management protocols improves ICU outcomes and clinical practice
  o Protocol-Based Pain Assessment and Management
    ▪ Good Practice Statement: Management of pain for adult ICU patients should be guided by routine pain assessment and pain should be treated before a sedative agent is considered
    ▪ Recommendation: “We suggest using an assessment-driven, protocol-based, stepwise approach for pain and sedation management in critically ill adults” (Conditional Recommendation, Moderate quality of evidence)
- Conditional recommendation given because benefits of protocol-based approach not observed across all critical outcomes
- Analgosedation or analgesia-based sedation - reduces sedative requirements, decreases duration of MV, ICU LOS, and pain intensity
  - What are the most reliable and valid pain assessment methods?
    - Self-report scales - reference standard for pain assessment in patients who can communicate reliably
    - Behavioral pain assessment tools: among adults unable to self-report and in whom behaviors are observable, the BPS and CPOT demonstrate greatest validity and reliability
    - Physiologic measures: Vital signs are not valid indicators for pain in critically ill adults and should only be used as cues to initiate further assessment using appropriate and validated methods such as the patient’s self-report or a behavioral scale
  - Pharmacologic Adjuvants to Opioid Therapy
    - Opioids remain a mainstay for pain management in most ICU settings; important safety concerns such as sedation, delirium, respiratory depression, ileus, and immunosuppression may increase ICU LOS and worsen post-ICU patient outcome
    - Panel generally supports use of a multimodal pharmacotherapy approach as a component of analgesia-first approach to spare/minimize opioid and sedative use
    - Acetaminophen
      - Recommendation: “Suggest using acetaminophen as an adjunct to an opioid to decrease pain intensity and opioid consumption for pain management” (Conditional, very low quality of evidence)
      - IV, oral, or rectal administration; IV acetaminophen may cause hypotension
    - Ketamine
      - Recommendation: “Suggest using low-dose ketamine (1-2 mcg/kg/hr) as an adjunct to reduce opioid consumption in postsurgical adults admitted to the ICU” (Conditional, very low quality of evidence)
      - IV ketamine was not shown to improve patients’ self-reported pain intensity; reduced opioid consumption is only a surrogate for better patient-centered outcomes
      - Evidence regarding its role in the ICU for this indication currently remains limited
    - Neuropathic pain medications
      - “Recommend using a neuropathic pain med (gabapentin, carbamazepine, pregablin) with opioids for neuropathic pain management in critically ill adults” (Strong, moderate quality evidence)
- These medications have been evaluated in patients with GBS and who have recently undergone cardiac surgery - use significantly reduced opioid consumption within 24 hours
- Drugs require the ability for patients to swallow or have enteral access
  - Lidocaine
    - “Suggest not routinely using IV lidocaine as an adjunct to opioid therapy for pain management” (Conditional, low quality of evidence)
    - “Suggest not routinely using local analgesia or nitric oxide for pain management during chest tube removal.”
  - COX-1 NSAID
    - “Suggest not routinely using a COX-1 selective NSAID as an adjunct to opioids.” (Conditional, low quality of evidence)
- Other Agents/Medications
  - Recommend not using inhaled volatile anesthetics for procedural pain management (strong, very low)
  - Suggest using an NSAID administered IV, orally, or rectally during discrete and infrequent procedures

**Sedation**
- Overview
  - Sedative medications are frequently administered to relieve anxiety and prevent agitation-related harm
  - These medications may predispose to increased morbidity
  - 2013 PAD Guideline
    - Suggested targeting lighter levels of sedation or using daily awakening trials
    - Recommended minimizing the use of benzodiazepines
- Light Sedation
  - 2013 PAD Guideline defined light sedation as RASS 0 to -2; this level of sedation is probably deeper than that required for many patients receiving MV
  - No universally accepted definition of light sedation exists
  - Most use RASS of -2 to +1
  - Outcomes evaluated for the current 2018 PADIS Guideline differ from the short-term outcomes assessed in the 2013 PAD Guideline
  - Light sedation was associated with a shorter time to extubation and a reduced tracheostomy rate; not associated with a reduction in 90-day mortality, delirium prevalence, PTSD, or self-extubation
Choice of Sedative

- 2013 PAD Guidelines suggested (conditionally) that nonbenzodiazepines sedatives (propofol or dexmedetomidine) are preferable to benzodiazepines in critically ill mechanically ventilated patients because of improved short-term outcomes such as ICU LOS, duration of MV, and delirium.

- 2018 PADIS Guideline
  - “Suggest using either propofol or dexmedetomidine over benzos for sedation in critically ill mechanically ventilated adults” (Conditional, low quality of evidence)
  - Evaluated the effect of propofol vs benzodiazepines, dexmedetomidine vs. benzodiazepines, and propofol vs. dexmedetomidine.
  - In most studies, benzo’s given via continuous infusion and not intermittent boluses.
  - Compared with benzodiazepines, propofol was associated with a shorter time to light sedation and shorter time to extubation.
  - Compared with benzodiazepines, dexmedetomidine was associated with a shorter duration of MV and ICU LOS; also associated with a significant reduction in delirium.
  - Recent MENDS trial demonstrated greater incidence of bradycardia in the dexmedetomidine group, current studies have not found that intervention has been required for bradycardia.
  - Dexmedetomidine vs. propofol - no difference in time to extubation.
  - PRODEX study - delirium incidence was decreased with dexmedetomidine at a single time point 48 hours after sedation cessation; patients could communicate more effectively with dexmedetomidine; no difference in bradycardia.

- Economic considerations - costs lower than they were when initially studied.

Take Home Points

- 2018 PADIS Guideline serves to update 2013 Guideline – included patients and critical care practitioners from around the globe.
- Assess Pain first using an assessment-driven protocol-based approach.
- Physiologic measures such as vital signs are not adequate; the Behavioral Pain Scale and the Critical Care Pain Observation Tool demonstrate the most reliability.
- Start with analgesia first – opioids remain first line.
- Consider ketamine, acetaminophen, and neuropathic medications as adjuncts.
- Assess anxiety and agitation using a validated protocol – RASS.
- Titrate to lighter levels of sedation.
- First line sedatives include propofol and dexmedetomidine.
- Avoid benzodiazepines when possible.