

# Analgo-sedation: Improving Patient Outcomes in ICU Sedation and Pain Management

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## ■ ABSTRACT:

Sedation practices in the critical care unit have been trending toward lighter sedation since the start of the new millennium, but patients continue to experience inadequate pain management and excessive sedation. This paper includes a brief examination of the problem of pain management in the ICU; trends in sedation practices, including light sedation and the daily interruption of sedation; and a literature review of analgo-sedation. While the analgo-sedation literature is relatively sparse, it offers a promising, patient-centered method for managing the triad of pain, agitation, and delirium, while reducing common complications associated with long-term ventilation. This paper concludes with a recommended method for analgo-sedation, the nursing implications, and a discussion of limitations and recommendations.

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## INTRODUCTION

Pain is a common experience among critically ill patients and is often unrecognized and/or undertreated, which can hinder a patient's recovery (Alderson & McKechnie, 2013; Joshi & Ogunnaike, 2005; Pasero, et al., 2009; Stites, 2013). Because of the nature of critically ill patients' ailments, mechanical ventilation is often a necessary lifesaving intervention that can impede the assessment of pain (McConville & Kress, 2012; Wunsch et al., 2010). Sedative hypnotic drugs such as benzodiazepines and general anesthetics are favored in current sedation practices; however, both have been associated with side effects that delay recovery and neither have analgesic properties (Devabhakthuni, Armahizer, Dasta, & Kane-Gill, 2012; Kress, Pohlman, O'Connor, & Hall, 2000; Maraboto, 2013; Mehta, McCullagh, & Burry, 2009; Weinert & Calvin, 2007). To complicate matters, many patients experience oversedation, which delays recovery further (Devabhakthuni et al., 2012; Mehta et al., 2009). To mitigate oversedation, daily interruptions of sedation have become accepted as a key

practice for minimizing sedative use and its associated complications (Kress et al., 2000; Pun & Dunn, 2007b; Sedwick, Lance-Smith, Reeder, & Nardi, 2012; Siegele, 2009). Analgo-sedation is another sedative-minimizing technique; while not eliminating the use of sedatives entirely, it prioritizes pain control and analgesia use, saving sedative agents for rescue therapy only (Devabhakthuni et al., 2012). Clearly, pain management is of utmost importance in the critical care setting, as prevalent sedative practices may not optimally minimize sedative use and may lead to uncontrolled levels of pain among critically ill patients. Analgo-sedation, an emerging practice, is explored in this article with the hope of providing better pain management and sedation to critically ill patients.

## BACKGROUND

### Pain Management

Because of the nature of critically ill patients' disease processes and injuries, pain is ubiquitous among patients in the intensive care unit (ICU) (Alderson & McKechnie, 2013; Joshi & Ogunnaike, 2005; Pasero et al., 2009; Stites, 2013). Nearly 70% of critically ill patients are estimated to experience at least moderate levels of pain during their time in the ICU (Alderson & McKechnie, 2013; Pasero, et al., 2009; Stites, 2013). The ICU environment, as well as endotracheal suctioning and other practitioner interventions, can exacerbate critically ill patients' pain (Alderson & McKechnie, 2013; Hamdy, 2001; Joshi & Ogunnaike, 2005; Pasero, et al., 2009; Stites, 2013). More troubling, however, is that pain is frequently unrecognized and/or undertreated in as many as 70% of critically ill patients (Alderson & McKechnie, 2013; Pasero, et al. 2009). High rates of unrecognized pain in critically ill patients can be attributed to the difficulty of assessing pain in a population that commonly cannot self-report pain levels because of factors including mechanical ventilation and sedation (Alderson & McKechnie, 2013; Pasero, et al., 2009; Stites, 2013). Of the various behavioral tools for assessing pain in critically ill patients that have been developed to address this problem, the Critical Care Pain Observation Tool shows the most promise (Alderson & McKechnie, 2013; Stites, 2013).

Insufficient pain control has serious psychological and physiological consequences that can hinder a patient's recovery, such as anxiety, depression, disturbed immunologic function, unstable hemodynamic status, coagulopathies, and altered respiratory function leading to altered blood chemistry (Alderson & McKechnie, 2013; Joshi & Ogunnaike, 2005; Pasero

et al., 2009; Stites, 2013). However, when pain is adequately managed, patients often experience decreased time of mechanical ventilation, decreased infection rates, shortened ICU stays, and overall increased satisfaction (Alderson & McKechnie, 2013; Joshi & Ogunnaike, 2005; Stites, 2013).

In the current health care climate, costs of care need to be considered, as estimates of daily costs to manage an ICU patient range from \$3,000 to \$4,000. Additional costs are dependent on the type of care provided; mechanical ventilation alone can add as much as \$1,500 per day (Dasta & Kane-Gill, 2009; Wunsch et al., 2010).

Clearly, pain management is both a necessary and significant aspect of caring for critically ill patients that can greatly affect patient recovery as well as medical expenditures. Prompt and superior pain management should be at the forefront of every practitioner's mind.

### Mechanical Ventilation

The daily cost of mechanical ventilation constitutes an estimated cost of \$27 billion per year nationally, but the clinical cost is also significant: intubation makes pain assessment difficult and contributes to unmanaged pain (Wunsch et al., 2010). Mechanical ventilation is nevertheless a commonly used life-sustaining measure for as many as 800,000 critically ill patients per year (McConville & Kress, 2012; Wunsch et al., 2010). Patients require mechanical ventilation for a variety of indications, including postoperative airway protection and treatment of acute respiratory distress syndrome (McConville & Kress, 2012; Wunsch et al., 2010). While mechanical ventilation is a life-sustaining intervention for critically ill patients, it is not free of detrimental sequelae. The primary risks include ventilator-associated pneumonia; risks related to decreased mobility, such as deep vein thrombosis; and barotrauma, all of which increase the length of stay in the ICU (McConville & Kress, 2012; Wunsch et al., 2010).

### Current Sedation Practices

The agitation experienced by critically ill patients frequently requires sedative agents in addition to analgesics (Devabhakthuni et al., 2012; Kress et al., 2000; Maraboto, 2013; Mehta et al., 2009; Weinert & Calvin, 2007). Ideally, sedative use should reduce anxiety, cause minimal side effects, and be affordable (Mehta et al., 2009).

Currently, ICU sedation relies on the use of the general anesthetic propofol and sedative-hypnotic drugs such as benzodiazepines, especially midazolam (Devabhakthuni et al., 2012; Maraboto, 2013; Mehta et al., 2009; Weinert & Calvin, 2007). Because

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