



## Calm Control: Managing Comfort and Pain During High Illness

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### DESCRIPTION

Sedation and analgesia represent essential therapeutic measures during periods of severe illness when advanced monitoring and life-support measures are required. Severe disease, invasive procedures, mechanical ventilation and continuous monitoring can create intense discomfort, agitation and physiological stress. Effective control of pain and anxiety allows stabilization of vital functions and prevents harmful reactions such as elevated heart rate, increased oxygen consumption and unstable blood pressure. Appropriate management of comfort also helps maintain synchrony with mechanical ventilation and reduces metabolic strain during periods when the body is under extreme stress. Analgesia refers to the control of pain, while sedation refers to the reduction of awareness, anxiety and agitation. Although these interventions are frequently used together, they address different physiological responses. Pain originates from tissue injury, inflammation or medical interventions such as catheter placement, endotracheal intubation or surgical wounds. Sedation reduces distress and restlessness that may arise from environmental stimulation, fear, sleep disturbance or the sensation of breathing assistance devices. Combining both approaches allows clinicians to maintain comfort while ensuring stable physiological conditions.

Opioid agents such as fentanyl, morphine and remifentanyl are widely applied for pain relief due to their strong effect on opioid receptors within the central nervous system. These medications decrease the transmission of pain signals and provide rapid relief during acute conditions. However, excessive dosing can lead to respiratory depression, hypotension or delayed awakening, which requires continuous monitoring and dosage adjustment. Sedative medications are selected according to the required depth and duration of sedation. Benzodiazepines, including midazolam

and lorazepam, act on gamma-aminobutyric acid receptors and produce calming effects along with amnesia. Propofol provides rapid onset sedation and allows quick adjustment of sedation levels because of its short duration of action. Dexmedetomidine produces sedation through alpha-2 receptor stimulation and may maintain a more natural sleep-like state while allowing communication in lighter sedation levels. Selection among these agents depends on clinical condition, duration of ventilation, cardiovascular stability and the desired level of consciousness.

The level of sedation must be carefully balanced. Excessively deep sedation may prolong mechanical ventilation and delay recovery of cognitive function. Insufficient sedation may lead to agitation, accidental removal of medical devices and increased metabolic demand. Structured sedation scales such as the Richmond Agitation-Sedation Scale or the Sedation-Agitation Scale allow consistent evaluation of consciousness levels. Regular assessment ensures that medication doses remain appropriate for the clinical situation and that unnecessary drug exposure is avoided. Pain evaluation also requires structured assessment. Since verbal communication may not always be possible behavioral and indicators are used. Facial expressions, muscle tension, body movements and changes in heart rate or blood pressure can indicate the presence of discomfort. Tools such as the Critical Care Pain Observation Tool provide systematic scoring of these signs. Through consistent monitoring, analgesic medication can be adjusted to maintain comfort without excessive sedation.

Interruption of continuous sedation has gained attention as a strategy for preventing prolonged unconsciousness. Periodic reduction or temporary discontinuation of sedative infusions allows evaluation of neurological status and readiness for ventilator weaning. During these periods, analgesia remains active to prevent pain while consciousness gradually returns.

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This method has been associated with shorter duration of mechanical ventilation and reduced medication accumulation. Non-pharmacological approaches also contribute to comfort. Control of environmental noise, maintenance of normal day-night lighting cycles and gentle repositioning may decrease agitation and sleep disruption. Adequate humidification of ventilatory gases and careful handling of invasive lines can reduce irritation and pain. Communication techniques such as simple hand signals or communication boards may allow expression of discomfort even during limited speech capability.

Complications related to sedation and analgesia must also be considered. Delirium represents a frequent neurological disturbance characterized by fluctuating attention, disorganized thinking and altered awareness. Sedative exposure, metabolic imbalance, infection and sleep disruption may contribute to this condition. Monitoring tools such as the Confusion Assessment Method for intensive care settings

allow early detection. Adjusting medication selection and minimizing unnecessary sedation may reduce the likelihood of delirium. Another concern involves drug accumulation during prolonged treatment. Some sedatives may accumulate in fatty tissues or produce active metabolites, leading to delayed awakening. Regular evaluation of medication dosing and renal or hepatic function helps prevent excessive build-up. Selection of short-acting medications may also assist in maintaining predictable recovery of consciousness. The concept of analgesia-first sedation has gained attention in modern intensive care practice. In this approach, adequate pain control is established before additional sedative medication is introduced. Many episodes of agitation originate from untreated pain rather than anxiety. Addressing discomfort early can reduce the need for deeper sedation and maintain more stable neurological function. Sedation and analgesia during severe illness therefore represent a complex balance between comfort, safety and stability.