The Critical-Care Pain Observation Tool: A Useful Tool for Pain Assessment in Intensive Care Units

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ABSTRACT

Pain is a major concern in all intensive care units (ICUs). The proper assessment and management of pain is one of the main goals of patient care in ICUs. Improper evaluation of pain and its over or under treatment can cause significant problems in the process of patient management in ICU. Since most ICU patients are unable to communicate correctly with the ICU team and explain their level of pain, pain assessment can be challenging. Thus, several assessment tools for the evaluation of pain were developed, few of which were validated. Critical Care Pain Observation Tool is a valid and reliable instrument for pain assessment in different ICUs.

Introduction

Pain is a major concern in intensive care units (ICUs). It has been reported that nearly 50% of ICU patients suffer from moderate to severe pain (1). Different factors are involved in inducing pain including immobility, medical procedures, traumatic injuries, infection, and wound care (2, 3). The proper management of pain in ICU is one of the main goals of treatment since poor pain management can contribute to a variety of adverse medical outcomes including prolonged ICU stay, chronic pain, post-traumatic stress disorder, pulmonary complications, insufficient sleep, and thromboembolic events (3-6). In general, pain may increase morbidity and mortality after ICU admission and lower the health-related quality of life in patients (7). Obviously, improvement in pain management can reduce morbidity and mortality rates and enhance survival (3).

The first step in pain relief is proper pain measurement (8). On the other hand, the proper assessment of pain in ICU may be complicated by several factors that hamper the communication of patient with ICU team including level of consciousness, mechanical ventilation, severity of the underlying disorder, and the use of sedatives (8-10). Inappropriate pain management in ICU can result in under or over treatment of the problem, each of which can cause serious complications. Under treatment of pain can prolong weaning of mechanical ventilation and ICU stay and increase pulmonary complications, violence toward the ICU team, pain-related immunosuppression, and patient-ventilator asynchrony (11). Conversely, over treatment of pain in ICU can raise the need for mechanical ventilation, cognitive impairment, delirium, respiratory depression, circulatory depression,
The pain assessment tools in ICU

As mentioned before, there are few valid pain assessment tools in ICU. The adult Non-Verbal Pain Scale (NVPS) was first proposed for critical care burns unit and for mechanically ventilated or sedated patients (3, 15). NVPS consists of five categories: facial movement, body movement, guarding, physiological I (i.e., blood pressure, heart rate, and respiratory rate), and physiological II (i.e., dilated pupils, flushing, diaphoresis, and pallor). Scores 0 to 2 are considered for each category. The Behavioral Pain Scale (BPS) and the Critical Care Pain Observation Tool (CPOT) are two valid and evidence-based tools for the assessment of pain in ICU and are recommended by guidelines for the management of pain in ICU (13, 14, 16).

The Critical Care Pain Observation Tool (CPOT)

The CPOT is a valid pain assessment tool developed by Gelinas et al. (8) for measuring the behavioral indicators of pain in ICU patients who are not able to communicate (8, 16). The behavioral indicators are as follows (8):

- Facial expression: this indicator is one of the best parameters for pain assessment. The scores for this item may be 0 (no muscle tension), 1 (tense face exhibited as frowning or brow lowering), and 2 (grimacing).
- Body movements: this parameter can be scored 0 to 2. A score of 0 is assigned to a patient without movement ability or a patient that remains in normal position, score 1 refers to protective movement, and score 2 is given to restless or agitated patients.
- Compliance with the ventilator (in mechanically ventilated patients)/vocalization (in non-intubated patients): compliance with the ventilator is assigned scores 0 (easy ventilation with no alarm or coughing), 1 (coughing or activating alarm that stops without the ICU team’s intervention), and 2 (fighting with the ventilator). Vocalization is used in non-intubated patients with the scores 0 (absence of sound or normal speech), 1 (sighing or moaning), and 2 (crying out).
- Muscle tension: this parameter is evaluated by performing passive extension and flexion. For this purpose, scores 0 (no resistance during movements or turning), 1 (resistance during movements or turning), and 2 (strong resistance) are assigned.

The role of the CPOT in the assessment of pain in ICU

The first study by Gelinas et al. showed that the CPOT is a valid tool for pain assessment and shows higher scores during painful procedures (8). The CPOT has been validated in several adult critical care settings including medical, trauma, and postoperative ICUs (3, 8, 17-19).

The CPOT has been significantly correlated with patients’ self-report of pain that accentuates the validity of this tool (8). It must be noted that behavioral pain scales clarify the presence of pain not its intensity (20). The CPOT is an easy and applicable tool for the assessment of pain in ICU. This instrument has been translated into different languages around the world, and with documentation of its validity and reliability, it is effectively used in critical care practice.

Conclusion

Since proper detection and management of pain is crucial in critical care settings, it is necessary that valid and reliable tools be applied for this purpose. The CPOT is a valid tool for pain assessment and can be easily applied in different ICU settings.

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Conflict of Interest

All the authors declare no conflicts of interest.

References