Behavioral Pain Assessment Tool: Yet Another Attempt to Measure Pain in Sedated and Ventilated Patients!

Rajesh K Pande

Abstract

The interesting study by Mitra et al. in this issue explores this newly developed pain assessment tool— Behavior pain assessment tool (BPAT) for critical patients who cannot communicate. The authors explored the tool in a prospective survey in 400 adults, noncomatose intensive care unit (ICU) patients. BPAT scoring was done within 2–3 hours of admission in ICU, followed by every day in the morning, and also before and after ICU procedures associated with pain. The BPAT scoring was done by untrained senior residents independent of each other. Majority of the patients had BPAT score of ≤3 (initial score in 83.5% and baseline score in 74.5% patients). In all, 56.5% patients had a postprocedure pain score of ≤3, highlighting the role of institutional sedation–analgesia protocol, as all patients received either morphine or fentanyl infusion along with midazolam infusion. Grimace was the most liked behavior (67%) by the observers, whereas closed eyes was the least liked (59%). Closed eyes behavior was felt to have poor utility in paralyzed, ventilated patients. Authors feel that as verbal and bodily responses could not be assessed in these patients, the BPAT can be further modified to observe pain in such patients. The behaviors like verbal complaints, muscle rigidity, and clenched fist were also liked less. For most behavior patterns liked by observers, the κ coefficient was quite high (>0.9). The BPAT tool was found easy to understand (93.3%) and apply (91.8%) by untrained observers. Most observers (59.25%) considered that the time spent on calculating BPAT was short, although the timelines have not been defined. The study again confirms that sedated, paralyzed, and ventilated patients are the most difficult group for assessment of pain. Interobserver variability may lead to subjective bias. The study has not looked at the impact of BPAT scoring on reduction or adjustment of opioid needs of these patients. Further studies may throw more light on the practical applications of BPAT score, and comparative studies between BPAT, behavioral pain scale (BPS) , and critical-care pain observation tool (CPOT) would be very interesting.

Keywords: Behavior, Pain assessment, Sedation, Ventilation.

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Pain is one of the most unpleasant memories reported by as high as 71% of patients admitted in the hospital.[1] Rest pain is reported by about 30% of patients admitted in intensive care units (ICUs) and by more than 50% of patients during ICU procedures, such as endotracheal/tracheostomy tube suction, change in body position, dressing, insertion of lines and catheters, etc.[2,3] One of the largest prospective multicenter studies by DOLOREA investigators highlighted that the rates of patients assessment were disproportionately low compared to the use of sedatives and opioids in ICU, and the patients who were not assessed received fewer hypnotics and lower daily dose of midazolam.[4] Procedural pain was managed in less than 25% patients, with a significant rise in pain intensity from baseline.[4] Further *post hoc* analysis revealed that the patients who were assessed for pain had shorter duration of mechanical ventilation and reduced duration of stay in the ICU.[4]

Pain, sedation, and agitation assessment in intubated ICU patients present a complex problem, as they are often sedated and not in a condition to report their pain or they may be suffering from severe brain damage. Although over 70% of nurses use vital signs to assess pain in patients, but no such change was observed in the physiological parameters when behavioral pain scale scores in ICU patients during tracheal suction showed an ascending trend.[5] The American Society for pain management nursing (ASPMN) recommends observational and behavioral pain tools for patients who cannot speak.[6,7] These include behavioral pain scale (BPS), criticalcare pain observation tool (CPOT), non-verbal pain scale (NVPS), faces, legs, activity, cry and consolability scale (FLACC), and non-verbal pain assessment tool (NPAT).

Behavioral pain scale and CPOT are commonly used scores in sedated, ventilated patients which have been validated for

Department of Critical Care Medicine, Dr BLK Superspeciality Hospital, New Delhi, India

Corresponding Author: Rajesh K Pande, Department of Critical Care Medicine, Dr BLK Superspeciality Hospital, New Delhi, India, Phone: +91 9810536268, e-mail: rajeshmaitree2000@gmail.com

reliability, internal consistency, and a high interrater agreement. Implementation of these tools is associated with the increased frequency of pain assessment and appears to influence administration of analgesics in the ICU.[6] Criticalcare pain observation tool has been found to correlate well with BIS as well as VAS.[8,9] A recently developed behavioral pain assessment tool (BPAT) considers eight behavioral cues, including facial expressions, verbal responses, and muscle responses. This tool was evaluated in 152 ICUs in 28 countries in 3,850 hospitalized patients that included 4,800 procedures.[10] Two-thirds of the patient could communicate their pain, and the BPAT in these patients was compared to a standard 10-point numeric rating scale. The need for analgesic requirement corresponded to a cutoff BPAT score of 3.5, with a sensitivity and specificity that ranged from 61.8 to 75.1%.[10] The most common pain behavior observed was grimacing followed by wincing, verbal complaints, and clenching

of fists. Interrater reliability was moderate-to-excellent, with a concordance of more than 80%. All eight behaviors assessed showed significant associations with pain intensity and pain distress.[10]

The interesting study by Mitra et al. in this issue explores this newly developed pain assessment tool—BPAT—for critical patients who cannot communicate.[11] The authors explored the tool in a prospective survey in 400 adults, non-comatose ICU patients. BPAT scoring was done within 2–3 hours of admission in ICU, followed by every day in the morning and also before and after ICU procedures associated with pain. The BPAT scoring was done by untrained senior residents independent of each other. Majority of the patients had BPAT score of ≤3 (initial score in 83.5% and baseline score in 74.5% patients). In all, 56.5% patients had a postprocedure pain score of ≤3, highlighting the role of institutional sedation–analgesia protocol, as all patients received either morphine or fentanyl infusion along with midazolam infusion.

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