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EDITORIAL

Pain in the ICU – The fifth sign, not the fifth element

Dolor en la UCI: el quinto signo, no el quinto elemento

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There are many potential causes for pain in critically ill patients during their ICU stay. Pain usually results from the primary disease process and tissue injury, invasive procedures, endotracheal suctioning, immobility, turning and mobilization. If not recognized and treated, pain may have a significant negative impact on patient outcomes. Pain activates the autonomic nervous system, can cause hemodynamic and respiratory dysfunction, and lead to coagulopathy or immune system dysfunction.[1] Sustained painful stimuli may result in hyperalgesia and spinal sensitization. A heightened sensitivity to pain by spinal neurons may cause an amplified response to minimally noxious stimuli or even transmission of pain without painful stimuli, leading to chronic pain. In addition to the physiologic and other psychological effects, the memory of pain during intensive care admission is an independent predictor for the development of posttraumatic stress disorder. Conversely, although the consequences of inadequate pain control are significant, overuse of analgesics may also lead to unwanted side effects, such as gastrointestinal hypomotility, constipation, gastric bleeding, renal dysfunction, tolerance and risk for developing withdrawal symptoms. A systematic process of treating and assessing pain is associated with a decreased incidence of pain, use of analgesics, duration of mechanical ventilation, and length of stay on the ICU.[2]

Despite this evidence, pain remains a major stressor in the ICU, as reported by nearly half of the survivors of an ICU episode.[3] Chronic pain is increasingly being recognized as a sequel in survivors of critical illness that negatively affects quality of life.[4] Also, a great and similar proportion of patients report dissatisfaction with their pain control, irrespective of being medical, surgical or trauma cases.

It goes without saying, that if a patient complains or the attending physician detects pain, analgesia is provided. Therefore, what are the possible causes explaining the magnitude of this problem in spite of all the above? Apparently, the answer is easy; pain is either inadequately treated or not properly detected. The latter aspect reflects an important handicap of critically ill patients and derives from the definition of pain itself. As expressed by the International Association for the Study of Pain, this phenomenon is described in subjective terms as ''an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage''. As pain is complex and subjective, the patient's self-report remains the gold standard for its detection and evaluation of response to therapy. This highlights the problem of the detection of pain in the ICU, as opportunities for communication and self-reporting of pain are often limited in critically ill intubated and sedated patients. Although in recent years patients are sedated more lightly, many of them still have difficulties expressing their pain level.

Vital signs alone have been shown to be poor indicators of pain, although acute changes should prompt evaluation with a validated pain assessment tool. Other physiologic measures of pain are being explored and seem promising techniques for further research, like pupillometry and

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changes in Bispectral Index or processed EEG signals. Several studies suggest that certain patient behaviors, such as different facial responses and body movements, may reveal the presence of pain. Family caregivers may help in the identification of pain-related behaviors and should be more involved in the ICU pain assessment process. International guidelines recommend assessing pain with behavioral parameters whenever critically ill patients are unable to report their pain level. Two of the most commonly recommended tools are the Behavioral Pain Scale (BPS) and the Critical Pain Observation Tool (CPOT). Both have shown good validity and reliability in international studies. The BPS consists of three domains: ''facial expression'', ''upper limb movement'', and ''mechanical ventilator compliance''.[5] Each domain is rated from one to four, with a composite score ranging from 3 to 12. A score of 5 or higher indicates pain, and higher scores denote an increase in pain intensity. The CPOT takes into account four behavioral categories: ''facial expression'', ''body movements'', ''muscle tension'', and ''mechanical ventilator compliance''.[6] Each component is scored, with a possible punctuation of 0–2 and a total score of 0–8. A score of 3 or higher represents pain.

Modern analgesia-sedation strategies propose concepts like ''adaptive sedation'' or ''dynamic sedation'', focusing on titrating the depth of sedation to the patients' changing clinical situation, i.e. at a given time patients may be awake and cooperative or need more sedation, without being able to communicate. This is another obstacle for adequately evaluating intensity and evolution of pain. In the cooperative patient, self-reporting scales are recommended, such as the Visual Analog Scale and the Numeric Rating Scale, both ranging from 0 (''no pain'') to 10 (''worst pain imaginable''). However in non-cooperative patients, recommended scales range from 0 to 8 or 3 to 12 points. Therefore, for a particular patient, the same number represents different intensities of pain, depending on the level of consciousness. To avoid this possible confusion, the Analgesia and Sedation Working Group of the SEMICYUC[7] recommended in 2006 using the Campbell scale ranged between 0 and 10. However this scale never has been validated. Latorre Marco et al.,[8] in 2011 designed and validated a new scale, the Behavioral Indicators of Pain Scale (ESCID), which ranges between 0 and 10 points, with 5 behavioral categories: ''facial expression'', ''body movements'', ''muscle tension'', ''mechanical ventilator compliance'' and ''consolability'', which could decrease the artifacts due to causes unrelated to pain and, therefore, has advantages over other scales mentioned above.

In this issue of the journal, Latorre-Marco et al.[9] report on the validation of ESCID in a larger sample of 286 patients from 14 hospitals and different ICUs, including medical and surgical patients. For this purpose the authors have used a remarkable scientific and meticulous method. Pain was assessed using two scales, BPS and ESCID, simultaneously applied by two independent observers who were blinded to each other's assessments. Observations coincided with the application of two routine care procedures previously recognized as painful: turning/repositioning and endotracheal suctioning. The authors have found a high correlation between ESCID and BPS as well as a high intra-rater and inter-rater concordance. The ESCID scale demonstrated a high internal consistency in its five domains.

The verification of the validity of ESCID as a behavioral scale for monitoring pain in non-communicative critically ill patients under mechanical ventilation represents a significant progress in the detection and management of pain in this patient group and we congratulate the authors for that. However it is necessary to remark some limitations of this study, mainly the exclusion of some critically ill patients who are also unable to report their pain level, such as mechanically ventilated patients with either suspicion or diagnosis of delirium, neurological disease with a score <4 in the motor item of the Glasgow Coma Scale, severe polyneuropathy and under treatment with neuromuscular blocking drugs. Therefore, we should keep walking in the path to find the best way to detect and measure the pain in these patient groups.

Pain should no longer be the mysterious ''fifth element'', like in the synonymous movie picture, where its existence is only discovered at the end, in this case, after discharge the patient from the ICU. In the mid-1990s, the American Pain Society aggressively pushed the concept of pain as the fifth vital sign.[10] This sign must be assessed and treated with the use of pain assessment scales as a quality-healthcare indicator. We now have another powerful tool at our disposal.

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