

Assessment and management of perioperative pain in neurosurgical patients

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CHAPTER 11

VALORIZATION

Postoperative pain is a common yet distressing problem faced by patients and clinicians alike. No individual likes to suffer from pain and least so, patients undergoing neurosurgical procedures. Clinicians also are unhappy when their patients report pain after an otherwise successful surgery. Yet, despite several advances in technology and pharmacological products over the last several years to manage pain both during and after surgery, pain is one of the most commonly reported postoperative complications in neurosurgical patients. The five essential questions for pain treatment need to be carefully considered: which patient should when receive which drug in which dose and via which route. Therefore, there is a need to reflect on how to overcome this problem.

The assessment of pain is crucial for understanding the burden of this problem and to address it. Pain assessment and management in surgical patients vary considerably across the globe. We learned from our survey among Indian anesthesiologists that use of structured protocol for pain assessment is lacking and very few use opioids for pain management in the postoperative period after neurosurgery. This knowledge can be used to overcome the current gap and provide better healthcare to our patients. Implementation of pain protocols must be encouraged and facilitated. Subsequent analyses must address the limiting factors of successful implementation.

From our research, we understand that postoperative pain after brain surgery continues to remain a significant problem with every two in three patients reporting moderate-to-severe pain at some point during the initial three days after surgery. From this, we know that the current analgesia methods adopted are insufficient to

adequately manage pain and more efforts are needed in this direction. New clinical trials must be designed to identify the most effective analgesia technique with least side-effects.

Objective tools of intraoperative nociception assessment such as surgical pleth index and analgesia nociception index are not routinely employed in the intraoperative period. Today, these methods of nociception assessment are available for use in patients undergoing surgery under general anesthesia. These monitors help in the assessment of nociception levels and also in titrating the administration of analgesia. Postoperative pain is likely to be minimized by utilizing these parameters to guide intraoperative analgesia. Implementation can be facilitated by incorporating these parameters in the existing multi-parameter intraoperative patient monitors.

Opioids such as fentanyl, remifentanyl, and morphine are the primary systemic analgesics used during the intraoperative period. However, due to their potential side effects, non-opioid analgesia options alone or in combination with opioids are increasingly adopted in anesthesia practice. From our preliminary research in patients undergoing brain surgeries, we observed that non-opioid analgesics are not inferior to opioids when used as sole analgesia technique with regards to pain outcomes or side effects. We also observed similar findings in our systematic review and meta-analysis of six trials involving craniotomy population. Our research provides confidence to adopt non-opioid analgesia techniques in our clinical practice especially when opioid analgesia presents an increased risk. The

dissemination of this finding will be facilitated by presentations at conferences and through scientific publications.

The available evidence as per our systematic review favors intraoperative non-opioid analgesia over opioids in patients undergoing spine surgeries with regards to pain outcomes and patient reported adverse effects. This knowledge will help healthcare providers to include and maybe eventually substitute non-opioid multimodal analgesia techniques in place of opioids as part of perioperative practice.

Overall, the knowledge gained from this research is likely to benefit clinicians in making informed choices based on the evidence regarding assessment and management of perioperative pain in order to improve overall health outcomes in neurosurgical patients. Towards this end, the five essential questions for pain treatment need to be carefully considered: *which patient* should *when receive which drug* in *which dose* and via *which route*.