Regional Analgesia in Postoperative Pain Management

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Abstract

Appropriately managed postoperative pain is undoubtedly of paramount importance, due to the superior pain control and other resulting advantages, nowadays representing one of the key elements of Enhanced Recovery After Surgery (ERAS) Pathways. In this context, the concept of multimodal analgesia is widely accepted, well established and broadly practiced, with regional anesthesia/analgesia (RA) techniques being an integral part of an effective postoperative pain management plan and a fundamental pillar of a perioperative analgesia regime.

Current Guidelines on postoperative pain management suggest the application of specific RA techniques, which have proven to be effective in several surgical procedures and populations. Similarly, continuous perineural local anesthetic infusion techniques are recommended for patients who are likely to develop chronic postsurgical pain.

Recently, a RA shift away from continuous Central Nerve Blocks (CNBs) has been highlighted, and although epidural analgesia still has a role in major thoracic and abdominal surgery, there has been a trend towards the utilization of Peripheral Nerve Blocks (PNBs) instead. A variety of advantages may explain such a trend, including better hemodynamic stability, reduced motor impairment and fewer chances for severe neurological complications. Moreover, recent meta–analyses show that the benefits of postoperative epidural analgesia may be less evident when compared to less invasive alternatives.

Unilateral selective PNBs may replace traditional CNBs in certain patient populations and may be more appropriate in the ambulatory setting, facilitating patients’ recovery and reducing hospital length of stay. Multiple PNBs have been mastered for anesthesia and analgesia of the respective operative area, offering the minimum possible unwanted sensory deficit and motor weakness. These newer techniques may provide acceptable levels of analgesia, with fewer side effects and higher patient satisfaction, compared to traditional CNBs and established standards of care.

The multimodal approach to postoperative pain management is designed to improve perioperative patient care and recovery after surgery, as well as to expedite patients’ discharge from hospital. Early mobilization is an important goal, and the use of PNBs may help towards this direction. Moreover, RA techniques can also minimize opioids utilization decreasing opioid–related side effects.

Not surprisingly, the shift towards PNBs application has, at least in part, been driven by the evolution of Ultrasound–Guided RA (UGRA). UGRA facilitates real–time visualization and targeting of nerves, previously being identified or located with landmark–based “blind” techniques. Nowadays, there is a clear tendency towards even higher precision novel blocks, in an effort to locate single individual nerves and fascial planes, a fact mainly attributed to UGRA continuous advance. In addition, precision medicine incorporating artificial intelligence in UGRA may be a future game–changer.

The role of RA in acute pain management and the whole perioperative care is more important now than it has ever been in the past, and it is anticipated it will only continue to strengthen in the coming years.