The unending pursuit for subduing postoperative pain after cesarean section: Current gradation of transversus abdominis plane block

The relative ease of access and high degrees of success associated with use of ultrasound (US) has led to the resurgence in the use of many regional blocks. US has proven to be extremely valuable for transversus abdominis plane (TAP) block as it offers an indispensable advantage of accurate identification of this potentially collapsed space and decreases risk of injury to underlying structures.[1] With adequate experience, US-guided TAP block following abdominal procedures provides adequate analgesia and reduces requirement of opioids for pain relief in the postoperative period.[2] An increasing number of women have become conscious of the fact that they want to be comfortable, mobile, and attentive after the cesarean section to care for their newborn. Opioids, however, are required as a part of multimodal analgesic regimen in those patients in whom an epidural has not been placed. Pain relief is obtained at the cost of dose-dependent side-effects including nausea, vomiting, pruritus, sedation, and respiratory depression.[3] TAP block has emerged as a favorable option for postoperative analgesia in these women. Number of studies have demonstrated that US-guided TAP block is an effective intervention providing analgesic efficacy in the form of opioid-sparing effects, reduces antiemetic use, and improves satisfaction with pain relief after cesarean delivery.[4,5]

In this issue of Journal of Anaesthesiology Clinical Pharmacology, authors present their prospective study comparing US-guided TAP block using levobupivacane with and without dexmedetomidine with a control group for assessing postoperative analgesia following cesarean delivery.[6] They hypothesized that patients who were administered US-guided TAP block using 0.25% levobupivacaine with or without addition of dexmedetomidine following cesarean section would experience better postoperative analgesia, leading to superior patient satisfaction compared to controls and observed prolongation of time for first request of rescue analgesia. They concluded that US-guided bilateral TAP block with levobupivacaine (0.25%) was associated with prolonged postoperative analgesia and improved patient satisfaction compared to spinal anesthesia alone. Not surprisingly, dexmedetomidine, when added to levobupivacaine further potentiated its analgesic effects and improved patient satisfaction without any added side effects.

Unfortunately, authors have not used intrathecal opioids in control group during spinal anesthesia which is the standard of practice in many institutes. Therefore, we could obtain only a partial insight of the true advantages of US-guided TAP block using levobupivacane with or without dexmedetomidine. As the literature over intrathecal opioids has augmented, clinicians now are more likely to use small doses of intrathecal opioids when administering spinal anesthesia for cesarean section.[7,8] The evidence generated by a meta-analysis demonstrated that TAP blocks are an effective intervention in providing acute pain relief after cesarean section.[9] While they may not confer much additional analgesia when intrathecal opioids are used, nonetheless, they are at least as effective. The major reason justifying the exceptional superiority of intrathecal opioids is that TAP block relieves only the somatic component of the postoperative pain. The visceral component of the pain requires to be tackled in the conventional manner using oral and parenteral analgesics. Previous trials favor intrathecal opioids when compared with TAP block for postoperative analgesia at rest upto 6 hour which also extended up to 24 hours postoperatively.[9] They also observed that pain relief on movement by TAP block was no different compared with controls at 6 hours postoperatively, however, a combination of both intrathecal opioids and TAP blocks was more effective than intrathecal opioids alone.[9] US-guided TAP block has better side-effect profile in relation to postoperative nausea vomiting than intrathecal opioids.[9]

The cost and availability of US technology in many centers and complications associated with TAP block limits its universal applicability when compared to the simplicity of intrathecal opioids. Similar to other regional blocks, addition of dexmedetomidine enhances the duration of block when compared with local anesthetics alone due to its vasoconstrictive action through an action on $\alpha 2$ adrenoceptors; however, the quality of analgesia is still not comparable to what is obtained when intrathecal opioids are used.[10] The careful analysis of the groundwork of past studies supported the premise that TAP block offers particular advantages when neuraxial opioids are not administered. This also does not support the assertion that TAP blocks alone can replace the need for intrathecal opioid analgesia. On the minor assumption of reducing the incidence of spinal opioid-related side-effects, a paradigm shift of practice should not be recommended.

Current trends in academic literature, as well as clinical management has now focused the attention on US-guided TAP block for postoperative pain relief after all kind of abdominal surgeries in the belief that it is the best suggested option. This view is somewhat speculative as it reinforces the notion of considering US-guided regional blocks as panacea for pain relief ubiquitously and licensing as stand-alone option among younger anesthesiologists. On all fronts, US-guided TAP block are most effective in relieving postoperative pain following cesarean section in patients who have not received intrathecal opioids. However, well-planned exploration of advantages of novel alternatives for postoperative analgesia, especially when they are technology backed, should always be encouraged.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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Access this article online	
Quick Response Code:	Website: www.joacp.org
	DOI: 10.4103/joacp.JOACP_304_18

How to cite this article: Gupta D, Haldar R. The unending pursuit for subduing postoperative pain after cesarean section: Current gradation of transversus abdominis plane block. J Anaesthesiol Clin Pharmacol 2019;35:145-6.