



# Should transversus abdominis plane blocks be used to treat pain after laparoscopic surgery?

Jaime Ortiz

Department of Anesthesiology, Baylor College of Medicine, Houston, Texas 77030, USA

Correspondence to: Jaime Ortiz, MD. Associate Professor, Director of Regional Anesthesia, Co-Director Acute Pain Management Service, Department of Anesthesiology, Baylor College of Medicine, One Baylor Plaza, MS: BCM120, Houston, Texas 77030, USA. Email: jaimeo@bcm.edu.

Comment on: Oh TK, Yim J, Kim J, *et al.* Effects of preoperative ultrasound-guided transversus abdominis plane block on pain after laparoscopic surgery for colorectal cancer: a double-blind randomized controlled trial. *Surg Endosc* 2016. [Epub ahead of print].

Received: 18 August 2016; Accepted: 30 August 2016; Published: 01 September 2016.

doi: 10.21037/ales.2016.08.02

View this article at: <http://dx.doi.org/10.21037/ales.2016.08.02>

I read with great interest the article published in *Surgical Endoscopy* by Oh *et al.* entitled “Effects of preoperative ultrasound-guided transversus abdominis plane block on pain after laparoscopic surgery for colorectal cancer: a double-blind randomized controlled trial” (1). The authors should be commended for a well-planned and executed study.

The use of ultrasound-guided peripheral nerve blocks to help prevent and treat pain in an increasingly larger group of patients, injuries, and surgical procedures is very exciting to both surgeons and anesthesiologists, as well as to our patients. Transversus abdominis plane (TAP) blocks for abdominal surgery have become a popular modality over the past 10 years. The analgesic efficacy of ultrasound-guided TAP blocks has been increasingly studied recently, and analgesic benefit has been found when these blocks are performed for abdominal laparotomy, laparoscopy, and cesarean section (2).

In their study, Oh *et al.* (1) did not find a difference in pain scores on coughing or at rest after laparoscopic colorectal surgery in patients receiving bilateral TAP blocks with either 0.25% bupivacaine or saline. The authors also did not find any difference in opioid consumption, sedation, nausea, complications or length of stay (1). Of interest, the duration of analgesic effect of peripheral nerve blocks with 0.25% bupivacaine can be anywhere from 12–18 hours. In this study, the authors recorded all their measures at 24, 48, and 72 hours after surgery. This means that any analgesic benefit from the TAP block with bupivacaine would have mostly worn off by the time data was first recorded. This could easily explain the lack of difference between the

groups. Either the use of a longer acting agent, or the addition of a local anesthetic adjunct like epinephrine or clonidine to prolong the analgesic effect could have extended the duration of analgesia past 24 hours. Also, recording of study data at more frequent time points such as 4, 8, 12, 16, and 24 hours after surgery may have also shown a statistically significant difference in the two groups at any of those measurement points.

The authors compared their study to three recent similar investigations (3–5). The study by Smith *et al.* (3) compared 142 patients who received either bilateral TAP block or no block, and found no difference in pain scores or morphine consumption. However, all patients received port site local anesthetic infiltration with bupivacaine 0.25% which provides a baseline level of analgesia for both groups. Conaghan *et al.* (4) studied 74 patients who received either TAP block or no block and found decreased use of morphine in the TAP block. Walter *et al.* (5) randomized 68 patients to TAP *vs.* no TAP and found decreased morphine use in the TAP group. None of these studies found significant differences in the pain scores recorded.

The meta-analysis by Baeriswyl *et al.* (2) put together data on 1,611 patients who participated in 51 controlled trials which compared TAP block to either a control group or placebo. The data showed that ultrasound-guided TAP block reduced IV morphine consumption 6 hours after surgery by a mean of 6 mg (2). This difference persisted for 24 hours and was not affected by timing of injection, block approach, or presence of a postoperative multimodal analgesia regimen (2). In addition, pain scores at rest and on movement were decreased in the TAP block groups 6 hours

after surgery (2).

In our practice, our surgeons still prefer this group of patients, whether receiving laparoscopic or open resection of their colorectal cancer, to receive thoracic epidurals for postoperative pain management. They feel that it provides the opportunity for better pain management while the patient remains NPO until return of normal bowel function during their hospital stay. Our acute pain management service works hard to efficiently wean our patients off the epidural infusion as soon as they are receiving adequate pain control with PO pain medications. This assists with the goal of getting patients up and out of bed, helps the prevention of development of deep venous thrombosis and atelectasis, and helps to discharge patients from the hospital in a timely manner. We will perform TAP blocks with long acting local anesthetics on occasion when patients refuse placement of the epidural or have a contraindication to placement of the epidural catheter.

These and other recent studies and reviews show that there is still lots to learn on the anatomy and analgesic coverage of TAP blocks. The institution of multimodal pain management for patients undergoing abdominal surgery, and limiting the use of opioids and their associated side effects is very important. Hopefully in the near future we will have more precise recommendations as to which type of block benefits which group of surgical patients.

## Acknowledgments

*Funding:* None.

## Footnote

*Provenance and Peer Review:* This article was commissioned by the editorial office, *Annals of Laparoscopic and Endoscopic Surgery*. The article did not undergo external peer review.

*Conflicts of Interest:* The author has completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/ales.2016.08.02>). The author has no conflicts of interest to declare.

doi: 10.21037/ales.2016.08.02

**Cite this article as:** Ortiz J. Should transversus abdominis plane blocks be used to treat pain after laparoscopic surgery? *Ann Laparosc Endosc Surg* 2016;1:4.

*Ethical Statement:* The author is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

*Open Access Statement:* This is an Open Access article distributed in accordance with the Creative Commons Attribution-NonCommercial-NoDerivs 4.0 International License (CC BY-NC-ND 4.0), which permits the non-commercial replication and distribution of the article with the strict proviso that no changes or edits are made and the original work is properly cited (including links to both the formal publication through the relevant DOI and the license). See: <https://creativecommons.org/licenses/by-nc-nd/4.0/>.

## References

1. Oh TK, Yim J, Kim J, et al. Effects of preoperative ultrasound-guided transversus abdominis plane block on pain after laparoscopic surgery for colorectal cancer: a double-blind randomized controlled trial. *Surg Endosc* 2016. [Epub ahead of print].
2. Baeriswyl M, Kirkham KR, Kern C, et al. The Analgesic Efficacy of Ultrasound-Guided Transversus Abdominis Plane Block in Adult Patients: A Meta-Analysis. *Anesth Analg* 2015;121:1640-54.
3. Smith SR, Draganic B, Pockney P, et al. Transversus abdominis plane blockade in laparoscopic colorectal surgery: a double-blind randomized clinical trial. *Int J Colorectal Dis* 2015;30:1237-45.
4. Conaghan P, Maxwell-Armstrong C, Bedford N, et al. Efficacy of transversus abdominis plane blocks in laparoscopic colorectal resections. *Surg Endosc* 2010;24:2480-4.
5. Walter CJ, Maxwell-Armstrong C, Pinkney TD, et al. A randomised controlled trial of the efficacy of ultrasound-guided transversus abdominis plane (TAP) block in laparoscopic colorectal surgery. *Surg Endosc* 2013;27:2366-72.