

CHINESE  
MEDICAL SCIENCES  
JOURNAL

ORIGINAL ARTICLE

---

Ultrasound-guided Transversus Abdominis Plane Block  
Improves Postoperative Analgesia and Early Recovery  
in Patients Undergoing Retroperitoneoscopic  
Urologic Surgeries: A Randomized  
Controlled Double-blinded Trial<sup>△</sup>

Ge Qu<sup>1</sup>, Xu-lei Cui<sup>1</sup>, Hong-ju Liu<sup>1</sup>, Zhi-gang Ji<sup>2</sup>,  
and Yu-guang Huang<sup>1\*</sup>

<sup>1</sup>Department of Anesthesiology, <sup>2</sup>Department of Urology, Peking Union  
Medical College Hospital, Chinese Academy of Medical Sciences & Peking  
Union Medical College, Beijing 100730, China

**Key words:** ultrasound-guided transversus abdominis block; retroperitoneoscopic surgery;  
postoperative analgesia; postoperative recovery

**Objective** To evaluate the effects of ultrasound-guided transversus abdominis plane (TAP) block on postoperative analgesia and early recovery in patients undergoing retroperitoneoscopic urologic surgeries.

**Methods** This was a randomized, controlled, double-blinded trial. Eligible patients scheduled for retroperitoneoscopic urologic surgeries were randomly assigned to two groups. Group TAP received ultrasound-guided TAP block with 0.5% ropivacaine 20 ml at 30 minutes before surgery, and Group C received TAP sham block with normal saline. All patients received retroperitoneoscopic urologic surgeries under general anesthesia. The primary outcome was the severity of pain after surgery. Secondary outcomes included opioids consumption, analgesics, postoperative nausea and vomiting, time to Foley catheter removal and to passage of flatus, length of post-anesthesia care unit stay and hospital stay.

**Results** Eighty patients completed the study, forty cases in each group. Compared to the Group C, the Group TAP had lower visual analogue scale pain scores within two postoperative days (all  $P < 0.05$ ). They also had less consumption of intraoperative fentanyl ( $2.0 \pm 0.5$  vs.  $3.8 \pm 0.7$   $\mu\text{g}/\text{kg}$ ,  $P < 0.05$ ), reduced incidence of postoperative rescue analgesic usage (12.5% vs. 45.0%,  $P < 0.05$ ), and lower incidence of postoperative nausea and vomiting within postoperative 48 hours (12.5% vs. 25.0%,  $P < 0.05$ ) when compared to the Group C. In addition, Group TAP had a shortened post-anesthesia care unit stay ( $25 \pm 8$  vs.  $49 \pm 12$  minutes,  $P < 0.05$ ), and a greater

proportion of patients discharged within postoperative three days (57.5% vs. 35.0%,  $P < 0.05$ ).

**Conclusion** Preoperative ultrasound-guided TAP block is an effective technique to improve postoperative analgesia and early recovery in patients undergoing retroperitoneoscopic urologic surgeries.

Chin Med Sci J 2016; 31(3):137-141

**T**HE rates of retroperitoneoscopic urologic surgeries have been increasing, for its benefits of less morbidity and mortality over open abdominal surgeries.<sup>1</sup> Efforts to improve postoperative recovery remains challenging because acute pain acts as a major contributing factor to perioperative stress and delayed recovery.<sup>2</sup> Ultrasound-guided transversus abdominis plane (TAP) block is a technique to inject local anesthetics between the layers of internal oblique and the transversus abdominis muscles, blocking sensory branches of thoracoabdominal nerves distributed in anterior-lateral abdominal wall. Its efficacy and safety have been shown in laparoscopic hysterectomy<sup>3</sup> and colorectal surgeries.<sup>4</sup> However, there are limited data of TAP on the outcomes of retroperitoneoscopic urologic surgeries. The primary objective of this study was to investigate efficacy and safety of ultrasound-guided TAP block on postoperative analgesia and early recovery in patients undergoing retroperitoneoscopic urologic surgeries.

## PATIENTS AND METHODS

### Patients' enrollment and grouping

This prospective, randomized, controlled, double-blinded study was conducted at Peking Union Medical College Hospital. The study protocol was approved by the institutional Review Board and is registered at [chictr.org.cn](http://chictr.org.cn) (ChiCTR-ICR-15006732). Written Informed consents were obtained from all participants.

Eligible participants were patients aged 18-70 years old, undergoing elective retroperitoneoscopic renal or adrenal surgeries. Inclusion criteria: patients of the American Society of Anesthesiologists (ASA) classification I or II, who underwent a 1-3 hours long surgery, and whose body mass index (BMI) was between 18 and 30 kg/m<sup>2</sup>. Patients were excluded if they had chronic pain, allergy to local anesthetics, bleeding disorders, liver or kidney insufficiency, or a BMI >30 kg/m<sup>2</sup>.

Patients were randomized to be in two groups: the study group, Group TAP, received ultrasound-guided TAP block with 20 ml of 0.5% ropivacaine at 30 kg/m<sup>2</sup> minutes before surgery, and the control group, Group C, received ultrasound-guided sham TAP block with normal saline.

Random numbers were computer-generated and group assignments were sealed in sequentially numbered, opaque envelopes. An independent researcher who was not involved in patient care or data collection, opened envelopes before each case, and prepared syringes with study drugs (ropivacaine or normal saline). Patients, TAP block performer, anesthesiologists, surgeons and follow-up investigators were all blinded to group allocation.

### Intervention

Patients were routinely monitored, and were premeditated with intravenous midazolam. Thirty minutes before surgery, a TAP block was performed under the guidance of an ultrasound device (Philips CX50) and a linear 5-10 MHz transducer (Philips C12-3). A posterior approach of TAP block was adopted with patients in a lateral decubitus position. A transducer was placed at the mid-axillary line between the costal margin and iliac crest. The external oblique muscle, internal oblique muscle (IOM), and transversus abdominal muscle (TAM) were scanned and identified. A block needle (Braun Stimuplex 21G) was advanced near the posterior corner of TAM using an in-plane approach. Once the needle tip was placed in the space between IOM and TAM with a negative aspiration of blood, 20 ml of study drug (ropivacaine or normal saline) was injected. A successful study drug injection was defined as appearance of a hypoechoic ellipsoid with well-defined margins in the ultrasonic imaging. Patients were monitored and observed for detection of complications.

### Perioperative management

In the operating room, all patients received general anesthesia. Anesthesia was induced with intravenous propofol, remifentanyl, and rocuronium. After endotracheal intubation was performed, ventilation was started with oxygen and air. Anesthesia was maintained with propofol infused at target plasma concentration of 4 µg/ml. Intravenous boluses of fentanyl 50 µg were given repeatedly if needed at the anesthesiologist's judgment. Retroperitoneoscopic renal or adrenal surgeries were performed. Trocars incisions were established at anterior, middle, and posterior axillary lines. At the end of the surgery, patients were allowed to awake, extubated and sent to the post-anesthesia care unit (PACU).

Download English Version:

<https://daneshyari.com/en/article/8757212>

Download Persian Version:

<https://daneshyari.com/article/8757212>

[Daneshyari.com](https://daneshyari.com)