Journal of Clinical Anesthesia (2013) **25**, 459–465

ELSEVIER

Journal of Clinical Anesthesia

Original Contribution

Comparison between the analgesic efficacy of transversus abdominis plane (TAP) block and placebo in open retropubic radical prostatectomy: a prospective, randomized, double-blinded study☆

Nabil Elkassabany MD MSCE (Assistant Professor of Anesthesiology)[a,*], Moustafa Ahmed MD (Clinical Assistant Professor of Anesthesiology)[a,b], S. Bruce Malkowicz MD (Professor of Urology)[c,d], Daniel F. Heitjan PhD (Professor of Biostatistics)[e], Joshua A. Isserman MS (Research Assistant)[a], E. Andrew Ochroch MD, MSCE (Associate Professor of Anesthesiology)[a]

[a]*Department of Anesthesiology and Critical Care, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA 19104, USA*
[b]*Department of Anesthesiology, Philadelphia V.A. Hospital, Philadelphia, PA 19104, USA*
[c]*Department of Urology, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA 19104, USA*
[d]*Perelman Center for Advanced Medicine, West Pavilion, Philadelphia, PA 19104, USA*
[e]*Center of Clinical Epidemiology and Biostatistics, Department of Biostatistics and Epidemiology, University of Pennsylvania, Perelman School of Medicine, Philadelphia, PA 19104, USA*

Received 14 September 2012; revised 5 March 2013; accepted 1 April 2013

Keywords:
Patient-controlled analgesia;
Peripheral nerve block;
Postoperative analgesia;
Regional anesthesia;
Retropubic radical prostatectomy (RRP);
Transversus abdominis plane (TAP) block;
Urological surgery

Abstract

Study Objective: To compare the efficacy of ultrasound-guided tansversus abdominis plane (TAP) block with placebo for postoperative analgesia after retropubic radical prostatectomy (RRP).

Design: Prospective, randomized, double-blinded study.

Setting: Tertiary-care Veterans Affairs (VA) hospital.

Patients: ASA physical status 1, 2, and 3 patients scheduled for RRP.

Interventions: Patients were randomized to two groups: the TAP group and the control group. All patients underwent an ultrasound-guided TAP block procedure after induction of general anesthesia and received either local anesthetic (TAP group) or normal saline (control group).

Measurements: Opioid use and verbal analog pain scores at 1, 6, 12, and 24 hours after surgery were recorded, as was the frequency of side effects. Times to ambulation and first oral intake also were recorded.

☆ Supported by developmental funding only.

* Correspondence: Nabil Elkassabany, MD MSCE, Assistant Professor, Department of Anesthesiology and Critical Care, Perelman School of Medicine, University of Pennsylvania, 3400 Spruce St., Dulles 6, Philadelphia, PA 19104, USA. Tel.: +1 215 275 0734.
E-mail address: nabil.elkassabany@uphs.upenn.edu (N. Elkassabany)

0952-8180/$ – see front matter © 2013 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.jclinane.2013.04.009

Main Results: The TAP block group had lower pain scores and required less total opioid in the first 24 hours after surgery. Time to first oral intake and time to ambulation were similar between the two groups.
Conclusion: The TAP block has early benefits in postoperative analgesia after RRP.
© 2013 Elsevier Inc. All rights reserved.

1. Introduction

Different analgesic modalities have been used for pain control after retropubic radical prostatectomy (RRP). These modalities include systemic opioids and neuraxial analgesia. Side effects of systemic and intrathecal opioids may potentially limit their utility [1,2]. Opioid side effects include sedation, nausea, vomiting, pruritis, delayed recovery of gastrointestinal motility, and respiratory depression. Epidural analgesia offers better quality of postoperative analgesia after RRP when compared with systemic opioids [3,4]. However, it may be associated with longer hospital stay due to delayed ambulation [5].

The transversus abdominis plane (TAP) block is a relatively new regional block of the sensory afferents of the anterior abdominal wall (T_7-L_1). It was first introduced into practice as a landmark-based technique via the lumbar triangle of Petit [6]. Since then, ultrasound-guided technique has been described and its efficacy was tested for postoperative pain control after abdominal [7,8] and gynecological surgery [9,10]. Sensory distribution of the TAP block should cover the incisional pain of open prostatectomy.

We hypothesized that bilateral TAP blocks, performed after induction of general anesthesia, would reduce pain scores and opioid requirement in the first 24 hours after surgery when compared with a sham block. We also sought to examine the difference between the two groups with regard to their recovery profile as reflected by time to ambulation and time to first oral intake.

2. Materials and methods

The Institutional Review Board (IRB) of the Philadelphia Veterans Affairs (VA) Medical Center approved the study protocol. We conducted a prospective, randomized, double-blinded, placebo-controlled study with a parallel design and an allocation ratio of 1 to 1 for the treatment groups. Inclusion criteria included those patients who were scheduled for RRP, ASA physical status 1, 2, and 3, mental competence, and the ability to give informed consent for enrollment in the study. Exclusion criteria were allergy to local anesthetics or systemic opioids (fentanyl, morphine, hydromorphone); impaired kidney function; coagulopathy; chronic pain syndromes; chronic opioid use, defined as taking regular daily doses of systemic opioids for the past 6 months before the scheduled surgery; body mass index (BMI) of 35 kg/m^2 or higher; employees of the V.A. Medical Center; prisoners; and patients who fit the definition of a vulnerable population, as described in the VA research handbook.

Patients scheduled for RRP and eligible to participate in the study were identified from the surgical schedule of the Department of Urology. A member of the research team contacted patients during their anesthesia preoperative clinic visit, explained to them the study procedures, and obtained informed consent for enrollment in the study. If we were not able to meet with patients in the anesthesia clinic before surgery, they were contacted by telephone before surgery. Study procedures were explained over the telephone and patients gave their consent to participate on the morning of surgery.

A computer-generated randomization table was created by the research pharmacy. The research pharmacy kept the randomization code separate from the research or clinical records. Randomization was done in blocks of 4 patients each. Patients were randomly allocated to two treatment groups: the TAP group and the control group. The pharmacist was notified on the morning of surgery, after informed consent was obtained, and she/he delivered to the investigator performing the block two 20 mL syringes labeled only with the subject's name and containing 0.5% bupivacaine or normal saline. The TAP group received the TAP block with 20 mL of 0.5% bupivacaine bilaterally after induction of general anesthesia. The control group received a "sham block" using 20 mL of normal saline bilaterally after induction of general anesthesia.

The patient, anesthesia team, investigator performing the block, research assistant collecting the data, and surgeon were all blinded to each patient's study group assignment as well as the contents of the block syringes.

All patients received a standardized general anesthetic with standard ASA monitors. The need for more invasive monitors was left to the discretion of the attending anesthesiologist on a case-by-case basis. All patients received midazolam 1 - 2 mg prior to induction. Induction of general anesthesia included fentanyl 1 - 2 μg/kg and propofol 1 - 2 mg/kg. Vecuronium 0.1 mg/kg was used to facilitate tracheal intubation and achieve muscle relaxation. Further dosing of muscle relaxant was given as deemed appropriate by the anesthesia team. Maintenance of anesthesia was done using sevoflurane 1% - 2% in a mixture of 50% oxygen and air. Before surgical incision, patients received intravenous (IV) morphine 0.1 - 0.15 mg/kg or equivalent doses of hydromorphone. At the conclusion of surgery, patients received ketorolac 30 mg. There was no prophylaxis against postoperative nausea and vomiting.

After induction of general anesthesia, one of two investigators performed the bilateral TAP block (real or sham). All patients underwent a RRP performed by one of two

Download English Version:

https://daneshyari.com/en/article/2762748

Download Persian Version:

https://daneshyari.com/article/2762748

Daneshyari.com