THE EFFECTS OF PLANNING BLOCKS (ESP&OSTAP) APPLIED WITH ULTRASOUND ON PERIOPERATIVE ANALGESIA IN LAPAROSCOPIC HYSTERECTOMIES

INTRODUCTION

Hysterectomy is the most common major intervention in gynecology after cesarean section. Among the indications are myoma uteri, abnormal uterine bleeding, cervical intraepithelial neoplasia chronic pelvic pain, desensus uterine, operated breast cancer, and endometrial considered hyperplasia. Hysterectomy today It can be done abdominal , vaginal and laparoscopic.[1] Laparoscopic Hysterectomy (LH) has several advantages and disadvantages over other forms of hysterectomy . Shorter recovery time, less wound infection, shorter hospital stay, and less need for postoperative analgesia can be counted among the advantages. Prolongation of the operation time and urinary the increased risk of complications constitutes its disadvantages.[2]

Pain management after laparoscopic operations is of critical importance. In case of poor management of postoperative pain, pulmonary diseases such as atelectasis and pneumonia , which increase morbidity and mortality after anesthesia and surgery, complications , cardiac dysfunctions due to increased workload of the heart, gastrointestinal gastrointestinal disturbances such as nausea-vomiting dysfunctions, urinary retention, immunosuppression, anxiety, depression, and neuroendocrine system dysfunctions.[3]

Postoperative pain management can be done with different methods depending on the location of the surgical field, the type of surgical procedure, the patient's analgesia needs and patient preference. These methods include oral, intravenous or intramuscular medication and nerve blocks. The "balanced analgesia" method is used to minimize the side effects of opioids used in analgesic therapy such as respiratory depression, nausea-vomiting, lethargy, constipation , itching and to increase the analgesic effect.[4] With this method, opioids , non-opioid analgesics or peripheral nerve-field blocks are used. side effects are minimized and optimum analgesia is provided .

Transversus, one of the abdominal field blocks abdominis plane (TAP) block was first described by Rafi in 2001.[6] Hebbard et al. stated in 2007 that ultrasound (US)-guided TAP block can be applied more effectively and reliably.[7] This block can be performed with antero-lateral , posterior and oblique It can be done subcostal with three different approaches. TAP block has been shown to reduce postoperative pain after hysterectomy , cesarean section, and colorectal surgery.[8]

Erector spina plan (ESP) block was first described by Forero et al. in 2016 on a patient with chronic neuropathic pain.[9] The basic technique is performed paraspinally under US guidance . It is used for postoperative analgesia in breast, thoracic surgeries, hernia repair, dorsal colon, abdomen and hip surgery .

In this study, total laparoscopic US-guided erector in hysterectomy surgeries spina plan (ESP) block and oblique subcostal transversus We aimed to compare the effect of abdominis plan (OSTAP) block applications on perioperative pain control.

METHODS AND MATERIALS

Patients between the ages of 18-65, ASA I-II, BMI ≤30 kg/m2 who will undergo elective surgery under general anesthesia, with voluntary consent will be included in the study . Local anesthetic patients with allergy , coagulopathy , infection at the block application site and mental deficiency and for whom the surgical plan has been changed (complicated / open surgery) will be excluded from the study.

Numerical rating scale (NRS: Numeric) for the evaluation of patient-controlled analgesia (PCA) and pain intensity before the operation in the patients included in the study. Rating Scale) will be given. Demographic data of the patients will be recorded.

Anesthesia Application:

After the intravenous (IV) route is provided with a 20 G cannula in the preoperative preparation room, 10 mL /kg of balanced crystalloid fluid infusion will be started. 0.03 mg/kg midazolam will be administered for premedication . Standard monitoring (ECG, heart rate, non- invasive blood pressure , SPO_2 , temperature) and neuromuscular monitoring will be implemented. The input value of these parameters will be saved before induction. Records will be taken at 5-minute intervals until the end of the operation. For anesthesia induction, 2 mg/kg propofol and 1µg/kg remifentanil will be administered as an IV bolus within 60 seconds . Maintenance of analgesia 0.05-0.25 µg /kg/ min remifentanil provided by infusion . Muscle relaxation will be provided with IV 0.6 mg/kg rocuronium . He will be intubated orotracheally when his train of four rate (TOFR) response is zero . (Neuromuscular In case of blocker requirement, IV 0.1 mg/kg rocuronium will be additionally administered.) Anesthesia maintenance 0.5 L/ min fresh gas flow, oxygen concentration between 40-45 inspiratory oxygen levels, minimum alveolar It will be administered with sevoflurane at a concentration (MAK) of 1.0 . mechanical ventilation It will be done in volume controlled mode with $ETCO_2$ between 35-40 mmHg .

Randomly divided into two groups after induction .

Group I : Erector The group to which Spina Plan Block (ESP) will be applied

Group II : Oblique subcostal transversus The group to which the Abdominis Plan Block (OSTAP) will be applied

In the study, anesthesia induction and plan blocks will be performed by the same anesthesiologist. Intraoperative and postoperative data recording and patient evaluation will be done by two separate anesthesiologists.

ESP Block Application :

Post-induction lateral US (Sonosite M-Turbo) machine, linear 6-13 mHz , in accordance with the rules of asepsis-antisepsis in the decubitus position probe approximately 3 cm lateral to the T9 spinous process. The hyperechoic shadow of the transverse process and the erector will be placed in the sagittal plane and with an in- plane approach. After identifying the spinae muscle (ESM) 22 G, 80 mm Stimuplex ® Ultra 360® (B.Braun , Melsungen , Germany) needle, erector It will be inserted in the cephalocaudal direction to gently contact the T9 spinous process over the spinae . 1-2 mL after negative pressure aspiration between the transverse process and ECM local by injecting anesthetic, after observing its cephalocaudal spread, a total of 20 mL 0.25 mg/ mL bupivacaine will be given by intermittent aspiration every 4-5 mL . The same procedure will be applied to the other side.

OSTAP Block Application:

In the supine position after induction, US (Sonosite M-Turbo) machine, linear 6-13 mHz, in accordance with the rules of asepsis-antisepsis probe in anterior axillary line, anterosuperior to xiphoid rectus by placing it on the subcostal lower edge between the iliac crest abdominis and transversus abdominis muscles will be imaged. Then 22 G, 80 mm Stimuplex® Ultra 360® (B.Braun , Melsungen , Germany) needle rectus It is directed in- plane from 2-3 cm medial of the abdominis muscle , transversus abdominis and rectus 1-2 mL with negative pressure aspiration between the abdominis muscles local anesthetic will be injected. After local anesthetic spillover is observed, a total of 20 mL 0.25 mg/ mL bupivacaine will be given by intermittent aspiration every 4-5 mL . The same procedure will be applied to the other side.

Surgical incision will be made 15 minutes after block applications . Patients will undergo standard surgical procedures. The patients will be operated in the 45^{o} trendelenburg position and the pneumoperitoneum pressure is 10-12 mmHg . In case of (±) 15% change in the hemodynamic parameters of the patient from the baseline values, remifentanil The infusion dose will be increased or decreased at the specified intervals and the amount consumed intraoperatively at the end of the operation will be recorded. It will be defined as hypotension when the systolic arterial pressure decreases by 30% from the baseline value. Before treatment, 250 mL 0.9 % NaCl will be infused quickly . If there is no response, 10 mg of ephedrine will be given IV. When bradycardia occurs (heart rate <50 beats/ min) IV 0.5 mg of atropine will be administered. The time from the skin incision to the end of the surgical procedure will be recorded as **"Operation Time** ".

Sevoflurane flow and remifentanil 15 minutes before the end of the operation infusion will be terminated. 50 mg dexketoprofen was given to the patients. trometamol IV and 1 g paracetamol IV infusion will be administered. At the end of the operation, the fresh gas flow will be increased to 8 L/ min . neuromuscular 4 mg/kg sugammadex IV will be administered to end the blockade . When the TOFR is 0.9, he will be extubated and transferred to the postoperative recovery unit (PACU). The time between termination of sevoflurane flow and extubation will be recorded as " **Extubation time"** , and the time between anesthesia induction and extubation will be recorded as **"Anesthesia Time** ".

Patient-controlled analgesia (PCA) and morphine infusion will be administered to both groups of patients in the PACU .

Morphine protocol : It will be prepared as 1 mg/ mL with 5 mL Morphine Sulphate (50mg) + 45 mL physiological saline . It will be administered as an intermittent bolus of 1 mg, without basal infusion , with a 20-minute lock-in time.

Postoperative pain intensity, sedation level and nausea-vomiting score at rest and in motion will be evaluated at 0, 2, 4, 6, 12 and 24 hours by an anesthesiologist who is not familiar with the study groups.

The severity of pain will be evaluated with NRS at rest and in motion (0: No pain 1 2 3 4 5 6 7 8 9 10: Unbearable pain) If NRS≥4, dexketoprofen as a rescue analgesic Trometamol 50 mg IV will be administered.

"Observer's Alertness and Sedation Evaluation Scale" for monitoring the sedation level of the patient Observer's assessment of the Alertness / Sedation (OAA/S) will be used.

Nausea will be measured with 4 categorical scoring systems (No nausea: 0, Mild: 1, Moderate: 2, Severe: 3) For the treatment of nausea-vomiting, 4mg ondansetron will be administered IV. modified Patients with an Aldrete score of ≥9 will be discharged to the ward. The time elapsed between the patient's admission to the PACU and discharge to the service will be recorded as " **Recovery Time** ".

RESOURCES

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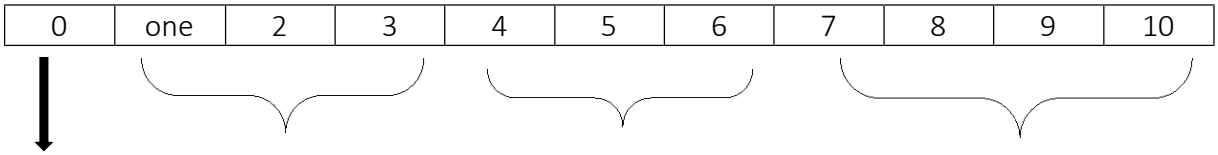
NRS (Numeric Rating Scale- Numerical Pain Rating Scale)



No pain Mild Pain Moderate Severe Pain Very Severe Pain

0: No pain

10: Unbearable pain

OAA/S (Observer's Alertness and Sedation Rating Scale)

Does not respond even when squeezing trapezius muscle	0 points
Responds when squeezing trapezius muscle	1 point
Responds to light shaking or shaking	2 points
Responds when you repeat his name in a loud voice	3 points
Responds sleepily when called by name in normal tone	4 points
Responds when called by name in normal tone	5 points

SCORING OF NAUSEA-VOMITING

NO	0 points
LIGHT	1 point
MIDDLE	2 points
SERIOUS	3 points

modified Aldrete Scoring

Activity(Order/Move)	4 extremities 2 extremities 0 extremities	2 points 1 point 0 points
Respiratory	Deep breathing and comfortable coughing Dyspnea , superficially limited breathing apneic	2 points 1 point 0 points
Circulation	blood pressure ± 20 mmHg preanesthetic period Blood pressure ± 20-50 mmHg preanesthetic period Blood pressure ±50 mmHg preanesthetic period	2 points 1 point 0 points
Consciousness	fully awake Waking up by calling No answer	2 points 1 point 0 points
O_2 saturation	>92% at room air O_2 inhalation required for 90% SpO_2 < 90% with O_2 support	2 points 1 point 0 points