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Online version at http://www.minervamedica.it
Minerva Anestesiologica 2019 September;85(9):1032-3
DOI: 10.23736/S0375-9393.19.13663-2

Lumbar erector spinae plane block for postoperative analgesia after nephrectomy followed by emergent complication surgery

Radical nephrectomy is the surgical process for the resection of malignant tumors of the kidney necessitating a subcostal flank incision. Mild to severe pain is observed in the postoperative period. Providing adequate analgesia is critical for early mobilization of the patient and shortening the length of stay at the hospital

Erector spinae plane block (EPSB) is a new plane block introduced to clinical practice by Forero *et al.*[1] The affectivity of ESPB for the management of postoperative pain is reported in different surgical settings both in adults and pediatric patients.[2, 3] We want to present our results of lumbar ESPB for postoperative analgesia in a 58-year-old male patient (162 cm, 78 kg) scheduled for left radical nephrectomy followed by emergent complication surgery. Written informed consent was obtained from the patient to use and publish all medical data (Figure 1).

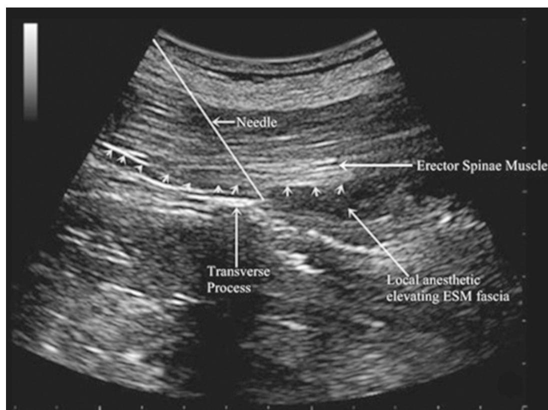

Figure 1.—Sonoanatomy of local anesthetic spread in erector spinae plane block.

Following standard monitorization, the patient was sedated with two mg intravenous midazolam. ESP block was performed in prone position before the induction of anesthesia with Esaote MyLab5 (Florence, Italy) 2-5 MHz convex probe. A 22G, 100 mm insulated needle was used (BBraun, Sonoplex, Melsungen, Germany). The probe was located three cm lateral to the midline in sagittal axis, and the needle was advanced in cranio-caudal direction with in-plane technique until the contact with the transverse process of L1 was visualized. Following hydrodissection with two mL saline, 10 mL of 0.25% bupivacaine and 10 mL of 1% prilocaine was injected.

With the completion of ESP block, the patient was turned to supine position and general anesthesia was induced. The spread of sensory block was between T3-S1 at postoperative first hour. The patient was followed-up in the postanesthesia care unit for an hour, and his Numeric Rating Scale (NRS) Score was one.

At the fifth postoperative hour, the patient complained about abdominal discomfort and dull pain. An abundant 500 mL hemorrhagic drainage was observed from the drains. The computed tomography revealed a three cm laceration in the inferior vena cava at the localization of radix of the left renal vein. The patient was in a preshock state, and his hematocrit decreased to 18% from 36%. He underwent emergent surgery for homeostasis. Following the second operation he was followed up for two hours in the postanesthesia care unit, and his NRS Score was still one. He was mobilized eight hours after the second surgery free of pain. On the postoperative 24 hours, the sensory block spread was between T12-L2 dermatomes with pinprick.

The use of ESP block for postoperative analgesia after nephrectomy for Willm's tumor was reported in two pediatric cases.[4] To the best of our knowledge the postoperative analgesic affectivity of lumbar ESP in adult nephrectomy patients has not been reported. In this case report, in agreement with the previous works reporting the decreased need for postoperative opioids, our patient did not ask for any rescue analgesics or opioid medication.[2]

We think that lumbar ESP block is an effective and long-lasting postoperative analgesia method following nephrectomy in adults.

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Conflicts of interest.—The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

Article first published online: May 3, 2019. - Manuscript accepted: April 9, 2019. - Manuscript revised: March 20, 2019. - Manuscript received: February 13, 2019.

(*Cite this article as:* Canturk M. Lumbar erector spinae plane block for postoperative analgesia after nephrectomy followed by emergent complication surgery. Minerva Anestesiol 2019;85:1032-3. DOI: 10.23736/S0375-9393.19.13663-2)

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Online version at http://www.minervamedica.it
Minerva Anestesiologica 2019 September;85(9):1033-4
DOI: 10.23736/S0375-9393.19.13607-3

A week of slow hearts: anesthesia for eye surgery and shortage of glycopyrrolate

Glycopyrrolate (Gp) is among the most widely used anticholinergic drugs. Common indications are the reduction of salivation, the prevention of vagal reflexive bradycardia during intubation as well as of muscarinic side effects during the reversal of neuromuscular-blocking drugs.[1] In the absence of specific contraindications (*i.e.* angle-closure glaucoma, which may be aggravated by Gp), in ophthalmic surgery, it is commonly administered to suppress the oculocardiac reflex.[2]

Medication shortages may seriously affect patient care and safety. We herein report on our experiences with a recent shortage of Gp in the ophthalmic surgery department of a German university hospital. Here, in the absence of contraindications, Gp is administered routinely prior to induction of any general anesthesia except for children below the age of six years (who may react to anticholinergic drugs with postoperative hyperthermia). In early November 2018, the hospital pharmacy notified of an impending shortage of Gp due to supply difficulties of the German distributor. Despite the drug being requested from abroad via import, we ran out of Gp within short time. Routine administration of atropine prior to anesthesia induction increases the risk for intraoperative tachycardia and dysrhythmias and is therefore obsolete.[3] Thus, anesthesia was induced without anticholinergic premedication. We experienced a week of slow hearts and drooling patients. Table I compares intraoperative mean heart rates and the use of atropine and Akrinor™ (a 20:1-mixture of cafedrine/theodrenaline) with the preceding week, when Gp was still available. We use Akrinor™ to treat intraoperative hypotension and to titrate an adequate arterial blood pressure (*i.e.* 120 mmHg) during vitreoretinal surgery to prevent ischemia of the optic nerve and retina. Without Gp premedication, there was a striking increase in the incidence of bradycardias following anesthesia induction. Bradycardia in general is not uncommon during ophthalmic surgery due to vagal reflex mechanism, and it is even more frequent under general anaesthesia.[4] When occurring concomitantly with (vagal) vasodilation or hypovolemia (*e.g.* in the elderly patient with chronic diuretic medication), bradycardia can cause critical arterial hypotension (decrease by >30% from baseline) and a relative loss of the efficiency of Akrinor™.[5] Thus, the intraoperative use of atropine likewise sharply increased. Of the 38 patients receiving general anesthesia without Gp premedication, 10 were given atropine, compared to just one during the preceding week (P=0.003, Fischer's Exact Test). One patient presenting for wound exploration after traumatic enucleation developed an intraoperative asystole for several seconds, spontaneously recovering to a bradycardic sinus rhythm before the beginning of chest compressions.

Gp primarily acts *via* competitive blockade of the muscarinic cholinoceptor and thereby inhibits the parasympathetic nervous system. Clinically, it mainly affects the gastrointestinal tract (including the salivary glands), the liver and kidneys. Gp elicits a prolonged suppression of salivary secretion compared to atropine, while the latter causes more tachycardia, dysrhythmias, and even electrocardiographic signs of myocardial ischemia, especially in the case of preexistent cardiac diseases.[6, 7] Gp was shown to protect against relevant bradycardia such as the oculocardiac reflex when used as premedication, without increasing the intraocular pressure.[2] Considering our experiences with the recent shortage of Gp in our department, we conclude that Gp may be administered routinely prior to induction of general anesthesia for eye surgery to improve intraoperative cardiovascular stability.

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