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Fascial plane blocks and peripheral nerve blocks: two planets not so far apart

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TEXT

Over the past several years, regional anesthesia has gained a renewed popularity thanks to the introduction of ultrasound guidance. Especially, ultrasound-guided fascial plane blocks have had a remarkable spread, establishing themselves as the new landmarks in the fields of regional anesthesia[1]. According to the kind of surgery, the nerves affected and the patient's clinical status, we hypothesized that a combined technique involving the use of a peripheral nerve block with a fascial plane block may provide a greater anesthetic and analgesic efficacy. We describe the case of an 83-year-old female patient (ASA status II, BMI 32, with a history of COPD and hypertension) undergoing surgery for a recurrent right shoulder dislocation. The surgical treatment consisted of open reduction. Therefore, it was necessary to consider an anterior surgical access with involvement of the pectoral muscles. Considering the patient's clinical status, the surgical procedure and the innervation of the shoulder joint (axillary nerve, subscapular nerve and lateral pectoral nerve; with the latter involved in pectoral muscles innervation),[2] an interscalene nerve block (ISB) with ultrasound and neurostimulation guidance in addition to an US-guided pectoralis nerve block (PECS I)[3] was performed. (Figure.1) The patient was placed in the supine position with the head turned

on the left side. Standard vital signs monitoring and peripheral venous access were obtained. After skin disinfection and draping the neck was scanned with a linear ultrasound probe (8-10 MHz) at the level of the interscalene groove. The brachial plexus appeared as a column of hypoechoic nodules. Using an in-plane technique and a lateral-to-medial direction, a 21 gauge, 50 mm, echogenic, atraumatic needle was inserted between the first and second hypoechoic nodules (C5-C6 roots). After obtaining the corresponding twitch, 13 ml of 0,5% Levobupivacaine were injected. Subsequently, the PECS I block was performed. The pectoral branch of the thoracoacromial artery was identified using color flow Doppler and 10 ml of Levobupivacaine 0.5% were injected between pectoralis major and pectoralis minor. Taking into account the weight of the patient (83 kg), we administered a total volume of 0.5% levobupivacaine equal to 23 ml (115mg; 1.43 mg/kg). This dosage is below the maximum doses recommended for 0,5% levobupivacaine (2 mg/kg; total maximum recommended dose: 150 mg)[4]. The patient received a sedation with 3-5 mg/kg/h of propofol. Supplemental oxygen (4 l/min) was administered by Venturi's mask under expired CO_2 control (ECO_2C). At the end of the surgery, the patient was transferred to the post-anesthesia care unit (PACU) and then to the ward; in accordance with PACU policy. Acetaminophen 1000 mg IV was administered at the end of the procedure and every 8 hours thereafter. Postoperative pain at rest was recorded at 8, 12 and 24 hours after procedure using a Numeric Rating Scale (NRS). Ketorolac 30 mg IV (maximum 90 mg/day) was used as rescue medication if NRS was ≥ 5. Postoperative rest-NRS score was 2 during the first 48 hours after procedure. We were not able to measure NRS at movement since, after the surgery, the shoulder was immobilized in a Desault bandage. Neither side effects or symptoms/signs related to local anaesthetics toxicity were reported. No rescue analgesia was needed. With the combination of the two blocks (ISB and PECS I)[5] we got an excellent myoresolution throughout the surgery with a better anesthetic and analgesic coverage. The association of ISB and PECS I has proven to be a winning strategy. We believe that in the future the use of a peripheral nerve block in combination with a fascial plane block allows a better anesthesiologic plane and antalgic coverage especially in patients with high anesthetic risk when the type of surgery allows it. However, further studies will be needed to confirm the viability of our hypothesis.

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NOTES

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

Authors' contributions. The authors contributed equally to this work.

TITLES OF FIGURES

Figure 1. US-guided PECS I Block. PMm: pectoral major muscle; Pmm: pectoral minor muscle; A: pectoral branch of the thoracoacromial artery; LA: local anesthetic