Paravertebral blockade as indication, not as anesthesia choice – two case reports

Abstract

**Background and purpose.** We present two case reports of patients with ASA IV status, scheduled for surgery due to a malignant process. They were contraindicated for general anesthesia so we decided to perform paravertebral blockade.

**Patients and Methods:** Case 1. A 84-year-old female patient was scheduled for operation because of a malignant process in the left axillary region. She was an ASA IV patient with a suspected malignant process in the lung, bilateral tumor of suprarenal glands, hypothyreosis, and chronic renal insufficiency. Chest X-ray showed decompensated heart. Case 2. A 69-year-old male patient was scheduled for operation of malignant melanoma on the back. He was an ASA IV patient with implanted cardiac electrostimulator, liver cirrhosis, and obstructive lung disease. Chest X-ray showed decompensated heart. Paravertebral space was identified with ultrasound using 8 Hz linear transducer probe. Additionally, needle position was confirmed with neurostimulation. When muscle contraction persisted at 0.4 mA, an anesthetic was applied in levels of Th1, Th2, and Th3 (5 ml per level); in first case, a mixture of 7.5 ml 0.5% levobupivacaine [Chirocaine®, Abbott Laboratories] and 7.5 ml 2% lidocain [Lidocaine®, Belupo], and in second case, 15 ml 0.5% levobupivacaine.

**Results:** Sensory blockade occurred after 15 minutes in the first case, and after 20 minutes in the second case. The surgery was without complications. In the first case, sensory blockade lasted for 4.5 h after block was administered, which is 3h after surgery, and 12 h after blockade or 10 h after surgery in the second case.

**Conclusion:** At 24h postoperative interview, both patients were very satisfied with the anesthesiology treatment, and no complications occurred.

INTRODUCTION

We present two case reports of patients with ASA IV status, scheduled for plastic surgery due to a malignant process. They were contraindicated for general anesthesia so we decided to perform paravertebral blockade.

Case 1. A 84-year-old female patient was scheduled for operation because of a malignant process in the left axillary region. She was an ASA IV patient with the suspected malignant process in the lung, bilateral tumor of suprarenal glands, hypothyreosis, and chronic renal insufficiency. At that time she was decompensated, with known stenosis of aortic
valvula. X-ray showed diffuse interstitial highlighted, left basal suspicious tumorous lesion and, in apicoposterior subpleural left upper lobe, a nodule 9 mm in diameter, also suspicious for metastasis. Heart ultrasound revealed low heart ejection (EF 37–40%), left atrial enlargement, borderline left ventricular, septal dyskinesia of the type of left bundle branch block, and mild aortic stenosis. Electrocardiogram showed left bundle branch block.

Case 2. A 69-year-old male patient was scheduled for operation of malignant melanoma on the upper part of the back. He had ASA IV status with implanted cardiac electrostimulator, liver cirrhosis, obstructive lung disease, high blood pressure, atrial fibrillation, and ventricular tachycardia. Chest X-ray showed decomposed heart. Heart ultrasound showed severe dilated cardiomyopathy, moderate and severe insufficiency of mitral valve and tricuspid valve, severe pulmonary arterial hypertension with the pressure up to 70 mmHg in pulmonary artery. Electrocardiogram showed left bundle branch block and atrial fibrillation, with frequent ventricular extrasystole.

MATERIALS AND METHODS

After arrival in the operating room (without premedication), the patients were monitored for vital parameters using noninvasive monitoring. After sterile washing of the dorsal surface, paravertebral space was identified with ultrasound using 8 Hz linear transducer probe. Additionally, paravertebral space was confirmed with neurostimulator needle [Stimuplex D®, BBraun Melsungen]. When muscle contraction persisted at 0.4 mA, an anesthetic was applied in three levels of Th1, Th2, and Th3 (5 ml per level) in order to adequately satisfy anesthetic and analgesic surgery needs; in the first case a mixture of 7.5 ml 0.5% levobupivacaine [Chirocaine®, Abbott Laboratories] and 7.5 ml 2% lidocain [Lidocaine®, Be lupo], and in the second case 15 ml 0.5% levobupivacaine.

RESULTS

Sensory blockade occurred after 15 minutes in the first case, and after 20 minutes in the second case. During surgery, both patients were continuously monitored and sedated with propofol using minimal dose (30 mcg/kg/min). The patients were hemodynamically stable, and the course of the surgery was without complications. In the first case, sensory blockade lasted for 4.5 h after block was administered, which is 3 h after surgery; and 12 h after blockade or 10 h after surgery in the second case. At postoperative interviews 24 h after the surgery, both patients were very satisfied with the anesthesiology treatment, and no complications occurred. During postoperative period there was no need for additional intravenous analgesics.

DISCUSSION

We present two patients who were contraindicated for general anesthesia. Because both of them were schedu pa for malignant process surgery, we decided to perform paravertebral blockade. There are several studies that compare paravertebral block to general anesthesia. Tahiriri et al. have investigated results of 11 relevant studies which compared thoracic paravertebral block to general anesthesia. Pain scores were significantly decreased at 1 h and 6 h postoperatively, and postoperative analgesic consumption was significantly lower in patients who received paravertebral blockade (1). Greengrass et al. compared the safety and efficacy of paravertebral block as a sole anesthetic technique for intraoperative and postoperative management of modified radical mastectomy with those of general anesthesia. Surgery was successfully completed in 85% of the cases attempted by using paravertebral block alone, and in 91% of cases the surgery was completed by using paravertebral block supplemented with local anesthetic infiltration. Complications were observed in 2.6% of patients (2). Pusch F et al. have investigated single-injection unilateral paravertebral block given at the level of T4, for patients undergoing breast surgery for breast malignancy. The surgical procedures varied from wide local excision of a tumor to modified radical mastectomy with axillary dissection. Recovery from anesthesia or sedation was shortened, while postoperative pain scores, the incidence of vomiting and requirement for analgesics were lower in the paravertebral group. Patients with axillary dissection had higher postoperative pain scores compared to all others in both groups (3). These investigations used 0.5% bupivacaine as a sole anesthetic. Our selection of anesthetics was based on the need for faster onset but, also, the duration of sensory blockade extended for several hours after surgery (3 h in the first case and 10 h in the second case) and, by using small quantities of anesthetics at different levels, we wanted to prevent the communication of anesthetic from paravertebral to epidural space.

Although the benefit of paravertebral block seems to be confirmed in major breast procedures, its place in minor breast surgical procedures remains to be investigated. Terheggen M et al. have investigated the effect of paravertebral blockade on minor breast surgical procedures. Though the pain relief was superior compared to general anesthesia, this difference was only marginal.

Authors concluded that, considering the risk/benefit ratio, general anesthesia is still favored for minor surgical procedures on the breast (4).

In conclusion, we performed paravertebral blockade in cases when general anesthesia was contraindicated. Both patients were very satisfied with the anesthesiology treatment and no complications occurred.

REFERENCES

Paravertebral blockade as indication

Jasminka Pešec et al.


