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Spinal Anesthesia in a Patient with Morbid Obesity

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Obesity has become an important public health problem all over the world with its increasing rate. Therefore, the frequency of encountering with this patient group in our anesthesia practice is increasing. Our patient was a 60 years-old woman. Her height was 150 cm, her body weight (BW) was 125 kilograms. Her body mass index (BMI) was 55.6 kg/m2. Her mallampaty score was 4. She was planned to be operated for a bladder tumor. She had no known allergies and medicine use. We decided to apply spinal anesthesia to our ASA 3 patient. Spinal intervention was performed at Lumbal 3-4 interval. We did not apply sedation because we planned to perform spinal anesthesia. In obese patients, anesthesia applications involve higher risks compared to normal patients due to accompanying diseases, anatomical and physiological changes. The correct identification of risks in the preoperative period is important for the prevention of complications that may occur in the intraoperative and postoperative period. In morbid obeses, 25G spinal needles with the 9-centimeter-length may be sufficient.

Keywords: Obesity; bladder tumor; spinal anesthesia.

1. INTRODUCTION

Obesity has become an important public health problem all over the world with its increasing rate. Therefore, the frequency of encountering with this patient group in our anesthesia practice is increasing. WHO reports that in 2016, more than 1.9 billion adults aged 18 years and older

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were overweight. Of these over 650 million adults were obese. In 2016, 39% of adults aged 18 years and over (39% of men and 40% of women) were overweight. Overall, about 13% of the world's adult population (11% of men and 15% of women) were obese in 2016. The worldwide prevalence of obesity nearly tripled between 1975 and 2016 [1].

Obesity is a proinflammatory multisystemic disease and defined as hypertrophy and / or hyperplasia in adipose tissue. Obesity can be associated with many diseases such as diabetes, hypertension, high cholesterol and triglyceride level, coronary artery disease, sleep apnea, stroke, bladder cancer, colon and breast cancer [2].Changes in metabolic, cardiovascular and pulmonary functions due to obesity increase the risk of perioperative mortality and morbidity [3] [4-6]. Difficulty of airway management is inevitable due to the increase in body weight. It has been reported that endotracheal intubation is more difficult and the risk of aspiration is higher in morbidly obese women [7]. Regional anesthesia is also very difficult compared to non-obese patients. The sensory block level in patients undergoing spinal anesthesia can be influenced by numerous patient demographic factors including age, gender, height, weight, body-mass index (BMI), spinal anatomy, and lumbosacral cerebrospinal fluid (CSF) volume. The duration of spinal block with hyperbaric bupivacaine appears to be prolonged in obese patients compared to non-obese patients [8]. In this case report, we will describe the patient with obesity and other comorbidities, who will have a bladder tumor.

2. CASE PRESENTATION

The patient was a 60 years-old woman. Her height was 150 cm, body weight (BW) was 125 kilograms. Her body mass index (BMI) was 55.6 kg / m2.

The patient was planned to be operated due to a bladder tumor. She was operated for colon cancer 1 year ago and received 6 cycles of chemotherapy and radiotherapy for 34 days. Her mallampaty score was 4. She has no known allergies and medicine use. We decided to apply spinal anesthesia to our ASA 3 patient. Vascular access was provided by 18 G cannula and we performed standard monitoring. We used non-invasive blood pressure cuff for arterial blood pressure monitorization. We palpated the midline while patient was in sitting position. Spinal intervention was performed at Lumbal 3-4 interval. Oxygen was giden at 3 L/min via a face mask during surgery. We did not apply sedation because we planned to perform spinal anesthesia.

Because we did not have a 120 mm spinal needle recommended for obese patients; we reached the subarachnoid gap at 9 cm by using a 22 G-90 mm spinal needle with the loss of resistance method. We performed spinal anesthesia using 10 mg of hyperbaric bupivacaine at once. Sensory levels to pinprick were assessed using the Hollmen scale. Sensory blocks were recorded bilaterally along the mid-clavicular line by assessing pinprick sensations using a 25 G needle. Motor block in the lower limbs was graded using the Bromage scale. Then the patient was placed in a lithotomy position during the operation. We did not measure CSF volume. We gave the patient 1000 cc of isotonic fluid during the operation. The vitals of the patient remained stable during intraoperative follow-ups. We completed the operation period of 1 hour without any problem by blockage at T10 level. Spinal anesthesia level was checked with pinpirick test in the postoperative recovery unit and we sent the patient to the urology service when it fell to T12 level.

3. DISCUSSION

Because of the incidence of postoperative morbidity is high in obese patients, it is beneficial to preoperatively plan medications such as monitorization and respiratory support, which patient may need. The detection of sudden hemodynamic changes that may develop due to the position in obese patients is possible only by accurately measuring the blood pressure. Obese patients have an increased amount of pharyngeal and palatal soft tissue, and bigger tongue. Difficulty in providing airway management such as mask ventilation, direct aryngoscopy and tracheostomy should be expected because of enlargement of face, neck, chest and abdomen, and high mallampaty score. The incidence of difficult intubation has been reported to be 15.5% in patients with a BMI> 35 kg / m2. Therefore, if general anesthesia will be applied, it is very important to make the necessary preparations to provide airway patency for emergency or elective operations in morbid obese cases. The Risk of aspiration of the stomach content is increased with insufficient ventilation [9]. Difficult airway management is

inevitable in obese patients, so neuraxial block should be preferred in appropriate operations. We performed spinal anaesthesia because our patient had a mallampaty score of 4 and 55.6 kg / m2 of BMI.

The main problem in patients who are scheduled for neuraxial anesthesia, is determination of appropriate anatomical landmarks. Secondary problems are ensuring the correct patient position and choosing appropriate equipment [10]. Although we could not give a sufficient position in our case, our spinal anesthesia was performed without any problem. We did not encounter any difficulty of monitoring, requirement of intraoperative & postoperative airway manipulation, time of 1 st rescue analgesic postoperative headache, backache, transient ischemic neuronal complications.

4. CONCLUSION

In obese patients, anesthesia applications involve more risks compared to normal patients due to accompanying diseases, anatomical and physiological changes. The correct identification of risks in the preoperative period is important for the prevention ofcomplications that may occur in the intraoperative and postoperative period. In morbid obese, 25 G spinal needles with the 9-centimeter-length may be sufficient.

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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