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Anesthesıa Management in A Pregnant Patıent Wıth Super Morbıd Obesıty: A Case Report

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Abstract

It is reported that regional anesthesia is more advantageous compared to general anesthesia for the cesarean operations of morbidly obese patients. It is determined that the application of regional anesthesia decreases the maternal mortality rates. A thirty-five-year-old morbidly obese female patient at the 39th gestational week was taken into emergency operation following fetal distress. For spinal anesthesia, 12.5 mg hyperbaric bupivacaine (Marcaine Spinal Heavy 0.5%, Astra Zeneca) was applied to the L3-4 interspace and a sensory block was obtained at the level of T4. The patient did not have any complications other than mild hypotension. We have planned to present this case as it is important to choose regional anesthesia in morbidly obese pregnant patients.

Keywords: *Super morbid obesity; Spinal anesthesia; Maternal mortality*

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Introduction

Obesity is a chronic disease that negatively affects both the quality of life and life expectancy. It is one of the most important health problems of today [1,2]. The prevalence of obesity in Turkey is very high. Obesity is an important risk factor for many disorders, especially cardiovascular diseases. Obesity is the state of being over the ideal body weight. The body-mass index (BMI) is used for the definition and categorization of obesity. The body mass index (BMI) is calculated by dividing the body weight (in kg) by the squared value of height (in m) [3]. Obesity is when the calculated value is over 30 kg/m^2. Morbid obesity is when the value is above 40 kg/m^2, and super morbid obesity is when the calculated value is above 50 kg/m^2 [4]. Obesity is also associated with several diseases such as diabetes (DM), hypertension (HT), coronary artery disease, steatohepatitis and sleep apnea [5,6]. Obese pregnancies are an important problem for the anaesthesiologists because there are anatomic and physiologic changes due to the pregnancy and there are comorbidities due to the obesity. When evaluating the maternal deaths in the peripartum period, it can be observed that the application of regional anesthesia decreases the maternal mortality rates [7,8]. We plan to present the case of anesthesia that was applied to a super morbid obese pregnant patient as morbid obesity is important for mortalities and morbidities of the mother and the baby.

Case Report

The thirty-five-year-old pregnant patient who weighed 154 kg and was 166 cm tall was hospitalized in the Obstetrics and Gynecology Clinic of our hospital after having pains and having a history of two cesarean section operation. The Body mass index (BMI) was 55, 8 kg/m^2 (World Health Organization BMI classification defines a BMI > 40 kg/m^2 as morbidly obese and BMI > 50 kg/m^2 as super morbidly obese). The patient had fetal distress findings in the fetal non-stress test (NST), thus it was decided to perform an emergency operation. The preoperative evaluation revealed a medical history of two previous cesarean sections. The patient did not have any systemic diseases, the respiratory sounds were normal, the Mallampati score was 4 and the laboratory findings were within normal limits. The patient was provided with information regarding the risks of the operation and the anesthesia consent form was signed by the patient. The fasting period was sufficient. The patient was accepted to be in the ASA IIIE risk group under emergency conditions and was taken into operation.

In addition to the vascular access in the right antecubital region, a second vascular access was planned. The patient was planned to be operated under spinal anesthesia. A second peripheral vascular access was established on the dorsal face of the right hand with an 18 G intravenous cannula. A 500 ml 0.9% physiological saline solution was preoperatively infused for the prophylaxis of the hypotension. The patient's non-invasive blood pressure, oxygen saturation and heart rate were monitored during the operation. The patient's arterial tension was 146/95 mmHg and the heart rate was 86/min. The physiological saline solution infusion was resumed with an intraoperative 1000 ml 0.9% NaCl infusion. After the required cleaning and covering was done in a sitting position, the intrathecal space was reached through the L3-L4 intervertebral space with a 26G atraumatic pencil point spinal needle (Atraucan© 26 G, Braun, Melsungen, Germany). After a clear CSF flow was observed, the subarachnoid space was injected with 12.5 mg hyperbaric bupivacaine (Marcaine 0.5% Spinal Heavy, Astra Zeneca).

The patient was then placed in a supine position on the sensory block level was tested through caloric response. The operation was allowed when the sensory block was reached at the T4 level. The operation was commenced with a lower segment transverse cut. A living baby boy was born in the seventh minute of the operation. Hypotension developed at the tenth intraoperative minute and the patient was subsequently injected with 10 mg of intravenously ephedrine. The patient was injected with colloid fluid together with the crystalloid infusion. Intravenously dimethylergonovine and oxytocin was injected (at the dose suggested by the obstetrician) to accelerate the uterus involution. A living baby boy (3700g) was born, whose Apgar score was 7 at minute-1 and 9 at minute-5. The operation lasted 40 minutes. The patient was monitored in the recovery room for 30 minutes and there were no early postoperative complications. The patient whose modified Aldrete score was 9, was transferred to the obstetrics clinic after 30 minutes following the routine suggestions after spinal anesthesia.

Discussion

Obesity is a global health problem. More than half of the women in the reproductive age group are either overweight or obese. For obese pregnancies, the risks are higher for gestational diabetes, hypertension, preeclampsia, thromboembolism, perinatal morbidity and mortality. Cesarean rates have increased in obese pregnancies [10]. A study conducted in Turkey concerning obese pregnancies has determined that the rate of cesarean section was higher for the obese pregnancy group compared to the normal pregnancy group [11]. According to the data from the United States, the rate of cesarean births is 15% among obese pregnancies [12]. This rate can reach 40.2% for the morbidly obese whose BMIs are between 40-49.9 kg/m^2. This rate is around 49.1% for the super obese pregnancies (BMI > 50 kg/m^2) [13]. The rate of macrosomia increases in obese pregnancies, which is a complicating factor for a vaginal birth, thus, it contributes to the increased rate of cesarean births. There are studies that indicate that the ethnicity is a determining factor for the birth to result in cesarean section. According to a study that compared the black, white, Asian and oriental races, the highest urgent and elective cesarean section rates were among the black patients [15].

The restrictive patterns change in the cases of obesity due to increased intra-abdominal pressure and decreased chest wall conformity. The low residual capacity and expiratory volume lead to the rapid decline of saturation during the induction.The forced vital capacity and 1st second forced expiratory tidal volume are negatively correlated with the body-mass index (BMI). These changes are

more prominent when the patient is in a supine position or under general anesthesia [16]. Obstructive sleep apnea is observed 5% more among the obese. The increased subcutaneous fat in the pharyngeal tissues increases the risk of mask ventilation and difficult intubation. Thus, we have preferred spinal anesthesia for this case. The increased polycythemia and increased activity in the renin-angiotensin system result in an increase of the total blood volume and the cardiac output. The hypertrophy of the left ventricle and the lengthened QT interval are the most commonly observed cardiovascular pathologies among obese patients. Also, obesity increases the risk of ventricular arrhythmia and atrial arrhythmia [17,18].

Our patient did not develop perioperative arrhythmia or any other complication other than mild hypotension. Spinal anesthesia is the most commonly used anesthesia techniques for cesarean operations as it provides quick and sufficient sensory blocking. It is also observed that the spinal neuraxial blockage reduces the need for postoperative analgesics [19]. However, spinal anesthesia can cause cardiorespiratory problems by causing high spinal block and thoracic motor block formation in this patient group. Therefore it is widely accepted that the pregnancies require lower doses of local anesthetics. It is suggested that the dosage of the anesthetic should be decreased 25% for the subarachnoid and epidural block in obese patients [20]. Regional anesthesia has several advantages. These are that the mother is awake during birth, the airways do not require manipulation, conserved airway reflexes, reduced blood loss, decreased risk of drug-induced fetal depression, and that the analgesia continues after the operation [21,22].

Regional anesthesia and general anesthesia in pregnancy obesity than taking into consideration the advantages of all preparations for general anesthesia after the planned spinal anesthesia to the patient. Spinal anesthesia was preferred for this case even though epidural anesthesia has several advantages such as the control of dosage, easier provision of additional doses if required (due to prolonged surgery) or the continued analgesia after the operation. Due to fetal distress, there was not enough time to produce the sufficient block with the epidural. Therefore, we have chosen spinal anesthesia for our patient.

To conclude, regional anesthesia should be preferred for the emergent cases of morbidly obese/super morbidly obese pregnancies. However, the equipment for general anesthesia should be readily available. It should be noted that technical difficulties are probable when applying regional anesthesia in morbidly obese pregnancies such as the inability to palpate the intervertebral spaces or to locate the anatomical landmarks. However, regional anesthesia is more advantageous compared to general anesthesia for the cesarean operations of the morbidly obese patients. Regional anesthesia provides the anesthesiologists with several advantages to protect the patient from catastrophic complications, such as difficult intubation, difficult mask ventilation, the risk of aspiration (even if the fasting period is sufficient, the stomach may not be emptied), the inability to intubate the patient. We believe that regional anesthesia can reduce mortality and morbidity among morbidly obese pregnancies.

References

1. Türkiye Endokrinoloji ve Metabolizma Derneği Obezite ve Lipid Metabolizması Çalışma Grubu. Ulusal Obezite Rehberi. 1999.
2. McInnis KJ. "Diet, Exercise and the challenge of combating obesity in primary care". *Journal of Cardiovascular Nursing* 18.2 (2003): 93-100.
3. Sansoy V. "Türk erişkinlerinde beden kitle indeksi, bel çevresi ve bel kalça oranları". Onat A, editör. (2001): 68-73.
4. Yavuz D. (Obesity). Türkiye Klinikleri J Endocrin Special Topics 2.3 (2009): 30-35.
5. Dadan J., *et al*. "The activity of gastric ghrelin positive cells in obese patients treated surgically". *Folia Histochemica et Cytobiologica* 47.2 (2009): 307-313.
6. Haslam DW and James WP. "Diastolic Dysfunction and Left Ventricle Remodeling in Men with Impaired Fasting Glucose". *Obesity the Lancet* 366 (2005): 1197–1209.
7. Şenturk Cataloğlu B and Saracoğlu A. "Obez gebelerde anestezi yönetimi". *Journal of Anesthesia – JARSS* 21 (2013): 200-208.
8. Fidan H., *et al*. "Morbid Obez Sezaryen Olgusunda Anestezi, Kocatepe Tıp Dergisi". *The Medical Journal of Kocatepe* 6 (2005): 45-47.
9. Kayhan Z. "Klinik Anestezi. Genişletilmiş 3. baskı. Ankara, Logos". *Yayıncılık* (2004): 503-518., 559-570, 736-737, 740-754.

10. Poobalan AS., *et al*. "Obesity as an independent risk factor for elective and emergency caesarean delivery in nulliparous women--systematic review and meta-analysis of cohort studies". *Obesity Reviews* 10.1 (2009): 28-35.
11. Aydin C., *et al*. "The effect of body mass index value during labor on pregnancy outcomes in Turkish population (obesity and pregnancy outcomes)". *Archives of Gynecology and Obstetrics* 281 (2010): 49-54.
12. Lu GC., *et al*. "The effect of the increasing prevalence of maternal obesity on perinatal morbidity". *American Journal of Obstetrics & Gynecology* 185.4 (2001): 845-849.
13. Alanis MC., *et al*. "Maternal super-obesity (body mass index > or = 50) and adverse pregnancy outcomes". *Acta Obstetricia et Gynecologica Scandinavica* 89.7 (2010): 924-930.
14. HAPO Study Cooperative Research Group. "Hyperglycaemia and Adverse Pregnancy Outcome (HAPO) Study: associations with maternal body mass index". *BJOG* 117.5 (2010): 575-584.
15. Oteng-Ntim E., *et al*. "Impact of obesity on pregnancy outcome in different ethnic groups: calculating population attributable fractions". *PLoS One* 8 (2013): e53749.
16. Salome CM., *et al*. "Physiology of obesity and effects on lung function". *Journal of Applied Physiology* 108.1 (2010): 206-211.
17. Pontiroli AE., *et al*. "Left ventricular hypertrophy and QT interval in obesity and in hypertension: effects of weight loss and of normalisation of blood pressure". *International journal of obesity and related metabolic disorders* 28.9 (2004): 1118-1123.
18. Seyfeli E., *et al*. "Effect of obesity on P-wave dispersion and QT dispersion in women". *International Journal of Obesity* 30.6 (2006): 957-961.
19. Saracoglu KT., *et al*. "Neuraxial block versus general anaesthesia for cesarean section: post-operative pain scores and analgesic requirements". *Journal of the Pakistan Medical Association* 62 (2012): 441-444.
20. Tuteja LV., *et al*. "Anaesthetic management of a morbidly obese patient". *Postgraduate Medical Journal* 8.5 (1996): 127-128.
21. Santos AC., *et al*. "Obstetric Anesthesia. Barash PG, Cullen BF, Stelty RK (Eds.). Clinical Anesthesia. Philadelphia". *JP Lippincott Co* (1998): 1267-1306.
22. Clark SL. Cesarean Section. Hankils GDV, Clark SL, Cunnigham FG, Giltstrap LC (Eds.). Operative Obstetrics. Connecticut: Appleton and Lange (1995): 301-322.