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Anesthesia Management in Intramural Uterine Myoma and Obesity Morbid Patients Who Underwent Myomectomy Perlaparatomy

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ABSTRACT

Introduction. Obesity is a condition that increases the challenges in the surgical process. Obesity increases the risk of sleep apnea and affects anaesthetics. This case report aims to discuss the management of anaesthesia in a patient with morbid obesity.

Case. Female, 26 years old, with intramural uterine myoma and morbid obesity, will undergo myomectomy per laparotomy with ASA II physical status, performed anaesthesia with general anaesthesia intubation technique using the anaesthetic agent Propofol 1-2.5 mg/kg titration until the patient falls asleep, fentanyl 1-2 mcg/kg, then the patient was intubated in a ramped position with sleep non-apnea. After it was confirmed that the ETT was entered, 30 mg of a muscle relaxant (atracurium) was added. The operation lasts 1 hour 30 minutes, with a bleeding 250 cc, hemodynamically stable.

Conclusion. Morbid obesity has extraordinary implications for anaesthetic management. Various considerations for patients with morbid obesity are needed starting from the preoperative, intraoperative, to postoperative periods. Regional anaesthesia is preferred because the physiological function of unhealthy obese patients is impaired due to excess body weight. Selection of anaesthetic agent and calculation of drug dose is crucial to know because there is a change in the volume of distribution. The pharmacokinetics of most general anaesthetics are affected by the adipose tissue mass, produce a prolonged drug effect, and less predictable.

Keywords: Morbid Obesity, General Anaesthetics, Sleep Apnea Syndromes, Myoma, Intratracheal Intubation

Introduction

Obesity is a condition that increases the challenges in the surgical process. This is because the state of being overweight not only increases the risk of side effects and complications from the surgical procedure itself but also increases the risk of sleep apnea, especially in general anaesthesia techniques. Obese patients can fall into a loss of consciousness as a result of the anaesthesia procedurewith ease. Furthermore, patients who areoverweight (overweight and obese) can cause difficulty in localizati on of the vein for intravenous injection of anaesthetics and emergency drugs, difficulty in calculating drug doses accurately, difficulty in placing a breathing tube, increasing the risk of respiratory problems in drugs. narcotics and pain medications, the difficulty of measuring oxygen demand and adequate blood flow, especially in patients with a history of sleep apnea, and an increased time to recover consciousness. [1]

The obesity condition is based on the classification of body mass index (BMI). BMI above 55 kg / m2 is a type of morbid obesity (super-obesity), BMI > 40 kg / m^2 obesity with comorbid (morbid-obese), and BMI > 35 kg / m^2 is called obesity without comorbid.[2] The degree of this comorbid is increasing, especially in patients who smoke and the male sex. Obese male patients have a higher risk of cardiovascular complications than women. The high degree of comorbidities in the male group is because male patients have a more dominant prevalence of android fat distribution type obesity than women. The distribution of fat in obesity is divided into two, namely the peripheral distribution (site-arms, legs, and buttocks) and android fat distribution involving central fat (intraperitoneal fat, including liver and omentum involvement). The benchmark for fundamental fat in the female group was a ratio of 0.8 and 1.0 in men for the type of android fat distribution.[3]

Morbid obesity has particular implications for anaesthetic management. Various considerations for patients with morbid obesity are needed starting from the preoperative, intraoperative, to postoperative periods. Obese, unhealthy patients should be thoroughly evaluated preoperatively. This evaluation includes the upper airway for possible difficult intubation and difficult ventilation. Assessment of the patient's physical status is also essential because of the possibility of higher comorbidity in obese morbid patients. Intraoperative includes the selection of anaesthetic techniques. If possible, regional anaesthesia is preferred because the physiological function of the morbidly obese patient is impaired due to being overweight. Choice of anaesthetic agent and calculation of drug dose is essential to know because there is a change in the volume of distribution.[3]

Case Presentation

The female patient, 26 years old, is admitted to Dr Mohammad Hoesin Palembang with complaints of abdominal pain that disappeared for five months before he was admitted to the hospital. The patient also complained that the stomach was getting more prominent since ± two years ago, initially, there was a small lump in the stomach, and it got bigger accompanied by abdominal pain that came and went like being stabbed. In the last two months, the discharge of menstrual blood was more massive and accompanied by pain, especially during menstruation. During this situation, the patient changes the dressing 8-10 times/day. The stomach feels full, nausea (-), vomiting (-), bleeding spots (+). The patient also complains of low back pain. The patient did not have a history of hypertension, diabetes mellitus, allergies and asthma. No patient's family experiences anything like a patient. The patient used three months injection contraception, Pill kb 1 year. History of Menstrual Menarche: Age 12 years Cycle: 28 days Length: 7 days Amount: 3-4 changes of pads per day (before complaints) Dysmenorrhea: Yes.

On physical examination, it was found that the patient was sick and conscious. Blood pressure 120/80 mmHg, pulse rate 89 times per minute, temperature 36.8 ^{0}C, breath rate 21 times per minute. Normal head. Both conjunctivae are not anaemic; the sclera is not icteric. The neck does not feel enlarged lymph nodes. Normochest chest shape left and right symmetrical on static and dynamic examination, and from auscultation of bronchovesicular breath sounds, therewas no rhonchi or wheezing in both lung fields. Cast within normal limits, no noise was heard on auscultation. Abdomen felt 10x15 cm mass on the stomach, supple consistency, flat surface, easy to move, tender (+)—extremities within normal limits.

On Supporting examination showed Hb 13.1 Leukocytes 7200 Ht 33 Platelets 235 000 Ureum 30 Creatinine 0.6 Sodium 135 Potassium 3.6. On ultrasound examination, multiple intramural uterine myomas were found. Radiological examination within normal limits. Electrocardiography within normal limits.

Anaesthetic management was performed with controlled breath intubation anaesthetic technique using the anaesthetic agent Propofol 1-2.5 mg/kg titration until the patient fell asleep, fentanyl 1-2 mcg/kg. The patient was intubated in a ramped position with sleep non-apnea. After it was confirmed that the ETT was entered, 30 mg of a muscle relaxant (atracurium) was added. Maintenance of sevoflurane 2 volume% in 60% O2 and 40% water. Intraoperatively, 100 mcg of fentanyl was administered in total at 200 mcg of induction. The operation lasts 1 hour 30 minutes with a bleeding 250 cc. During intraoperative hemodynamics is relatively stable. After the procedure, the patient returns to the room.

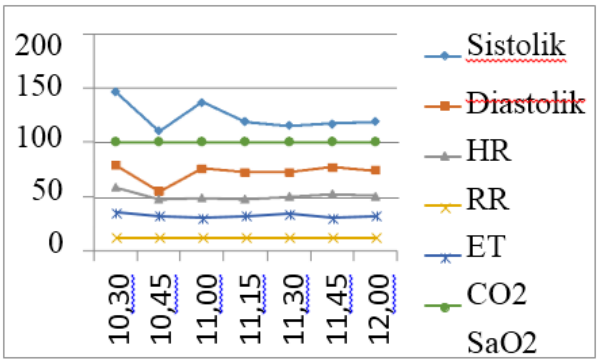

Figure 1. Hemodynamic monitoring

Discussion

Obese patients generally show symptoms: (1) BMI> 30 kg / m^2, (2) Snoring during sleep, (3) Easily tired or drowsy during the day, (4) Impaired breathing during sleep. Based on the classification, the patient is categorized as super morbid obesity.[4]

Preoperative management of obese patients has its barriers because obesity increases the risk of morbidity and mortality during anaesthesia and surgery. It is essential to pay attention to the patient's functional status, degree of obesity, degree of airway obstruction, and cardiovascular function. Symptoms and signs of heart failure and OSA should be carefully assessed, especially in supine tolerance, to evaluate for sudden desaturation, airway obstruction, or inadequate breathing. Airway obstruction may occur clinically without being seen on physical examination. A complete blood count, kidney and liver function, blood glucose, and electrolytes should be performed to assess organ functions systemically. Blood gas analysis can be shown in patients with respiratory comorbid as a guide for the assessment of perioperative mechanical ventilation and respiratory requirements. Preoperative ECG assessment is essential to assess possible rhythm disturbances and cor pulmonale, as well as determining cardiovascular comorbidities that can have a significant impact in the perioperative phase.[5.6.7.8]

Myomectomy patients generally receive general anaesthesia given the operation that can last a long time and the need for proper pain management and hemodynamics. General anaesthesia carries a risk of airway obstruction, especially in obese patients, so adequate airway management is necessary to reduce the risk of patient morbidity and mortality.

Intraoperative management focuses on maintaining the airway to maintain adequate oxygenation,

mainly if other significant comorbidities are found. The principles of anaesthesia management in obese patients are protecting the airway, preventing hypoxia, hypercarbia, hypothermia, and pain management. These patients will receive intraoperative management through:

1. Oxygenation with 60% FiO2
2. Airway management through a ramped or HELP (head-elevated laryngoscopy position) to get a good view of the oropharynx and larynx
3. Awake intubation using optical fibre to increase the effectiveness of oxygenation
4. Awake extubation to increase airway protection from gastrointestinal reflux
5. Postoperative assessment to avoid residual effects of anaesthesia in the ward

Anaesthesia induction is performed using propofol because propofol excels in the short onset of sedation thereby reducing the time from initiation of anaesthesia induction to ETT insertion and suppresses upper airway reflexes well thus reducing the need for a neuromuscular block for intubation. Sedation is performed using propofol with a titrated dose. The comorbidity of morbid obesity and upper airway obstruction necessitates the need for airway management with RTP (reverse Trendelenburg position) which provides a long period of safety during induction.Adequate preoxygenation and positivepressureduring preoxygenation are essential to prevent the sudden drop in saturation that can occur in the patient. The muscle relaxant used should ideally use succinylcholine because of its rapid onset and short duration, thereby reducing apnea time, especially if intubation is difficult. The recommended inhalation anaesthetic agent is desflurane because it is at least lipophilic and has a faster recovery time in obese patients.[9,10,11]

Intraoperative monitoring for obese patients should ideally involve:

1. Basic monitoring
    a. ECG
    b. b. SpO2
    c. ET CO2
    d. Blood pressure
2. Additional monitoring
    a. Intra-artery monitor

The use of intraoperative fluids must be closely monitored to prevent fluid overload because it can exacerbate the burden on the circulation. Fluid restriction was applied to these patients to

reducetheworkload of the heart and increase tolerancein the reverse Trendelenburg position. Close monitoring of irrigation fluids is carried out to reduce the total workload of the heart.[3]

This patient did not have any comorbidities, so the change in MAP (mean arterial pressure) did not exceed 20% baseline. Hypotension should be treated immediately with a vasoconstrictor, such as norepinephrine, to maintain tissue perfusion. Ventilation management performed on patients involved the patient's reverse Trendelenburg position which helped maintain airway patency, while ventilation management was performed with volume control via PEEP and an IE ratio of 1:2.[7]

Postoperative management involves monitoring for several days as it involves major urogenital procedures. The patient is monitored until the patient's overall condition improves. Adequate postoperative analgesia therapy is essential to prevent patient discomfort. The patient's condition was excellent, and the patient's pain scale was 1-3, so the patient received paracetamol 1 g IV every 8 hours. Because the patient is morbidly obese, any signs of fluid overload should be closely monitored to prevent overloading the cardiovascular system. Fluid management involves closely monitoring maintenance fluids, any bleeding that occurs, and the need for intraoperative irrigation fluids. The assessment of morbid obesity in these patients should include evaluations of respiratory and cardiovascular function, particularly spirometry and Doppler echocardiography. Spirometric assessment is essential for assessing pulmonary function and thus aids clinical decision making involving mechanical ventilation, while Doppler echocardiography assists in the evaluation of cardiac function. Patients should undergo preoperative blood gas analysis to assess baseline $PaCO^2$ and baseline PaO^2 because of their impact on the determination of intraoperative ventilation mode and FiO^2. The method of ventilation should be controlled ventilation to aid impaired respiratory function in obese patients.

Conclusions

Obesity has particular implications for the management of anaesthesia from the preoperative, intraoperative to postoperative period. Regional anaesthesia is preferred because the physiological function of morbidly obese patients is impaired due to excess body weight. The choice of anaesthetic agent and the calculation of the drug dose is critical to know because of changes in the volume of distribution. The pharmacokinetics of most general anaesthetic drugs are affected by the adipose tissue mass, producing a prolonged, and less predictable, drug effect. The volume of the central compartment changes largely, but the doses of lipophilic drugs and polarity of drugs need to be adjusted due to changes

in the amount of distribution (Vd). The increase in Vd prolongs the elimination half-life, even though the half-elimination increases.

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