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Case Report

Anesthesia management in cesarean section with severe preeclampsia and non-reactive nonstress test

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ABSTRACT

Maternal death and morbidity remain a global health issue. It is noted that 15%-20% of maternal deaths are due to complications of hypertension in pregnancy, namely preeclampsia. In cases of preeclampsia requiring cesarean section, anesthesia is necessary. A 23-year-old pregnant woman presented with complaints of decreased fetal movement for the past 2 days. She also reported headache and decreased vision. Physical examination revealed increased blood pressure (160/110 mmHg) and +1 protein in urine. Nonstress test showed non-reactive results. The patient was diagnosed with severe preeclampsia at 37 weeks 1 day gestation and underwent an urgent cesarean section. Anesthesia was managed using a subarachnoid block with bupivacaine 0.5% 12.5 mg, resulting in total block. The operation lasted 1 hour, and a baby boy was delivered with a weight of 1950 gm, length 50 cm, and APGAR score 7-8-9. Anesthetic management in preeclampsia cases must prioritize the safety of both mother and baby. Each anesthesia technique has its advantages and disadvantages.

Keywords: Preeclampsia, Anesthesia management, Regional anesthesia

INTRODUCTION

Maternal mortality and morbidity remain significant health problems globally. A substantial proportion of maternal deaths are attributed to hypertension-related complications during pregnancy, particularly preeclampsia. [1] Perinatal mortality rates in Indonesia are notably high. A study reported a perinatal mortality rate of 73 per 1000 live births in Indonesia. [1] High maternal mortality and morbidity indirectly affect neonatal outcomes, with 30% of infants born to mothers with preeclampsia experiencing asphyxia and 12% of them resulting in intrauterine fetal death (IUFD). [2] Preeclampsia significantly increases the risk of severe asphyxia, with a 15-fold increase compared to normotensive pregnancies. [2] The incidence of preeclampsia ranges from 0.13% to 6.6%, reaching 3.4% to 8.5% in Indonesia, contributing to increased maternal and neonatal morbidity and mortality. [2]

Preeclampsia is characterized by hypertension and proteinuria in pregnant women after 20 weeks of gestation.[3] Common symptoms include epigastric pain, headache, blurred vision, and nausea/vomiting.[1] Diagnostic criteria include systolic blood pressure ≥140 mmHg or diastolic blood pressure ≥90 mmHg and proteinuria (≥300 mg/24 hours/ ≥30 mg/dL persistently).[4] The exact cause of preeclampsia remains unclear but is associated with risk factors such as maternal age, pregnancy history, previous preeclampsia, diabetes, maternal obesity, gestational age, and kidney disease.[1]

Effective management of preeclampsia is crucial to prevent maternal and neonatal morbidity and mortality.[5] Cesarean delivery is often required in cases of severe preeclampsia, necessitating anesthesia.[2] Various anesthesia techniques, including general, epidural, and regional anesthesia, can be used for cesarean sections,

each with its indications and contraindications, as well as advantages and disadvantages.[2,5]

CASE REPORT

A 23-year-old pregnant woman presented to Wangaya general hospital's delivery room on 10/12/22 with complaints of decreased fetal movement for the past 2 days. She had previously visited a nearby health center and was advised to go to Wangaya general hospital. She reported no vaginal discharge, blood, or mucus, and intermittent abdominal pain but experienced headaches and visual disturbances. Physical examination revealed elevated blood pressure (160/110 mmHg) and slightly decreased hemoglobin (10.6 g/dL) with normal other laboratory findings. Urinalysis showed +1 protein. NST results were non-reactive, and COVID-19 swab antigen test was negative. The patient was diagnosed with severe preeclampsia at 37 weeks 1 day gestation and underwent an emergency cesarean section. Anesthesia assessment categorized the patient as ASA physical status IIIE. Regional subarachnoid block anesthesia was chosen due to no airway obstruction, hemodynamic stability, and no other contraindications to regional anesthesia. The patient received intravenous $MgSO_4$ 40% (4 g bolus and 6g diluted in 500 CC RL), nifedipine (30 mg orally if MAP >125 mmHg), premedication with dexamethasone (5 mg/IV), and diphenhydramine (10 mg/IV). Subarachnoid block was performed at L3-L4 with bupivacaine 0.5% 12.5 mg. Intraoperative medications included ondansetron (4 mg/IV), methylprednisolone (125 mg/IV), paracetamol (1g/IV), and post-delivery oxytocin (20 IU/IV). The operation lasted 1 hour with stable hemodynamics. A male infant was delivered weighing 1950g with APGAR score 7-8-9. The patient achieved Bromage 0 at 19:45, with conscious, blood pressure 140/90 mmHg, heart rate 80 beats/min, respiratory rate 18 breaths/min, SpO_2 99% on 2 lpm nasal cannula. Postoperative analgesia included fentanyl (300 mcg/50 CC NaCl 0.9% IV over 24 hours) and paracetamol (1 g every 8 hours).

DISCUSSION

This case discusses anesthesia management in a pregnant woman with preeclampsia. Preeclampsia is a multisystem disorder associated with maternal and neonatal morbidity and mortality.[2] Prompt and appropriate management is essential, often requiring cesarean delivery, which necessitates anesthesia.[5] The choice of anesthesia aims to prevent maternal and neonatal morbidity and mortality. Literature suggests options including general, regional, and epidural anesthesia, each with its indications and contraindications. In this case, regional subarachnoid block anesthesia was chosen due to favorable patient factors.[2,4] Similar approaches have been reported in literature, highlighting the importance of preparedness for general anesthesia if needed.[2] General anesthesia is Highlighted associated with lower APGAR scores compared to regional anesthesia.[2,3] However, outcomes may vary based on maternal condition and gestational age.[2] Regional anesthesia in preeclampsia cases may lead to hypotension, manageable with medications like ephedrine.[2,3] Adequate preoperative and postoperative preparations are crucial for successful outcomes, including blood pressure management and seizure prophylaxis.[2,4]

CONCLUSION

Anesthesia management in preeclampsia cases must prioritize maternal and neonatal safety. Both general and regional anesthesia have their advantages and disadvantages. Physicians must consider complicating factors for the chosen anesthesia technique. Adequate preoperative and postoperative management are equally vital in preeclampsia cases.

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