

Obstetric Anaesthetic Management in Cases of Obesity

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Introduction

This abstract is based on a complex obstetric case, which demonstrated the intricate anaesthetic management required in the context of obesity.

Description

- Patient with a BMI greater than 35kg/m²
- She developed pre-eclampsia during pregnancy and required an emergency Caesarean section
- Obesity presents significant challenges in the management of anaesthesia during C-sections, where physiological and anatomical changes in pregnancy further complicate the procedure.

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References

1. Lobstein T. World Obesity Atlas 2022 [Internet]. World Obesity Federation. 2022 [cited 2024 Mar 27]. Available from: <https://www.worldobesity.org/resources/resource-library/world-obesity-atlas-2022>
2. Saadia Z. Association Between Maternal Obesity and Cesarean Delivery Complications. *Cureus*. 2020 Mar 2;12(3).

Discussion

- Obesity creates a set of special considerations required for anaesthetic management within pregnancy and delivery
- 'Overweight' is defined as having a BMI over 25kg/m², and 'obese' is a BMI is over 30kg/m²
- The WHO estimates that by 2030, there will be one billion people globally living with obesity, split into 1 in 5 women and 1 in 7 men[1].
- Elevated BMI places women at greater risk of complications in pregnancy, such as **hypertension, needing a C-section delivery, preterm delivery, increased maternal and fetal mortality, and increased birth weight, placing the infant at greater risk of shoulder dystocia**[2]
- Increased BMI increases the risk of complications during a C-section delivery
 - **Higher incidence of DVT, pyrexia, wound infection, endometritis and longer hospital stay than women who had a normal BMI**[2]
- There are also anaesthetic implications for the patient
 - The combination of pregnancy and obesity put great physiological stress on the mother. Both total and functional residual capacity are reduced, and work of breathing and V/Q mismatch are increased
 - Decreased cardiac output in addition to an increase in total circulating volume, which causes the heart rate to increase to compensate
 - Obesity further increases the strain on the heart – for every 100g of fat deposited, the cardiac output can decrease by 30-50ml/minute
- Pharmacokinetic alterations require careful dosing adjustments and consideration of drug distribution in adipose-rich tissues, influencing the use of anaesthetic agents
- Obesity can cause difficult airway management and laryngoscopic viewing, and an increased risk of aspiration and regurgitation
- There are also practical considerations
 - **Adequately sized blood pressure cuffs, the availability of bariatric beds and operating tables, difficulty obtaining knee-chest position for epidural administration, difficulty in locating the anatomical spaces for spinals and epidurals, long spinal and epidural needles, difficult IV access and the need for sufficient numbers of staff and equipment for safe moving and handling**
- An MDT approach to these cases is essential, and individualised pre-operative planning should be ensured, where possible. Awareness of these considerations within the operating room can ensure that these women do not feel alienated and receive an optimal standard of care. The overarching goal remains the optimization of maternal and neonatal outcomes, ensuring safety throughout the peripartum period in this high-risk population.