Peripartum and delivery outcomes for parturients with class III obesity in a tertiary obstetric unit

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Introduction

Class III maternal obesity, defined as a body mass index (BMI) over 40, is known to be associated with additional risks for mother and baby in the peripartum period[1]. This includes an increase in caesarean section (CS) rate as well as severe maternal morbidity and mortality, and fetal assessment and monitoring during pregnancy can be more challenging[1]. This review examines maternal peripartum outcomes for these patients at a tertiary obstetric unit, with the aim of elucidating treatment pathways and enabling more informed discussions and decision making.

Methods

We identified all patients referred to obstetric anaesthetic assessment clinic for BMI >40 in 2019. We then examined their clinic letters, maternity notes and electronic records to determine delivery outcomes, anaesthetic and analgesic choices, and presence of any obstetric and anaesthetic complications.

Results

253 patients were referred to clinic for BMI >40. Delivery records were identified for 220 of these, which were then included in the review (Chart 1). The range of BMI values for these patients is given in Chart 2.

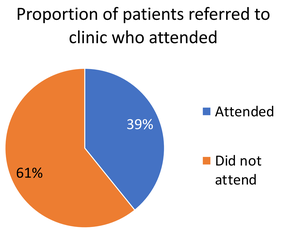


Chart 1: Proportion of patients referred to obstetric anaesthetic high BMI clinic who attended and who did not. Total number of patients referred 253

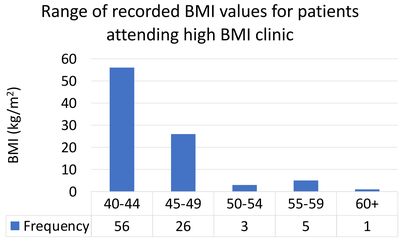


Chart 2: Range of BMI values recorded for the 220 patients who attended obstetric anaesthetic high BMI clinic

Methods of delivery compared to the general population in England in 2019 are set out in Table 1. 50% of women delivered in theatre in total, including CS and instrumental deliveries in theatre. All elective CS were performed with spinal anaesthesia.

Method of delivery	Parturients with Class III obesity	Parturients of any BMI across England in 2019[2]
SVD	47%	56%
Instrumental delivery	5%	12%
Elective CS	24%	14%
Emergency CS	24%	18%

Table 1: Method of delivery for patients with Class III obesity compared to general national population in 2019 (as percentage of total deliveries). SVD: spontaneous vaginal delivery

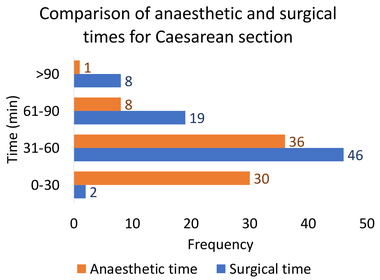


Chart 3: Comparison of anaesthetic and surgical times for both elective and emergency CS

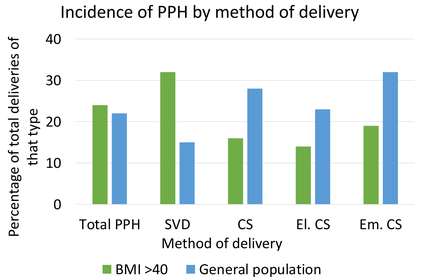


Chart 4: Incidence of PPH by delivery method, comparing parturients with BMI >40 with general population data[2]. Values as percentage of total deliveries of that type. El: elective; Em: emergency

Data on theatre timings were obtained for 75 of the 105 CS identified. 27% of these had a total operating time over an hour. For 9% of cases, combined anaesthetic and surgical time was over three hours. Timings were consistent between elective and emergency CS. As seen in Chart 3, anaesthetic time was over 30 minutes in most cases. Surgical time was more than an hour in over a third of cases.

58 spinal anaesthetics were identified. Of these, 10 were documented as difficult (17%) and two failed (3%). Nine general anaesthetics were given, and two of these (22%) were documented as difficult to intubate.

24% of all deliveries were associated with postpartum haemorrhage (PPH – defined as estimated blood loss >500ml for SVD and >1000ml for CS). This includes 32% of spontaneous vaginal deliveries and 16% of all CS. A comparison of this data with the general population in 2019[2] is given in Chart 4.

Discussion

Clear differences have been identified in the peripartum course for Class III obese parturients at our centre compared to the general pregnant population in England in 2019. Key points identified for this patient group include:

- **Higher rate of CS** in the obese compared to general population (24% vs 16%)
- **Overall incidence of PPH is similar** to the general population (24 vs 22%)
- A **higher proportion of PPH in obese parturients occurred in SVD**, with comparatively **low rates of PPH in CS** compared to general population
- Both **anaesthetic and surgical time** were **prolonged** in a large number of cases
- 20% of **spinals** either **failed or were difficult**
- 22% of **intubations** were recorded as **difficult**

A strong skew was observed in the obese population of PPH occurring in SVD as opposed to CS. This may be due to a high level of awareness of increased bleeding risk in this group[1], and preventative measures (e.g. oxytocin infusions) being taken accordingly.

An apparently high rate of anaesthetic difficulty was observed for obese parturients at our centre. No serious complications of anaesthesia such as nerve injury or failed intubation were seen, which is encouraging. However, this is likely to be a feature of their rarity in the general population[3].

Our data suggest that obese parturients are more likely than the general population to experience anaesthetic and surgical complications in the peripartum period. Counselling of patients should include discussion of these risks, and further work to minimise such risk would be useful.

References

1. Denison FC, Aedla NR, Keag O et al on behalf of the Royal College of Obstetricians and Gynaecologists. Care of Women with Obesity in Pregnancy. Green-top Guideline No. 72. *BJOG* 2018
2. NHS Digital. NHS Maternity Statistics, 2019-20, England. Accessed 12 April 2022. https://digital.nhs.uk/data-and-information/publications/statistical/nhs-maternity-statistics/2019-20 accessed 26/01/22
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