Pregnancy outcomes of women with morbid obesity at a tertiary teaching hospital: A case-control study

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Introduction

- Obesity rates have dramatically increased in the last 20 years and are set to double by 2050.
- The prevalence of obesity in women of childbearing age increased from 12% in 1993 to 20% in 2010.
- The prevalence of obesity in the first trimester has more than doubled in the last 20 years. As it stands, 2% of women are morbidly obese at booking.
- Well-established associations exist between obesity and pregnancy complications, namely:
  - Hypertensive disorders
  - Gestational diabetes
  - Fetal anomalies
  - Fetal growth abnormalities
  - Venous thromboembolism
  - Stillbirth
  - IOL and augmentation of labour
  - Cesarean section and instrumental deliveries
  - Preterm labour

Objective to analyse the effects of morbid obesity (class III; BMI>40) on pregnancy outcomes in a tertiary unit and to compare our outcomes to women with a normal BMI and to current literature.

Materials and methods

- All cases of women with a BMI greater than or equal to 40kg/m² who booked at our unit (a London tertiary teaching hospital) between 01/01/10 and 31/11/15 were included (n=512).
- 2000 randomised cases of women with normal BMI (20-25) over the same time period were obtained.
- The groups were matched for parity, previous caesarean section and age. 449 morbidly obese women were compared with 1359 normal BMI women.

The outcome data collected were:
- Maternal and fetal complications
- Gestation at delivery
- Mode of delivery
- Onset of labour
- Blood loss at delivery
- Actual birth weight

The prevalence of obesity in women of childbearing age

Obesity rates have dramatically increased in the last 20 years.

Antenatal complications of higher incidence in women with BMIs ≥40:
- Preterm labour
- Caesarean section and instrumental deliveries
- IOL and augmentation of labour
- Fetal anomalies
- Fetal growth abnormalities
- Gestational diabetes
- Hypertensive disorders

Antenatal complications not of higher incidence in women with BMIs ≥40:
- Macrosomia
- IUGR
- Venous Thromboembolism
- Stillbirth

Labour and delivery complications not of higher incidence in women with BMIs ≥40:
- Normal vaginal delivery rate
- Elective caesarean section rate
- Instrumental deliveries
- If instrumental deliveries did occur they were more likely to be forceps
- Preterm delivery <37/50 and <34/40
- MOH greater than 2000mls.
- Shoulder dystocia

Labour and Delivery complications of higher incidence in women with BMI ≥40:
- Induction of labour 2.6 x more common
- Reduced rate of spontaneous labour 41%
- Emergency caesarean section 1.5 times common
- Haemorrhage greater than 1000mls 1.6 times more common

Demographics

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<thead>
<tr>
<th>Age (mean ± SD)</th>
<th>Study group</th>
<th>Control group</th>
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<tbody>
<tr>
<td>33.1 (±2.5)</td>
<td>31.5 (±2.5)</td>
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<table>
<thead>
<tr>
<th>% over 40 years</th>
<th>Study group</th>
<th>Control group</th>
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<tbody>
<tr>
<td>4.3</td>
<td>6.1</td>
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<table>
<thead>
<tr>
<th>Macrosomia (%)</th>
<th>Study group</th>
<th>Control group</th>
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<tbody>
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<td>36.7</td>
<td>34.4</td>
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<tr>
<th>Fetal anomalies 3x more common</th>
<th>Study group</th>
<th>Control group</th>
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<td>19.4</td>
<td>14.5</td>
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Discussion

It is possible that some risks associated with morbid obesity in pregnancy are unavoidable for example fetal anomalies, hypertensive disorders, and to a lesser extent, GDM may also fall into this category.

The reduced rates of some of the complications may be explained by morbid obesity being seen in a consultant led dedicated specialist clinic, where management includes:
- Strict information on reduced fetal movements and growth scans routinely at 36/40 thus potentially reducing the stillbirth rate in this group
- Early and on-going strict management of VTE prophylaxis with LMWH antenatally and 6 weeks postpartum
- Educating women on healthy eating choices, may benefit their long-term health and the future health of their offspring
- Detailed intrapartum plans including active management of the third stage and the early recognition of risk factors possibly reducing our rates of MOH
- Use of Canepi—cingrogen, balloon/Propess IOL for women who opt for VBAC and STAN monitoring in labour possibly leading to reduced interventions such as emergency caesarean section

This specialist clinic is the ideal opportunity to engage patients prior to future pregnancies and minimise pregnancy complications. We also provide information to our women on weight loss diet/bariatric surgery and organise postpartum referrals to our bariatric surgical team if women wishes to be informed further. Also we believe pre-pregnancy public health education is essential to improve pregnancy outcomes and the health of the offspring.

References