ANAESTHETIC MANAGEMENT OF THE MORBIDLY OBESE OBSTETRIC PATIENT

Objectives
The management of the morbidly obese patient.

Patients covered
Morbidly obese pregnant women.

Target users
Anaesthetists, obstetricians, midwives.

Clinical document recommendations (including different options for the management of condition) (please use flow charts where possible as they are easier to read)

Women with a booking BMI \( \geq 40 \) should be managed as high risk

Morbid obesity is usually defined as a BMI > 50kg/m\(^2\).
(Where BMI = wt(kg)/ht(m)\(^2\))

In the recent CEMACH report 2002-2005 over half the women who died were overweight or obese.

The risks of complications in labour include:
- Failure to progress
- Malpresentation
- Increase risk of:
  - shoulder dystocia
  - instrumental delivery
  - Caesarean section

Morbid obesity is associated with pre-eclampsia, diabetes and increased risk of thromboembolism.

1. All women with a booking BMI \( \geq 40 \) kg/m\(^2\) should be referred early to the Obstetric Anaesthesia Clinic to discuss a plan for labour analgesia and to receive information about analgesia and anaesthesia. The plan should be documented in the notes for referral on the patients’ admission.

Leaflets are available giving written information for the pregnant morbidly obese patient.

2. The Obstetric Anaesthetic Team should be informed of the presence on labour ward of a woman with a BMI > 40kg/m\(^2\).

The labour should be managed as high risk.

Good communication between Obstetricians, Midwives and Anaesthetists is essential.
3. An early epidural is recommended to decrease complications associated with emergency anaesthesia.

Remember to use a large size blood pressure cuffs and consider an arterial line if there are difficulties.

It is rare for the epidural space not to be reached with a standard 10cm Tuohy needle, even in the morbidly obese. (1) However, longer Tuohy needles are available.

Ultrasound may be useful for locating peripheral veins and the epidural space in the morbidly obese. (2, 3)

The catheter may be threaded beyond the usual 3 - 4 cm as excess fat may distort the anatomy of the back and cause traction on the catheter. (4)

The amount of local anaesthetic required to produce a desired block is shown to be lower than in the non-obese. **A high block is a risk.** Therefore doses should be titrated carefully. (5, 6)

The risk of dural puncture is higher in the morbidly obese but the risk of post dural puncture headache is lower. (6)

In the case of a dural puncture, a spinal catheter may be considered. (7)

4. Morbidly obese patients should have regional anaesthesia for emergency Caesarean section if at all possible.

The incidence of emergency Caesarean section is higher in the morbidly obese undergoing trial of labour than in the non-obese. The risk of emergency Caesarean section appears to increase in a linear fashion with BMI. (8, 9)

The extremely morbidly obese may be considered for elective Caesarean section as there are greater risks associated with emergency surgery. However, surgery in obese patients overall is associated with increased morbidity and mortality.

Increased risks associated with GA section in the morbidly obese include:
- aspiration
- difficult intubation
- barometric trauma
- greatly reduced Functional Residual Capacity (FRC) leading to greater
- desaturation
- hypotension
- post-operative respiratory failure (10)

5. A Consultant Anaesthetist should be involved in any anaesthesia for the morbidly obese parturient and may be required to attend.

Epidural and combined spinal epidural are recommended when considering anaesthetic technique, taking into consideration the longer operating time and the cardiovascular instability that are of higher incidence in the morbidly obese patient. (11)
Difficult airway equipment is available in the obstetric theatres if required.

The abdominal wall may need to be retracted using additional aids. The resulting pressure on the chest may cause severe desaturation and hypotension if much force is used and has resulted in maternal and fetal morbidity and mortality. (11)

Blood loss may be greater and should be monitored carefully and replaced appropriately. The use of a cell saver may be considered.

Post-operative pain may be greater because of all the necessary skin and panniculus retraction required. Neuraxial opiates and oral/IV paracetamol and oral non-steroidal anti-inflammatory drugs are usually sufficient but patient-controlled analgesia may be required if neuraxial opiates are not used.

6. The patient should be monitored in the post-operative period as a high risk patient using the High Dependency chart.

Two of the direct deaths reported in the 7th triennial report into maternal deaths in the UK were morbidly obese patients developing post-operative respiratory failure and were deemed to have had poor post-operative care.

Early mobilisation, chest physiotherapy and adequate pain control are necessary. There is an increased risk of thromboembolism, wound infection and post partum haemorrhage.

7. The risk of venous thromboembolism increases in direct correlation with increased BMI.

All women with morbid obesity should be considered for thromboprophylaxis with low molecular weight heparin (LMWH) for seven days post delivery.

Guidelines recommend doses to be calculated according to weight. RCOG guidelines stratify antenatal and post natal VTE risk into high, intermediate and low risk. Those at high risk should be offered antenatal LMWH prophylaxis.

All women with a BMI > 40 as a single risk factor are considered intermediate risk.

Those at high risk post delivery should be offered 6 weeks of thromboprophylaxis, for those at intermediate risk this may be limited to 7 days.

**Suggested thromboprophylactic doses for antenatal and post natal LMWH**

<table>
<thead>
<tr>
<th>Wt (kg)</th>
<th>Enoxaparin</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;50kg</td>
<td>20 mg daily</td>
</tr>
<tr>
<td>50 – 90kg</td>
<td>40mg daily</td>
</tr>
<tr>
<td>91 – 130kg</td>
<td>60 mg daily</td>
</tr>
<tr>
<td>131 – 170 kg</td>
<td>80mg daily</td>
</tr>
<tr>
<td>&gt; 170kg</td>
<td>0.6mg/kg/day</td>
</tr>
</tbody>
</table>

(See full Thromboprophylaxis guideline)
8. The main anaesthetic concern from increased use and dosing of LMWH are the balance between VTE prevention and the potential risk of maternal haemorrhage and risk of bleeding and haematoma formation following regional analgesia and anaesthesia.

Current guidance states there should be a 4 hour window between epidural insertion or removal and the administration of prophylactic LMWH. There should be a 12 hour window after prophylactic LMWH dose and a 24 hour window after therapeutic LMWH dose before epidural insertion or removal. These times remain the same with weight based dosing.

**Auditable Standards**

- Morbidity and mortality associated with analgesia and anaesthesia in morbidly obese parturients.

**System for Audit / Monitoring, Review of Results and Monitoring of Action Plans**

- Audit ongoing and presented 3 yearly
- Action plan to be formulated as required
- Action plan to be implemented
- Action plan to be monitored through Clinical Governance / Labour Ward Forum

**Supporting evidence / references (recommendations should be supported with a list of references on which they are based unless they are based on national guidelines etc in which case this should be specified).**


Authors (including a list of others involved in the clinical document development)
Dr. L. Spooner, Consultant Anaesthetist Pilgrim Hospital.
Dr. V. Jaggernauth, Consultant Anaesthetist. Lincoln County Hospital.
Dr. D. Phillips, Consultant Anaesthetist. Lincoln County Hospital.

List of those consulted about the document
All Generalist Anaesthetists at Pilgrim Hospital.
All Obstetric Anaesthetists at Lincoln County Hospital.
Guideline meetings: Bridget Clark; Janet Barker; Melanie Smith; Mr Ikhena; Miss Verma; Heather Eggleston; Pik Yok Allen; Yvonne Cooke; Mr Oteri; Louise Hugo

(Sent to Labour Ward Lead Clinicians, Lead Paediatricians; ANNP’s; all Supervisors of Midwives and Maternity Ward / Community Sisters for comments prior to guideline meeting)

Ratified by: Mr Adeyemi; Hazel Harrison

Date of Implementation Review date
22.9.09 Renewed October 2012 October 2014

Do not use after October 2014

Do not use after October 2014