Summary of Anaesthetic recommendations from the MBRRACE report December 2017

Based on data from 2013-2015

HEADLINES

- 240 maternal deaths during this time, giving a rate of 8.8 deaths per 100,000 during pregnancy or up to 6 weeks post-pregnancy.
- 2/3rds of these women had pre-existing physical or mental health problems.
- No change in the death rate between 2010-2012 and 2013-2015.
- Leading cause of indirect death is cardiac disease.
- Leading cause of direct death is thromboembolism, followed by haemorrhage, then suicide.

ANAESTHETIC RECOMMENDATIONS

2 deaths directly attributed to anaesthesia:

1. *A woman developed immediate acute bronchospasm then hypotension and skin rash after induction of GA. Anaphylaxis suspected immediately, senior help arrived quickly, adrenaline administered and ETT tube replaced to ensure it was correctly sited. A pulse was felt, but the blood pressure was unrecordable and several doses of adrenaline were given. CPR was not started. Resuscitation was successful but she died from a hypoxic brain injury.*

- There was a discussion around when to start CPR if a pulse is felt but there is no recordable blood pressure. The recommendation was made to start CPR in this situation, as is it unlikely to do harm if performed on a beating heart, but delaying CPR if there is cardiac arrest will cause harm.
- It was noted that the subject of NAP6 is Anaphylaxis, so further guidance may come from this report.
- MBRACE authors suggest that guidance of a particular level of hypotension at which CPR should be commenced would be helpful.

2. *A woman with a small bowel obstruction aspirated during induction of anaesthesia for a cat 3 CS and joint general surgical procedure. No NG tube was present.*

- It was noted that the majority of cases of aspiration occur in conjunction with associated risk factors. Both pregnancy and obesity are risk factors for pulmonary aspiration.

- A UKOSS study of failed intubation in obstetrics suggested an 8% incidence of aspiration associated with a failed intubation.
- Anaesthetists should remain vigilant to the possibility of pulmonary aspiration, and perform an individualised risk assessment and take precautions in every woman.
- Consider an NG tube and aspiration of the stomach prior to induction in conditions such as bowel obstruction or ileum.

Other lessons for anaesthetic care, highlighted after review of all the women who died:

1. **Extubation in women who have not been fully resuscitated, or who continue to bleed**

A woman who was extubated with a tachycardia of 130 and an Hb on haemaccue of 63g/dl. She continued to bleed, and was reintubated after an hour for a hysterectomy. By this time she was acidotic, coagulopathic and had a cardiac arrest from which she could not be resuscitated despite receiving a massive transfusion.

- Advice is to check serial lactate and bicarbonate levels when managing haemorrhage, and to delay extubation until confident that haemorrhage is under control, and resuscitation is adequate.

2. **Supine hypotension**

A morbidly obese woman who had a combined epidural and general anaesthetic became profoundly hypotensive after induction of anaesthesia, and then had a cardiac arrest during a haemorrhage at delivery.

- It was felt that more effort could have been made to prevent or minimise aortocaval compression, and it was suggested that a full left lateral tilt would be appropriate if there is a delay in delivery, and the woman has severe refractory hypotension.

3. **Hypotension during spinal anaesthesia**

- Obstetric anaesthesia, predominantly due to high neuroaxial block is the leading cause of cardiac arrest in pregnant women in the UK according to the 2016 report, although all of those is this group were successfully resuscitated.
- The consensus opinion is to use vasopressors to prevent profound hypotension during caesarean section under spinal anaesthesia for all patients, except those with contraindications such as hypertension.
- Left lateral uterine displacement, and intravenous pre-loading or co-loading should also be used.

4. **Airway management**

- The Joint OAA and DAS guidelines on airway management in Obstetrics were highlighted as a useful document, with particular reference to the decision making required when deciding how to manage a failed intubation.
- Another case highlighted the difficulty in inserting a 7.5mm tracheal tube in a collapsed post partum woman. The suggestion was made that the choice of tracheal tube for pregnant women should start at a size 7.0mm and proceed to a smaller tube if needed.

The largest size tube available on the resuscitation trolley should be a 7.0mm, with a 6.0mm and 5.0mm also available.
- It is suggested that a national approach to airway training for obstetrics is needed.

5. Team working, communication and escalation of care

- The importance of multidisciplinary team working, and also timely senior involvement was stressed.
- A case was highlighted of post-partum collapse with difficult venous access and a failure to recognise a uterine rupture. The senior obstetrician and senior anaesthetist were not called until very late, and it was felt that the delay could potentially have made a difference to the outcome.

6. Planning care of women with complex needs

- Pregnant women with complex needs or a complex medical history should have multidisciplinary planning, and an experienced obstetric anaesthetist should contribute to this.
- Several cases were highlighted, often when care had been transferred from a local hospital to the tertiary referral centre, where the anaesthetic team were not aware of a woman with complex needs. The examples given were a Jehovah's Witness, a woman with a known difficult airway, and a morbidly obese woman with a BMI of 55kg/m2.
- It was noted that women with a BMI >40 should have an anaesthetic management plan for labour and delivery discussed and documented in the medical notes.

7. Documentation

- A consistent finding in case reviews is poor documentation, and they recommend a nominated scribe to make contemporaneous records, and using a printout of the automatic vital signs record if possible.

8. Serious Incident Reviews

- It was noted that in several of the SIRs there was no anaesthetic representation, and MBRACE recommends that anaesthetists are invited to all reviews, regardless of whether the incident was anaesthetic related or not.

CONCLUSIONS

Many of the lessons highlighted in the chapter are not new, and have been recognised by previous Confidential Enquiry Reports and existing national guidance. The challenge for the future lies in the implementation of national guidance through increased awareness of best practice by education, training and shared learning from local reviews of serious adverse events and 'near misses'.