Management of Massive Obstetric Haemorrhage

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Date Approved: May 2017
Approved by: Quality & Safety Group (W&CH)
Date for Review: April 2020
Management of Massive Obstetric Haemorrhage

- All consultant lead women should have an Obs Cymru Postpartum Haemorrhage Management Checklist (appendix 1) in their notes and Stage 0 completed on admission
- Stage 1 of the checklist should be completed at 500ml blood loss
- Stage 2 should be completed at 1000ml blood loss
- Stage 3 should be completed at 1500ml blood loss and the Massive Obstetric Haemorrhage Protocol activated

1. Communication: Alert
   - Midwife in charge
   - Consult Obstetrician
   - Middle Grade Obstetrician
   - Labour ward Anaesthetist and Consultant Anaesthetist
   - Neonatologist if Ante Partum
   - Theatre staff / ODP
     Midwife in charge to contact Switch board ‘3333’ and declare:
     ‘Obstetric Major Haemorrhage on Labour Ward’
   Switch board will then contact:
   - Porters
   - Blood bank
   - Consultant Haematologist
   Porters will be sent to collect O Negative blood and fibrinogen concentrate

2. Resuscitation
   - Assess airway
   - Give 15 litres/min oxygen with reservoir bag
   - Left lateral tilt if Ante Partum
   - 2x14 gauge cannulae
   - Send URGENT blood samples for
     - ROTEM, venous lactate (ABG), Point of care Hb (Haemacue or ABG)
     - FBC, crossmatch 4 units of blood, coagulation, U+E. These should be sent with porter, also taking request slips for blood/Fibrinogen/FFP as per the ROTEM protocol (Appendix 2)
   - Start IV fluids
   - Continuous monitoring by anaesthetist
3. Give Uterotonics in Post Partum Haemorrhage

1. Ensure syntometrine IM, or syntocinon 5 units IV after LSCS has been given
2. Syntocinon 40 units in 500ml NaCl 0.9%, 125ml/hour
3. Ergometrine 500mcg IM or IV slowly in 20ml NaCl (not in hypertensives). Consider ondansetron 4mg
4. Carboprost 250mcg IM every 15 minutes, up to 2 mg (caution in asthmatics and cardiac disease)
5. Misoprostol 1000mcg PR

4. Fluid and Blood Replacement

- Transfuse group specific blood as soon as possible
  Consider setting up of cell salvage
- Aim for MAP 60 mmHg (higher if ante partum haemorrhage)

**Crystalloid:** Fluid resuscitation with Hartmann’s (warmed if possible)

**Blood:** Group specific, or O negative if immediately life threatening

**Fibrinogen/FFP:** As per ROTEM Protocol (Appendix 2)

**Platelets:** One adult bag if platelets ≤75x10⁹/L
  Consider requesting cell saver and call staff
Steps to Obtain Blood Products

1. Contact Switchboard and declare ‘Major Haemorrhage on Labour Ward’

2. Request 4 units of group specific/electronic issue blood
   No need to wait for blood results or request Consultant Haematologist’s advice at this stage

3. Porter will arrive with O negative blood and 4g Fibrinogen - do not open box unless absolutely necessary
   NB: O negative blood is rarely required

4. Give porter blood samples (FBC, U+E, coags) and request slips for blood, Fibrinogen and FFP as guided by ROTEM

5. Porter will collect blood products

6. If bleeding continues request further products:
   4 units of blood
   1 bag of adult platelets if ≤75x10⁹/L and ongoing bleeding
   FFP and Fibrinogen according to ROTEM protocol
   These can be given without awaiting results or haematologist’s advice in the case of relentless bleeding
   Give 1g tranexamic acid IV at 1000ml blood loss or at 1500ml blood loss if it has not already been given – a further 1g dose can be given 30 minutes after the first dose if bleeding is ongoing.
Ongoing Blood Management and Target Results

- Take further blood samples for FBC, coagulation, ROTEM, Lactate, Point of care Hb (Haemacue or ABG) after 500ml further blood loss or clinical concern or after 30 minutes
- Discuss further management with consultant haematologist

Further products guided by results:
Figures to aim for:

- Hb>80g/l
- Platelets >75 x10^9/L
- Extrem CT < 75s /normal PT/APTT
- Fibtem A5 ≥ 12mm /Fibrinogen>2g/L

5. Anaesthetic Management

- GA if active or severe haemorrhage, or uncertain diagnosis
- Regional: if epidural block present can be continued, but low threshold for converting to GA
- Standard monitoring and hourly urometer
- ODP to set up cell salvage collection
- Consider invasive monitoring
- Do not delay resuscitation and anaesthetic for CVP or arterial line insertion
- Keep patient warm: under patient heating blanket, forced air warming blanket, fluid warmers
- ODP to set up rapid fluid infuser
- Call for 2nd ODP
6. Surgical Management

- Examination under anaesthesia to identify cause for PPH
  
  Atonic PPH
  
  Consider insertion of Bakri Balloon (appendix 4) together with uterotonics
  
  Compression suture B-Lynch or Modified B-Lynch (appendix 3) with or without Bakri Balloon
  
  Consider radiological intervention-selective arterial embolisation
  
  Consider hysterectomy if above fail/unsuitable
  
  Retained POC-exploration of uterine cavity and removal of RPOC
  
  Trauma to genital tract- careful evaluation and repair

7. Post Haemorrhage Care

- If a Bakri Balloon, swab or a pack is left insitu a coloured identity band must be placed on woman’s wrist which clearly documents the foreign body that is left insitu and is only removed when foreign body has been extracted.
  
- HDU care, unless ITU needed
  
- Indications for ITU: acidotic, hypoxic, coagulopathy, hypothermic, inotrope dependant
  
- Continue all established monitoring
  
- Monitor hourly urine output
  
- Further blood samples: FBC, coagulation, U+ e
  
- Thromboprophylaxis
  
- H₂ antagonists
  
- Contact blood bank to ‘stand down’ and return unused blood products
**APPENDIX 1**

**Postpartum Haemorrhage Management Checklist**

**Stage 0**
- All Women on Admission
- All modes of delivery including CSs

**Stage 1**
- >500mL blood loss
- SVL & Instrumental deliveries

**PPH Post-event Checklist**

- **Who sign-out completed?**
  - Yes / No / NA (patient didn't require care in theatre)

- **MOH sign-off**
  - Yes / No / NA

- **Have any bloods/products returned to blood bank?**
  - Yes / No / NA

- **If MOH protocol was activated before stage 3 or not activated at stage 3 then please detail reasons:**
  - Yes / No / NA

- **Does a Data form need completing?**
  - Yes / No

- **If yes:**
  - Data form number:
  - Person responsible for completing Data form:

- **Does the case need highlighting to ObsCymru Champion?**
  - Yes / No

- **Has the event been discussed with the patient?**
  - Yes / No

- **Has written information been provided to the patient?**
  - Yes / No

- **Does a formal team debrief need to take place?**
  - Yes / No

**Post-event Monitoring Requirements**

- **Level of post-event care required (circa applicable)**
  - Level 1
  - Level 2 (NDO)
  - Level 3 (ICU)

- **Post-op bloods (if required):**
  - To be taken at:
  - Fr 1iv:

- **Urine output monitoring required?**
  - Yes / No / NA

- **Does case need highlighting to ObsCymru Champion?**
  - Yes / No

- **Has event been discussed with patient?**
  - Yes / No

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  - Yes / No

- **Does a formal team debrief need to take place?**
  - Yes / No

- **PPH post-event checklist completed:**
  - Yes / No / NA

- **Completed by:**
  - Date:
  - Time:
  - Location:

- **For more information please contact obs.cymru@wales.nhs.uk**
Stage 2
Progress to here from stage 1 if SVD/Instrumental delivery. Re-start here after stage 0 if LSCS
>1000mL blood loss OR clinical concern (e.g. Abruptio or concealed bleeding)
OR abnormal vital signs RR > 30, HR ≥120, BP ≤90/40mmHg, O2 sat ≤95%

Mobilise Help - Record once in attendance:
Midwife in charge: Name: ___________ time: _____
Obstetrician: Name: ___________ time: _____
Anaesthetist: Name: ___________ time: _____
MCA: Name: ___________ time: _____

Act
Measure & record blood loss at least every 15min
Monitor patient on MEOWS every 30min
Consider 2nd IV access (or inset 16 Gauge) & fluid bolus

Take bloods (Point of care tests - ROTEM, venous lactate, venous Hb)
(Lab test - FBC, Coag, K+Match, U&Es)

<table>
<thead>
<tr>
<th>Initial IVG Test Results</th>
<th>Initial ROTEM Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Hb</td>
</tr>
</tbody>
</table>

Treat
- Further uterotonic (record below)
- Bimanual compression
- Empty bladder (consider foley)
- Inspect genital tract
- Repair genital tract

If bleeding on going transfer patient to theatre

Once bleeding stopped ensure:
- PPM post-event checklist completed (on back page)
- Management plan written in notes

Completed by: ___________ (Please print) Date: ___________ Time: ___________ Location: ___________

Record of further uterotonic used (If already given in stage 1 write “Stage 1” instead of time here)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose (please state route)</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systyntoin</td>
<td>10 units IM or 5 units IV</td>
<td></td>
</tr>
<tr>
<td>Ergometrine (in 1ml/5mg)</td>
<td>500 mcg IM or IM</td>
<td></td>
</tr>
<tr>
<td>Syntotopic (in 1ml/5mg)</td>
<td>500 mcg IM or IM</td>
<td></td>
</tr>
<tr>
<td>Syntocinon INF</td>
<td>40 units over 4hr IM</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>___________ 200mkg IM x 2 P1</td>
<td></td>
</tr>
<tr>
<td>Misoprostol</td>
<td>200mkg IM x 1 P1</td>
<td></td>
</tr>
</tbody>
</table>

Stage 3
> 1500mL blood loss OR on going clinical concern

Mobilise Help - Ensure required team present (Record once in attendance)
Obstetrician: Name: ___________ time: _____
Obstetrician: Name: ___________ time: _____
Theatre Nurse: Name: ___________ time: _____
MCA: Name: ___________ time: _____
Anaesthetist: Name: ___________ time: _____
OGD: Name: ___________ time: _____

Transfer to theatre
Activate MOH protocol
Inform Obstetrician
Inform Anaesthetic consultant
Consider Interventional radiology

Act
Review measured blood loss and continue to measure
Monitor patient - continuous monitoring by anaesthetist
Consider Cell Salvage
Order blood and coagulation products as per MOH and RODEM protocol
Repeat blood tests as per MOH and RODEM protocol – Do you need to discuss the case with a haematologist?

Treat as per MOH protocol
Review on-going resuscitation
Review uterotonic – record any further doses in stage 2
Give tranexamic acid (Plasma, FFP and CT)
Consider advanced surgical techniques – document below

Transfer to HDU/ITC care once bleeding stopped

Once bleeding stopped ensure:
- PPM post-event checklist completed (on back page)
- Management plan written in notes

Completed by: ___________ (Please print) Date: ___________ Time: ___________ Location: ___________

<table>
<thead>
<tr>
<th>Time</th>
<th>Blood Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>___________</td>
<td>___________</td>
</tr>
</tbody>
</table>

Notes (e.g. Surgical interventions, other events)

Total Measured Blood Loss = ___________ mL
Appendix 2

**ROTEM Protocol**
(For use in postpartum haemorrhage)

1. **REVIEW FIBTEM A5** (thrombin polymerisation)
   - FIBTEM A5 ≤11mm or Fibrinogen ≥2 g/l
   - FIBTEM A5 ≥12mm or Fibrinogen ≤2 g/l
   - No Fibrinogen required

2. **REVIEW EXTEM CT** (thrombin generation)
   - EXTEM CT ≥75sec or elevated PT/APTT
     - Give Fibrinogen concentrate
     - 5g in 500ml
   - EXTEM CT <75sec or normal PT/APTT
     - No FFP required

3. **REVIEW FBC** (platelet deficiency)
   - Platelets ≥75 x10^9/L
   - No Platelets required
   - Platelets ≤50 x10^9/L
     - Give Platelets
     - 1 adult unit

**Any of the following?**
- Bleeding ongoing
- >500ml further loss
- Clinical concern
- Any blood products given
- Or after 30mins

**IF 1-3 NORMAL FOCUS ON OTHER CAUSES OF BLEEDING**
- Patient not presently coagulopathic

**OPTIMISE PATIENT**
- Temp >36°C
- Hb 80g/L
- pH >7.2
- Ionised Ca²⁺ >1.4mmol/L

For more information, please contact:
- Haematologist
- Blood Bank
- Haematology Lab
- Porters
APPENDIX 3

Procedure for Insertion of B-Lynch suture

Ask for special suture – 70-8-mm round bodied blunt hand held needle mounted on number one monocryl (code W3709)

Place the woman in Lloyd Davies or Lithotomy position, an assistant stands between the patient’s legs to monitor the vaginal blood loss; whilst two surgeons are needed on abdominal side to insert the suture.

- Exteriorise the uterus (warn the anaesthetist).
- Perform bimanual compression of the uterus
- If the bleeding stops by doing so, the procedure is likely to succeed.
- The first stitch is placed 3cm below the lower C/S incision on the patient’s left side and threaded through the uterine cavity to emerge 3cm above the upper incision margins – 4cm from the lateral border of the uterus.
- Carry the suture on the outside of the uterus over the top and to the posterior side.
- The suture should be more or less vertical and lying about 4cm from the cornua.
- The experienced assistant compressing the uterus intermittently, now compresses the uterus further as the suture is fed through to enable progressive, successive tension to be maintained as the suture compresses the uterus.
- The suture now lies horizontally on the inner aspect of the posterior uterine wall.
- Bring the suture over the top of the fundus, it is placed exactly the same way as it was on the left side i.e. 3cm above the incision 4cm from the lateral side of the uterus through the top of the incision into the uterine cavity and then again back through 3cm below the incision.
- Now you are ready to tie the two ends of the suture, the assistant maintains the compression as the monocryl suture is milked through from its different portals to ensure uniform tension.
- The two end of the suture are put under tension, and a double throw knot applied for security and prevent slipping.
- The tension on the two ends maintained while the lower segment incision is closed or knot can be tied first. Either way ensures that when the lower segment is closed there is no escape of the edges/angles of the incision.
- Close the abdomen in a routine way after insertion of drain if appropriate.
APPENDIX 4

Insertion of Bakri Balloon

Bakri Balloon tamponade is used when uterotonic and uterine massage do not stop the bleeding and local trauma and retained tissue in the uterus is excluded. It has been found to be more useful in lower uterine segment bleeding e.g. bleeding following C/S for Placenta Praevia.

An assistant is required.
An indwelling urinary catheter should be in situ.
Warm saline – 500ml should be available.
Usual antiseptic/aseptic precautions are required.

- Patient put in Lithotomy position.
- Speculum is passed in the vagina to visualise cervix.
- Anterior lip of the cervix is secured gently with a sponge forceps.
- Insert the Balloon portion of the catheter in the uterus, making certain that the entire balloon is inserted past the cervical canal and internal ostium.
- Avoid excessive force.
- Using enclosed syringe, inflate the balloon with warm normal saline, from 200-300ml. Rarely up to 500ml fluid is required to stop the bleeding.
- Once the balloon is placed and is inflated, connect the drainage to a fluid collection bag to monitor haemostasis.

Trans-abdominal placement of Bakri Balloon

- Ensure uterine cavity is clear of any retained placental tissue.
- From above (via access of the Caesarean incision), pass the tamponade balloon, inflation port first. through the uterus and cervix.
- Have an assistant pull the shaft of the balloon through the vaginal canal until the deflated balloon base comes in contact with the internal os.
- Close the incision per normal procedure, taking care to avoid puncturing the balloon while suturing.
- Inflate the balloon as above, vaginally.

Post-insertion monitoring:
• If a Bakri Balloon, swab or a pack is left insitu a coloured identity band must be placed on woman’s wrist which clearly documents the foreign body that is left insitu and is only removed when foreign body has been extracted
• The woman should be monitored for bleeding as per protocol.
• Intravenous Augmentin for three 8xhourly doses given in absence of penicillin allergy.
• Uterine fundal height should be monitored closely as clot collection posterior to the Balloon have been reported.

Removal of Bakri Balloon:

• The Bakri balloon is to be removed by an Obstetrician
• Maximum indwell time is twenty-four hours.
• Majority can be removed after 12 hours (Six hours seem to be sufficient for the placental bed to clot and stop bleeding).
• A plan for removal should be clearly made and documented by the operator.
• Ideally should aim to remove it first thing in the morning so the bleeding can be closely monitored during daytime.
• Gradual deflation of Balloon is not necessary.
• To date, no immediate problems such as bleeding or sepsis, or long-term complications such as menstrual problems or problem with conceiving have been reported in women who underwent uterine tamponade.
**Directorate of Women & Child Health**

**Checklist for Clinical Guidelines being Submitted**

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<th>Management of Massive Obstetric Haemorrhage</th>
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<tr>
<td>Name(s) of Author:</td>
<td>Labour Ward forum</td>
</tr>
<tr>
<td>Chair of Group or Committee supporting submission:</td>
<td>Madhuchanda Dey / LW Forum</td>
</tr>
<tr>
<td>Issue / Version No:</td>
<td>2</td>
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<td>Next Review / Guideline Expiry:</td>
<td>April 2020</td>
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<tr>
<td>Details of persons included in consultation process:</td>
<td>Policy update/ review in line with new Health Board Massive Haemorrhage protocols Labour ward Forum, lead obstetrician</td>
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<tr>
<td>Name of Pharmacist (mandatory if drugs involved):</td>
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* To be completed by Author and submitted with document for ratification to Clinical Governance Facilitator