

ANTEPARTUM HAEMORRHAGE

MODULE: OBSTETRIC

TARGET: ANAESTHETIC CORE TRAINEES & ALL ANAESTHETISTS

BACKGROUND:

Major obstetric haemorrhage remains a significant cause of mortality and morbidity in the peripartum period. The 2006-2008 CMACE report found that haemorrhage was the sixth most frequent cause of mortality, an improvement on previous triennium reports. Simulation-based training of this emergency is best suited to team-based training, and this scenario can be modified for this purpose. However, maternal haemorrhage still presents a complex anaesthetic challenge and trainee anaesthetists must understand their role in the management of these patients. Obstetric units will have local protocols for managing major haemorrhage, and conduct of the scenario should reflect this.

RELEVANT AREAS OF THE ANAESTHETIC CURRICULUM

IG_BS_08	<p>In respect of intravenous induction:</p> <ul style="list-style-type: none"> • Makes necessary explanations to the patient • Demonstrates satisfactory practice in preparing drugs for the induction of anaesthesia • Demonstrates proper technique in injecting drugs at induction of anaesthesia • Manages the cardiovascular and respiratory changes associated with induction of general anaesthesia
IG_BS_10	<p>In respect of airway management:</p> <ul style="list-style-type: none"> • Demonstrates optimal patient position for airway management • Manages airway with mask and oral airways • Demonstrates hand ventilation with bag and mask • Demonstrates correct head positioning, direct laryngoscopy and successful oral intubation techniques and confirms correct tracheal tube placement • Demonstrates proper use of bougies • Demonstrates correct securing and protection of LMAs/tracheal tubes during movement, positioning and transfer • Correctly conducts RSI sequence
IO_BS_07	Demonstrates role as team player and when appropriate leader in the intra-operative environment
IO_BS_08	Communicates with the theatre team in a clear unambiguous style
IO_BS_09	Able to respond in a timely and appropriate manner to events that may affect the safety of patients [e.g. hypotension, massive haemorrhage] [S]
ES_BS_01	Manages preoperative assessment and resuscitation/optimisation of acutely ill patients correctly
ES_BS_03	Manages rapid sequence induction in the high risk situation of emergency surgery for the acutely ill patient
CI_BS_01	Demonstrates good non-technical skills such as: [effective communication, team-working, leadership, decision-making and maintenance of high situation awareness]
CI_BS_02	Demonstrates the ability to recognise early a deteriorating situation by careful monitoring
CI_BS_05	Demonstrates ability to recognise when a crisis is occurring
CI_BS_06	Demonstrates how to obtain the attention of others and obtain appropriate help when in a crisis
4.3	Administers blood and blood products safely
OB_BS_01	Undertakes satisfactory preoperative assessment of the pregnant patient
OB_BS_02	Demonstrates the ability to clearly explain and prepare an obstetric patient for surgery
OB_BS_03	Demonstrates the use of techniques to avoid aorto-caval compression
OB_BS_07	Demonstrates the ability to provide general anaesthesia for caesarean section [S]
OB_BS_11	Demonstrates ability to recognise when an obstetric patient is sick and the need for urgent assistance
GU_IS_03	Demonstrates the ability to manage the effects of sudden major blood loss effectively
CI_IS_01	Demonstrates leadership in resuscitation room/simulation when practicing response protocols with other healthcare professionals
CI_IS_02	Demonstrates appropriate use of team resources when practicing response protocols with other healthcare professionals
OB_IS_09	Demonstrates the ability to provide intra uterine resuscitation for the "at risk" baby
OB_HS_03	Demonstrates the ability to be an effective part of a multidisciplinary team
OB_HS_06	Demonstrates skill in managing emergencies including pre-eclampsia, eclampsia, major haemorrhage

INFORMATION FOR FACULTY

LEARNING OBJECTIVES:

- Safe administration of blood products for resuscitation during massive haemorrhage
- Demonstrating understanding of the pharmacotherapy used in obstetric haemorrhage
- Understanding the logistical difficulties and team interactions involved in managing major obstetric haemorrhage.

SCENE INFORMATION:

- Location: Theatre (Maternity)
- Expected Duration of Scenario: 25-30 mins
- Expected Duration of Debrief: 35-40 mins

EQUIPMENT & CONSUMABLES

- Pregnant simulation model and neonatal model
- Wedge
- Large quantities of fake blood products for transfusion: Packed red cells, FFP and plt
- Evidence of major haemorrhage: blood-stained inco pads, kidney bowls full of blood, suction container full of blood
- Checked Anaesthetic Machine
- Airway Trolley and intubation equipment
- IV fluids and giving sets
- Self inflating bag-valve-mask
- CTG Monitor
- Theatre Drapes
- Antenatal paperwork and blank anaesthetic chart

PERSONS REQUIRED

- Anaesthetic Junior Trainee
- Anaesthetic Assistant
- Anaesthetic Senior Trainee
- Midwife
- Obstetrician
- Scrub Nurse (Optional)
- Theatre Assistant – runner (Optional)
- Paediatrician (Optional)

PARTICIPANT BRIEFING: (TO BE READ ALOUD TO PARTICIPANT)

You are the anaesthetist covering labour ward.

You have been called urgently to see a patient who has been transferred to maternity theatre due to a large antepartum haemorrhage.

FACULTY BRIEFING:

This scenario simulates a major antepartum haemorrhage requiring emergency Caesarean section in a patient who had been admitted to an antenatal ward for placenta praevia during the last weeks of pregnancy. The scenario begins with the patient having been transferred into maternity theatre from delivery suite. A small PV bleed precipitated her transfer from the antenatal ward to labour ward a few minutes ago. Initial observations showed her to be tachycardic. Shortly after her transfer to delivery suite she started to have large PV blood loss.

'VOICE OF MANIKIN' BRIEFING:

You are terrified for the safety of your baby and are becoming increasingly drowsy. Repeatedly ask if your baby is going to be ok.

32 year old. Second baby. 35/40 weeks gestation. Known placenta praevia, having been admitted to hospital for the last week – with a planned date for an elective section in one week.

Had an episode of mild bleeding 30 minutes ago. Moved from antenatal ward to labour ward. Large bleed on labour ward.

First pregnancy was an uneventful vaginal delivery.

Medically well otherwise. On ferrous sulphate for anaemia in pregnancy. No allergies.

OTHER IN-SCENARIO PERSONNEL BRIEFING:

OBSTETRICIAN:

Anxious. Delivery of baby needs to be as soon as possible. No time for regional anaesthesia. Increasingly impatient if there is perceived delay from the anaesthetist.

Midwife:

Tense. Monitor CTG while anaesthetist performs assessment. The CTG trace shows sustained bradycardia.

ADDITIONAL INFORMATION:

Help will arrive as the induction takes place (after drugs have been given).

2 units O-ve blood is available immediately.

Fully cross-matched blood will take 10 mins.

See below for ABG & Pathology Reports:

RADIOMETER ABL 9000 SERIES			
ABL900 ED		00:00:00	08-1-2013
PATIENT REPORT	Syringe	S195uL	Sample# 90.....
Patient ID			
Patient First Name	Linda		
Patient Last Name	Glover		
Date of Birth	32 yrs old		
Sample type	Arterial		
Fi O ₂	1.0		
Department	ED		
Operator			
Blood Gas Values			
pH	7.46		[7.340 - 7.450]
pCO ₂	3.4	kPa	[4.70 - 6.00]
pO ₂	28	kPa	[10.0 - 13.3]
pO ₂ (A-a)e		kPa	
Oximetry Values			
ctHb	5.4	g/dL	[12.0 - 16.0]
sO ₂	99	%	[95.0 - 98.0]
FO ₂ Hb		%	[94.0 - 99.0]
FCOHb			[-]
HHb		%	[-]
FmetHb		%	[0.02 - 0.06]
Hctc	0.24	%	
Electrolyte Values			
cK+	4.8	mmol/L	[3.0 - 5.0]
cNa+	137	mmol/L	[136 - 146]
cCa ²⁺	1.10	mmeq/L	[1.15 - 1.29]
cCl-	99	mmol/L	[98 - 106]
Metabolite Values			
cGlu	6.9	mmol/L	[3.5 - 10.0]
cLac	2.1	mmol/L	[0.5 - 1.6]
Acid Base Status			
cBase(Ecf)c	-2.5	mmol/L	
cHCO ₃ -(P,st)c	18	mmol/L	

RADIOMETER ABL 9000 SERIES			
ABL900 ED		00:30:00	08-1-2013
PATIENT REPORT	Syringe	S195uL	Sample# 90.....
Patient ID			
Patient First Name	Linda		
Patient Last Name	Glover		
Date of Birth	32 yrs old		
Sample type	Arterial		
Fi O ₂	1.0		
Department	ED		
Operator			
Blood Gas Values			
pH	7.26		[7.340 - 7.450]
pCO ₂	5.4	kPa	[4.70 - 6.00]
pO ₂	22	kPa	[10.0 - 13.3]
pO ₂ (A-a)e		kPa	
Oximetry Values			
ctHb	6.0	g/dL	[12.0 - 16.0]
sO ₂	99	%	[95.0 - 98.0]
FO ₂ Hb		%	[94.0 - 99.0]
FCOHb			[-]
HHb		%	[-]
FmetHb		%	[0.02 - 0.06]
Hctc	0.26	%	
Electrolyte Values			
cK+	5.2	mmol/L	[3.0 - 5.0]
cNa+	139	mmol/L	[136 - 146]
cCa ²⁺	1.01	mmeq/L	[1.15 - 1.29]
cCl-	103	mmol/L	[98 - 106]
Metabolite Values			
cGlu	9.2	mmol/L	[3.5 - 10.0]
cLac	4.1	mmol/L	[0.5 - 1.6]
Acid Base Status			
cBase(Ecf)c	-6.6	mmol/L	
cHCO ₃ -(P,st)c	15	mmol/L	

Pathology & Radiology Reports

Name :Linda Glover
 DoB : 32 yrs old
 PID/Ref :

Lab Number : : please quote if consulting Lab
 COLLECTED
 REPORTED

Requested for :
 Patient seen at :
 ***** TEST RESULTS *****

: INR 1.3 1.0 - 1.3
 : APT Ratio 1.3 0.82 -1.16
 : Fibrinogen 154 mg/dL 150 - 400
 Authorised:



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Requested for :
Patient seen at :
***** TEST RESULTS *****

: Hb	7.8	g/dl	11.5 - 16.00
: WBC	16.0	x10 ⁹ /L	4.00 - 10.50
: Platelets	115	x10 ⁹ /L	145 - 400
: MCV	0.82	fl	80.0 - 98.0
: HCT	0.28		0.36 - 0.46
: RBC		x10 ¹² /L	4.00 - 5.20
: MCH		pg	25.0 - 35.0
: MCHC		g/dL	31.0 - 36.0
: Neut	14.2	x10 ⁹ /L	1.80 - 7.50
: Lymph	1.2	x10 ⁹ /L	1.30 - 4.00
: Mono		x10 ⁹ /L	0.20 - 0.80
: Eosin		x10 ⁹ /L	0..2 - 0.40
: Baso		x10 ⁹ /L	0.00 - 0.20

Authorised:

Pathology & Radiology Reports

Name :Linda Glover
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PID/Ref :

Lab Number : : please quote if consulting Lab
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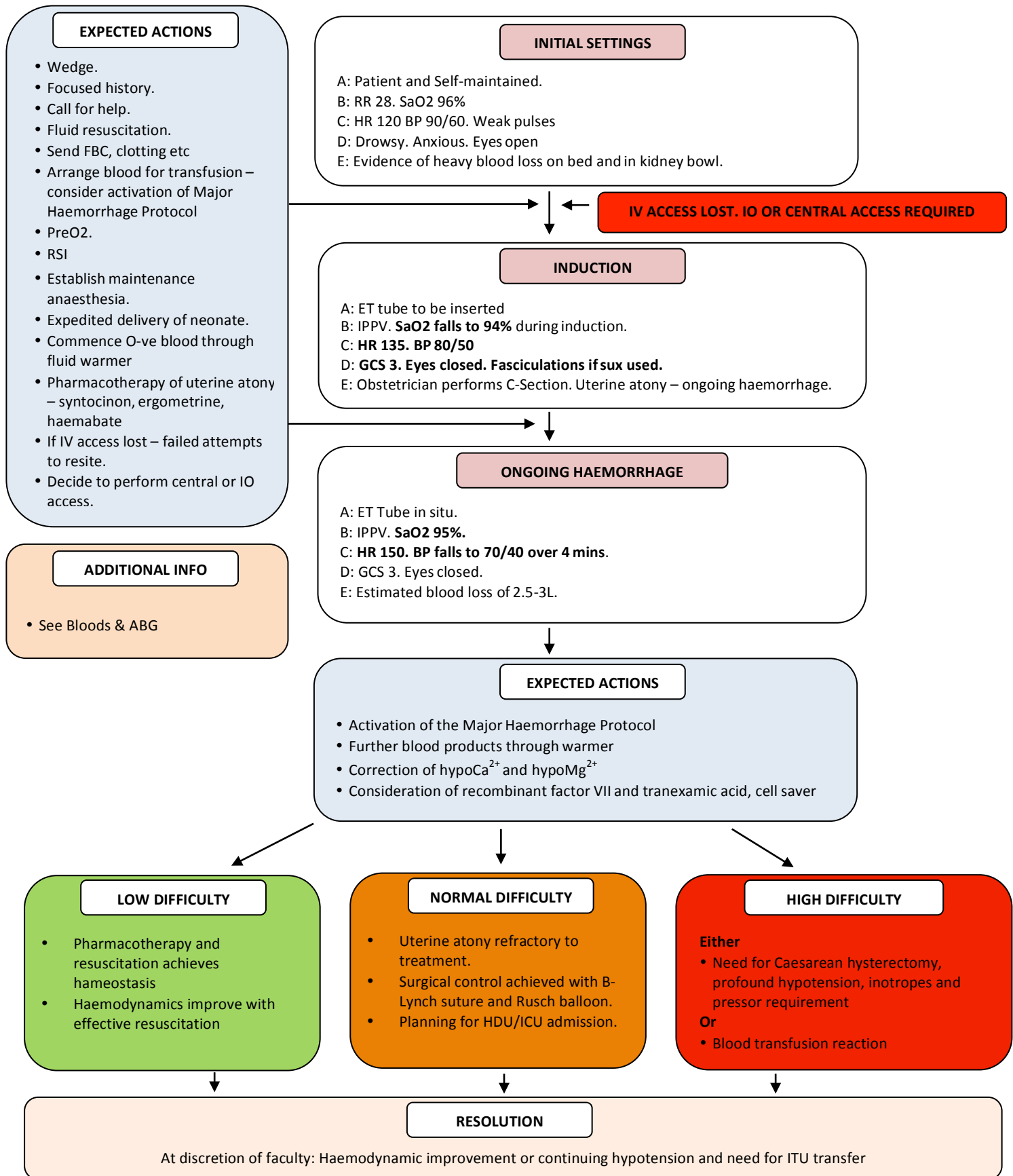
Requested for :
Patient seen at :
***** TEST RESULTS *****

: SODIUM	138	mmo1/L	(134 -145)
: POTASSIUM	4.8	mmo1/L	(3.6 - 5.3)
: UREA	5	mmo1/L	(2.8 - 7)
: CREATININE	80	umo1/L	(44 - 80)
: eGFR	>80	mL/min/1	

Lab Comment:
eGFR- If of Afro-Caribbean origin multiply by 1.2
Authorised:



CONDUCT OF SCENARIO



DEBRIEFING

POINTS FOR FURTHER DISCUSSION:

Technical:

- Airway difficulties in obstetric patients
- Management of major antepartum haemorrhage
 - Physical
 - Pharmacological
 - Anaesthetic strategies
 - Surgical techniques
- Performing emergency RSI in the obstetric patient

Non-technical:

- Based on established non-technical skills frameworks e.g. ANTS, NOTECHS etc
- Appropriate communication with patient, obstetric theatre team, blood bank and haematologists.

DEBRIEFING RESOURCES

Management of obstetric haemorrhage

<http://www.frca.co.uk/article.aspx?articleid=100758>

Massive Haemorrhage in Pregnancy. Banks A, Norris

A. CEACCP 5 (6) 195-198. Dec 2005.

<http://ceaccp.oxfordjournals.org/content/5/6/195.full.pdf+html?sid=f09fcb24-f59a-43ef-9aab-10d2b607ea79>

Prevention and Management of Postpartum Haemorrhage

RCOG Green-top Guideline No. 52. May 2009.

<http://www.rcog.org.uk/files/rcog-corp/GT52PostpartumHaemorrhage0411.pdf>

INFORMATION FOR PARTICIPANTS

KEY POINTS:

- Safe administration of blood products for resuscitation during massive haemorrhage
- Demonstrating understanding of the pharmacotherapy used in obstetric haemorrhage
- Understanding the logistical difficulties and team interactions involved in managing major obstetric haemorrhage.
- How to call for help – Major Obstetric Haemorrhage (MOH) calls and what is achieved them

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WORKPLACE-BASED ASSESSMENTS

OB_BTC_A03	<ul style="list-style-type: none"> Basic Competencies for Obstetric Anaesthesia – conduct general anaesthesia for caesarean section [12-24 months][S]
OBI_A01	Administer anaesthesia for caesarean section to a patient with a complicated pregnancy [hypertensive disease, placenta praevia etc]
OBH_A01	Undertake the management of caesarean section in a complex obstetric case such as twin delivery, moderate to severe pre-eclampsia, placenta praevia, obstetric haemorrhage, foetal distress, etc – using GA or RA as appropriate.
OBH_D04	Undertake anaesthesia for a patient in whom massive haemorrhage is expected including organising venous access, infusion equipment, cell saver and appropriate blood products.

FURTHER RESOURCES

Management of obstetric haemorrhage

<http://www.frca.co.uk/article.aspx?articleid=100758>

Massive Haemorrhage in Pregnancy. Banks A, Norris

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PARTICIPANT REFLECTION:

What have you learnt from this experience? (Please try to list 3 things)

How will your practice now change?

What other actions will you now take to meet any identified learning needs?

PARTICIPANT FEEDBACK

Date of training session:.....

Profession and grade:.....

What role(s) did you play in the scenario? (Please tick)

Primary/Initial Participant	<input type="checkbox"/>
Secondary Participant (e.g. 'Call for Help' responder)	<input type="checkbox"/>
Other health care professional (e.g. nurse/ODP)	<input type="checkbox"/>
Other role (please specify):	<input type="checkbox"/>
Observer	<input type="checkbox"/>

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
I found this scenario useful					
I understand more about the scenario subject					
I have more confidence to deal with this scenario					
The material covered was relevant to me					

Please write down one thing you have learned today, and that you will use in your clinical practice.

How could this scenario be improved for future participants?
 (This is especially important if you have ticked anything in the disagree/strongly disagree box)



FACULTY DEBRIEF – TO BE COMPLETED BY FACULTY TEAM

What went particularly well during this scenario?

What did not go well, or as well as planned?

Why didn't it go well?

How could the scenario be improved for future participants?