



FETOMATERNAL HAEMORRHAGE

MODULE:

Fetomaternal Haemorrhage, Scenario number 3

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TARGET:

Doctors (all levels)

Neonatal nurses

Any level Neonatal Unit

BACKGROUND:

The need to provide emergency resuscitation/care for a newborn in the event of feto-maternal haemorrhage is often unexpected. Correct and timely measures to resuscitate and stabilize such infants can be life-saving.

Facilitators may wish to involve staff in blood bank in this scenario.

RELEVANT AREAS OF THE CURRICULUM

Besides human factors and communication this scenario addresses-

- Recognition of need for resuscitation at birth.
- Knowledge of, and application of, the NLS algorithm.
- Logistical considerations in providing emergency O negative blood.

WORKPLACE-BASED ASSESSMENTS

Mini CeX: Us eof NLS algorithm.

CBD: Unexpected compromised condition at birth.

DOPs: Bag/mask technique, emergency UVC insertion (possibly also intubation).

INFORMATION FOR FACULTY

LEARNING OBJECTIVES

Behavioral:

- Importance of having a structured team approach to assessment of a baby at birth.
- Calling for help.
- Identifying competencies of team members and allotting tasks appropriately.

Scenario-based Clinical:

- Recognition of need for resuscitation.
- Application of the NLS algorithm.
- Practical skills including bag/mask resuscitation, intubation (optional if bag/mask effective) and insertion of an emergency UVC.

SCENE SETTING

Estimated scenario time: 20 minutes

Estimated debriefing time: 20+ minutes

SCENARIO SUMMARY:

It is a Tuesday morning. Staff on labour ward have alerted staff on NICU/SCBU that they are about to perform an emergency caesarean section on a primiparous lady aged 25 whose term fetus has shown signs of distress (a pathological CTG). The plan is to deliver by category 1 caesarean section under general anaesthetic as soon as possible. The patient had had an uneventful pregnancy until she noticed reduced fetal movements for the past 24 hours. She is three days past her estimated due date.

PREPARATION

MANNEQUIN ENVIRONMENT

- Term mannequin.
- Resuscitaire

EQUIPMENT AND CONSUMABLES

'Usual' resuscitation equipment should be available (this may be an emergency trolley, a box or stocked resuscitaire drawers depending on local policy. It is up to individual units to decide whether dedicated simulation equipment should be used, or emergency equipment. Simulation equipment should be identical to that used in real life (so far as possible). If 'real' equipment is used, care should be taken to ensure that sufficient alternative equipment is available for use in a 'true' emergency and the consumables used should be restocked as soon as possible after the simulation exercise.

- Resuscitaire
- Bag/mask and/or T-piece circuit
- Equipment for intubation (laryngoscope, endotracheal tubes, fixation device, carbon dioxide detector).
- Equipment for UVC insertion (umbilical catheter or nasogastric tube, scalpel, syringe, cord tie, suture material or fixation device).
- Simulated emergency drugs (adrenaline, sodium bicarbonate, glucose).
- Simulated emergency o-negative blood.

PERSONNEL-IN-SCENARIO

INITIALLY

Neonatal Nurse
Neonatal SHO

ON REQUEST

Neonatal SpR

APPENDICES

- Blood gas
- Participant reflection and feedback

BACKGROUND INFORMATION

MATERNAL/NEONATAL HISTORY:

The mother is a fit and well 25 year old primip. She is three days post her due date. Her pregnancy has been uneventful until she noticed reduced fetal movements yesterday lunchtime. She was reassured by family members yesterday, but called labour line for advice today. She was advised to attend for review and CTG is pathological. The fetus is bradycardic with estimated fetal heart rate 80. An emergency caesarean section under general anaesthetic is being arranged urgently.

CANDIDATE BRIEFING:

It is Tuesday lunchtime. A fit and well lady with a term pregnancy has presented with a twenty-four hour history of reduced fetal movements. There is a sustained fetal bradycardia of approximately 80bpm on CTG. She is being taken to theatre immediately for a category 1 emergency caesarean section under general anaesthetic. You have been asked to attend.

NURSING STAFF BRIEFING

It is Tuesday lunchtime. A fit and well lady with a term pregnancy has presented with a twenty-four hour history of reduced fetal movements. There is a sustained fetal bradycardia of approximately 80bpm on CTG. She is being taken to theatre immediately for a category 1 emergency caesarean section under general anaesthetic. You have been asked to attend with the junior doctor on duty.

PROCEDURE: UVC INSERTION

SEE NLS MANUAL

Scenario commences

Baby passed to resuscitaire

Colour: white
Tone: very floppy
Heart rate: absent

Expected Actions:

- Put on gloves/apron.
- Prepare resuscitaire.
- Call for help in advance or on assessment of baby.
- Assess baby and recognise need for resuscitation.

No response to airway support, inflation breaths and cardiac compressions.
Heart rate detectable after emergency drugs (if given) but **remains slow until blood administered**

- Open airway by positioning baby.
- Give inflation breaths.
- Recognise that cardiac compressions are required once chest wall movement is seen

Observe inflation and ventilation breath technique
Observe quality of cardiac compressions

Throughout: is there enough help/senior support?

When no response in heart rate after chest compressions started:

- Consider need for emergency drugs
- Insertion of emergency UVC (if enough members of staff)

Blood may be taken from the UVC. A gas result is available (see Appendix)

- Request for emergency O negative blood
- (Administration of blood if scenario time allows)

There may be a discussion around continuation of resuscitation. If called, the consultant should encourage the team to continue the attempt until their arrival.
This could be discussed at debrief.

End Scenario

Extension to debrief: Explore steps required to obtain emergency O negative blood.

APPENDICES

BLOOD GAS

RADIOMETER ABL800 FLEX			
ABL835 Neonatal Unit 2		13.07 09/05/2017	
PATIENT REPORT	Capillary (No bilirubin)	Sample#	147138
FLEXMODE			
Identifications			
Patient ID	2016000		
Patient Last Name	Simulation		
Patient First Name	Baby		
Date of Birth	011/01/2016		
Sample type	Capillary		
FO ₂ (I)	21.0%		
T	37.0°C		
Blood Gas Values			
pH	6.08		[-]
pCO ₂	16.3	kPa	[-]
pO ₂	1.90	kPa	[-]
Acid Base Status			
cHO ₃ (p) ^c	10.1	mmol/l	
ABE _c	-18	mmol/l	
Oximetry Values			
ctHb	27	g/l	[-]
Hct _c	14	%	
So ₂	?	%	[-]
FO ₂ Hb	?	%	
FCOHb	?	%	[-]
FMetHb	?	%	[-]
Electrolyte Values			
cNa ⁺	118	mmol/l	[-]
cK ⁺	8.1	mmol/l	[-]
cCa ²⁺	0.8	mmol/l	[-]
cCl ⁻	1.9	mmol/l	[-]
AnionGap,K ⁺ c	?	mmol/l	[-]
Metabolite Values			
cGlu	1.1	mmol/l	
cLac	19	mmol/l	[-]
Temperature Corrected Values			
pH(T)	6.08		[-]
pCO ₂ (T)	16.3	kPa	[-]
pO ₂ (T)	1.90	kPa	[-]
Notes			
↓	Value(s) below reference range		
C	Calculated value(s)		
	0879:Adaptive measuring mode applied		
Printed 13:07:00 09-05-17			

APPENDICES

PARTICIPANT REFLECTION AND FEEDBACK

What have you learned from this experience? (Please try and list 3 things)

How will your practice now change?

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

How could the scenario be improved for future participants?