TRAUMA SIMULATION 5

Simulation focus - Major haemorrhage - liver laceration (pelvic splint - skill)

Expected outcomes

Team Leader - Guides the faculty helper through the initial ABCDE assessment (primary survey), direct team and lead care – taking over any skills as necessary. Identify that the child has suffered a significant pelvic injury resulting in the need for major haemorrhage activation. Correct application of a pelvic binder.

Team/More experienced candidate - Recognise that there is also a possible liver laceration. Consider surgical and non-surgical management of pelvic fracture (interventional radiology).

Assessment

This simulation allows for discussion/demonstration and for candidates to have a go at applying pelvic splints to manikin/themselves.

History

Emergency staff:

Pre-alert is received for Frankie, a 4-year-old, who was playing by the house when a delivery driver turned his car around pinning her against the front wall of the garden. She is tachycardic, very pale, and crying in pain.

Ward staff:

You are walking into the hospital when you witness a car manoeuvring in the car park, pin a 4-year-old child (Frankie) to the carpark wall and you decide to go to the ED to escort her parent and assist them as you will need to give a statement to the police.

Immediately apparent

Please ensure the prompt card with global overview is placed on the manikin for the start of the sim.

As you approach the child, she is moaning occasionally, looks very pale and her legs appear externally rotated.

Clinical course *(to be given as the simulation progresses)*

Assess	Features	Action	Key treatment points
<c>	No signs of external bleeding	Assess	
A	Intermittently sobbing and looks pale	Recognise child has suffered significant trauma	**MILS** **High flow oxygen**
B	**RR 46, SpO_2** not recording, no recession, splinting diaphragm	Recognise “B” problem likely secondary to circulatory problem	High flow oxygen via non-rebreathe mask if not already applied
C	**HR 160, CRT 5,** BP not obtained as agitated and moves arm	Recognise likely pelvic fracture Recognise injury RUQ	**Apply pelvic binder** **Activate major haemorrhage protocol** **Fluid resuscitation** Bloods **TXA**
D	**GCS 14** (E3V5M6) PEARL, **BM 5.8**		**Blood sugar**
E	Legs externally rotated if pelvic binder not yet applied Bruising to pelvis and RUQ		Pelvis not palpated

Reassessment

Once candidate has commenced major haemorrhage protocol, bound pelvis and administered TXA then they can reassess the child. On reassessment consideration of analgesia and humanitarian sedation +/- anaesthesia. **Candidate should not be allowed to get to the point of reassessment without application of a pelvic binder.**

Assess	Features	Action	Key treatment points
A	Patent, occasional moans	Recognise potential for airway compromise	Continue with MILS and oxygen
B	**RR 40, SpO2 94%** trace poor Normal respiratory examination		
C	**HR 150, CRT 4**, still pale	Recognise need for ongoing fluid resuscitation	**Further fluid bolus -** should now be **blood/ blood products**
D	**GCS 14** (E3V5M6), PEARL, **BM 5.8**		
E	No other injuries noted		

NB	• **The candidate should not be allowed to get to the point of reassessing without application of pelvic binder and commencement of fluid resuscitation due to the high morbidity and mortality.**

Debrief

Using the learning conversation, discuss the technical and non-technical elements of the simulation

Assessment

This station makes up part of the continuous assessment process, therefore candidates need to know whether they are meeting the standard.

At the end give the opportunity for candidates to ask questions, answer these and then summarise the key points.

Props to print and laminate

Trauma 5 - Global overview (to be placed on SIM manikin)

The child is occasionally moaning.

She looks very pale.

Her legs appear externally rotated.

Trauma 5 - Results Information:

Venous blood gas

pH	7.15
PCO_2	5.1
PO_2	38.7 (on oxygen)
HCO_3	18.4
BE	-4.8
Calcium (corr)	1.98
Lactate	4.1

Glucose 6.4

Faculty helper information – Trauma 5

When candidate requests information regarding observations please give the following in "real-time" (e.g., wait for blood pressure to cycle, saturation trace to be achieved). If key treatment points are not undertaken consider a "prompt" that would be visible in a child.

Assess	Observation	Example prompt
<c>	No signs of external bleeding	Assess
A	Intermittently sobbing and looks pale	"Her colour looks dreadful"
B	**RR 46, SpO_2** not recording, no recession, splinting diaphragm	"She's got really cold hands and is clammy"
C	**HR 160, CRT 5,** BP not obtained as agitated and moves arm	"Why are her legs rotated like that?" "She is too agitated for a BP and is saying her bottom hurts"
D	**GCS 14** (E3V5M6), PEARL, **BM 5.8**	
E	Legs externally rotated if pelvic binder not yet applied Bruising to pelvis and RUQ	"She's got a lot of bruising on her low abdomen and RUQ"

Candidate should not be allowed to get to the point of reassessment without application of a pelvic binder.

Reassessment

Assess	Observation	Example prompt
A	Patent, occasional moans	
B	**RR 40, SpO2 94%** trace poor Normal respiratory examination	
C	**HR 150, CRT 4**, still pale	"She still looks very pale and has cold hands"
D	**GCS 14** (E3V5M6), PEARL, **BM 5.8**	
E	No other injuries noted	

Algorithms:

Massive haemorrhage in trauma