KidSIM Scenario

Polytrauma – Head, Spleen & Femur Injuries – Pediatric

(SD0031-Mobile Ed)

SIMULATION SCENARIO

CASE: Polytrauma – Head, Spleen & Femur Injuries – Pediatric

TARGET AUDIENCE

Mobile Outreach 2019-2020: Physicians / Residents / Nursing / EMS / RRTs

LEARNING OBJECTIVES

Knowledge:

By the end of the session the participants will:

1. Recognize and understand the indications for spinal immobilization
2. Recognize potential sites of blood loss in a pediatric trauma patient
3. Recognize clinical signs of compensated & decompensated (hypotensive) shock in a pediatric trauma patient
4. Recognize the indications for rapid fluid administration and use of blood products – limiting NS to only one bolus
5. Recognize the need for intubation showing knowledge of RSI medications
6. Recognize the need to call for help and for transport to definitive care early

Skills:

By the end of the session the participants will demonstrate:

1. An appropriate primary and secondary survey of a pediatric trauma patient, including appropriate spinal immobilization
2. Appropriate use of oxygen delivery devices and intubation
3. Appropriate utilization of resources when selecting drug dosages and giving fluid boluses
4. Appropriately splint a femur fracture
5. Complete documentation on a trauma record or other type of nursing notes

Attitudes / Behaviours:

By the end of this session the participants will:

1. Demonstrate inclusive leadership by
    a. Establishing self as a clear event manager
    b. Being assertive but respective
    c. Showing support for all team members
2. Identify their own role and role of others
    a. Does each team member have a role?
    b. Do all team members contribute?
    c. Do team members help each other?
    d. Do team members seek clarification?
    e. Was there adaptability in roles to meet patient changing needs?
3. Demonstrate effective communication
    a. Were team members communicating respectfully with each other?
    b. Was there evidence of closed loop communication?
    c. Did team members call attention to critical information?
    d. Were team members comfortable speaking up if there was unsafe practice or actions?
4. Discuss the importance of situational awareness
    a. Were frequent situation summaries provided?

   b. Were all team members aware of the big picture?
   c. Did team members think out loud?
   d. Were there fixation errors?
   e. Were team members able to effectively prioritize patient care?
5. Use resources effectively and efficiently
   a. Did they call for help early and utilize consultants?
   b. Did they call RAAPID early +/- Telehealth?

SCENARIO ENVIRONMENT

Location *(Scenario scene)*
- Emergency Department Hospital or Urgent Care
- Pediatric in-patient unit

Monitors:
- Cardiorespiratory monitor including oxygen saturation

Physical props / Equipment:
- Gaumard Child
- Standard Airway Equipment
  - O2 delivery devices
  - BVM
  - OPA
  - Laryngoscope with curved and straight blades
  - Various sized ETT
  - CO2 detection device
  - Bougie or other rescue device
- Standard IV Equipment
  - Pressure bags, IV pump
  - IV catheters/ IV tubing
  - IV fluids: NS
  - Simulated blood and tubing
- Medications
  - Standard ACLS medications
  - RSI kit
  - Inotropes: dopamine, norepinephrine, epinephrine
  - Medication references
- Documentation records (trauma record, NVS, nursing notes)
- Standard Trauma Pack
  - Foley catheter equipment
  - NG / OG tube

- C-spine collar
- Splint for left femur

Make up /Moulage

- Deformity / swelling to left thigh / femur
- Bruising to left abdomen

Multi media

- CXR – normal
- C-spine x-rays – normal
- Pelvis x-rays – normal
- Left femur x-ray – #
- FAST
- ECG – sinus tachycardia
- Labs – CBC, serum electrolyte panel, blood gas

Personnel:

1. Bedside nurses
2. Documenting nurse(s)
3. MD / Residents
4. EMS
5. RRT(s)

SCENARIO

ED/UCC Case Introduction: *(Scenario given to participants)*

This is a 6 year old male brought in by Mother after falling off a farm vehicle - got left leg caught in machine and then landed on head. Riding with older brother. On farm fairly close to hospital, so came by private vehicle.

- *LOC – unsure how long - ? one minute*
- *Complaining of lots of pain to left leg*
- *Vomited twice en route*

In-Patient Case Introduction: *(Scenario given to participants)*

This is a 6 year old male brought in by Mother after falling off a farm vehicle - landed on head. Riding with older brother. On farm fairly close to hospital, so came by private vehicle. Admitted overnight for concussion type symptoms. CXR and C-spine imaging done. Spines cleared.

- *LOC – unsure how long - ? one minute*
- *Complaining of lots of pain to his abdomen this morning*
- *Vomited several times overnight – given Zofran*
- *One IV insitu – maintenance D5W1/2NS infusing*

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Date last revised: August 2019

SIMULATION SCENARIO

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- ***NOTE there is no femur fracture in the in-patient scenario – Left thigh not deformed or swollen.***

Past medical history:
Healthy / NKA
The Script:

Scenario Transitions / Evolution	Effective Management	Ineffective Management	Notes
1. Patient arrival and primary assessment of trauma patient • **Airway:** patent / crying • **Breathing:** spontaneous / good air entry • **RR** 26, • **SaO2** 94 % R/A 99% on 100% NRB • **Circulation: HR** 138, • **Bp** 92/74 • **CRT** 2-3 secs, pale and cool to touch. Abdomen diffusely tender/distended. Painful. Pelvis stable. Swollen left thigh. • **Disability: GCS** 14 (3 – eyes open to voice, 5 – orientated, but slow to respond, 6 – obeys commands) PERL – 4 mm • **Exposure: T** 36.1	- Primary survey: including spinal motion restriction with collar, O2 - Establish IV line(s) – large bore - IV NS bolus 20 mL/kg x 1 - Cut off clothing: expose and give warm blankets - Documentation	- Not recognizing the need to immobilize full spines - Not recognizing need for fluids	- No collar necessary for in-patient scenario - BGL considered a vital sign in pediatrics: 7.1 mmol/L - Consider making patient vomit in primary and / or secondary assessment to assess logrolling technique
2. Secondary assessment of a trauma patient • **Head / Neck:** Boggy area to right frontal skull • **Chest:** nil acute • **Abdomen:** Diffusely tender / distended. Bruising to left side • **Pelvis:** nil acute • **Extremities:** Swollen / deformed left thigh – leg externally rotated and painful when touched. Weak pulses peripherally but equal • **HR** 148 • **Bp** 86/67 • **RR** 30	- Systematic secondary survey - FAST performed if able - Adjuncts: labs, x-rays (chest, pelvic, c-spines, left femur), foley, NG/OG - Should use pRBCs for next boluses: 10-20 mL/kg - Splint to left femur - Analgesia - Inspection of posterior surface – nil acute	- Temperature lower if not covered up or using warmed saline	- C-spine x-rays not necessary when referring patient onto ACH – just keep collar on - FAST indeterminate - Provide gases only if asked, otherwise labs take at least 20 mins - Should have RAAPID & transport discussion early in secondary survey - If they want CT imaging make the patient too unstable to leave ED

• **SaO2** 97% on NRB • **CRT** 4 secs, pale, cool to touch • **GCS** 11 (2 – eyes open to pain, 4 – confused and irritable cry, 5 – localizes pain) PERL but sluggish – 4 mm • **T** 35.9			
3. Deterioration: shock / decreased LOC • **HR** 180 • **Bp** 72/54 • **RR** 16 if not intubated • **SaO2** 94% if not intubated • **CRT** 4-5 secs, very pale, cool to touch • **GCS** 9 (2 – eyes open to pain, 3 – cries to pain, 4 – flexes to pain) PERL still sluggish – 5mm • **T** 35.9	- Consider intubation - Abdomen more distended - Left thigh more distended - Further PRBCs + / - activation of Massive Transfusion Pack (MTP) if available - Tranexamic Acid 15 mg/kg (max 1 gram)		- if intubated, bags easily and SaO2/EtCO2 normal - Discuss RSI meds appropriate with hypotension: Can use Ketamine but half dose. Succinylcholine full dose okay.
4. Improvement: compensated shock • **HR** 170 • **Bp** 82/52 • **RR** bagged • **SaO2** 97% on O2 • **CRT** 3 secs, pale, cool • **GCS** untestable • **T** 36.0	- Have given 40 mL/kg pRBCs +/- other blood products (if available) - Have called for transport via RAAPID +/- Telehealth		- CT head/abd/pelvis should be done at ACH, but if done at referral centre head shows frontal contusions and subgaleal hematoma. Abdomen shows splenic laceration.

Debriefing Points:

See TREKK two page sheet!

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