Created: August 2024

Reviewed: August 2024

Revised: August 2024

Pediatric Trauma Patient Management– Special Considerations

Purpose:

To provide guidelines for pediatric patients treated for traumatic injury. The pediatric patient has several physiological differences than those of adults. Recognizing that the pediatric population has a unique set of needs, this guideline addresses additional considerations and resources available when treating an injured pediatric patient

Definition:

For trauma, a pediatric patient is defined as someone 14 years of age or younger as defined by the American College of Surgeons Committee on Trauma

Guidelines:

A. Pediatric Physiology

1. Vital Signs – Heart rate and respiratory rates are typically higher and blood pressure lower than adults
2. Children are more prone to Hypothermia and insensible fluid losses
3. Hypoxia is more common in children than adults and is most often the cause of cardiac arrest
4. Anatomical differences can be challenging when starting IVs and maintaining airways; Consider use of Intraosseous (IO) vascular access
5. Rib fractures require significant force in children, therefore, should lead to higher suspicion of underlying injury and potential for abuse
6. Traumatic Brain Injury is more common during blunt injury due to a larger head in proportion to body size and weaker neck muscles than in adults
7. Spinal Cord Injury Without Radiographic Abnormality (SCIWORA) is more common in children less than age eight. Should consider use of MRI in these cases

B. Pediatric Resuscitation

1. The Broselow cart/bags are used to help reduce delays in pediatric emergencies and resuscitations. There is a color-coded tape used to guide common drug dosing and sizing of emergency equipment

2. Each cart or bag is equipped with American Heart Association Pediatric Advanced Life Support (PALS) reference algorithm cards
3. A Broselow cart is located in the Emergency Department and Broselow bags are located in Pediatrics, Outpatient Center, Surgery Care, PACU and Cardiac lab

C. Early Recognition and Hemorrhage Control

1. Approximate pediatric circulating volume is 80 mL/kg
2. Normal blood pressure for pediatric ages 1-10 can be approximated by calculating: Systolic pressure = 70 mmHg + 2 X (age in years)
3. Poor skin perfusion and tachycardia must be recognized and managed early as indicators of impending circulatory failure
4. Most external bleeding in the pediatric population can be controlled with direct pressure
5. Give 1 bolus of 20 cc/kg of crystalloids, such as normal saline or Ringer's lactate. If the patient still needs more fluid as evidenced by ongoing hemorrhage or hemodynamic instability, the trauma team should then switch to administering blood products, which would be given at 10 cc/kg.

D. Radiation Exposure

1. Pediatric patients are more radiosensitive than adults
2. The use of equipment and exposure settings for adults may result in excessive radiation exposure if used on pediatric patients
3. Efforts should be made to minimize risk by reducing unnecessary exposure to ionizing radiation, including computed tomography (CT), fluoroscopy, and conventional x-rays. Deaconess Memorial follows the ALARA principle (As Low As Reasonable Achievable) as a guideline to complete quality radiographic exams and/or procedures with the least amount of radiation exposure.

E. Non-Accidental Trauma: See “Abuse and Neglect” guideline

1. To provide supportive care of the physically or emotionally abused child
2. Child Protective Services Hotline 1-800-800-5556 or local office at 812-482-2585

F. Transfer Criteria

1. If a pediatric patient is in need of a higher level of care than can be provided at Deaconess Memorial, the patient will be transferred to a pediatric trauma center

References:

- American College of Surgeons: “Resources for Optimal Care of the Injured Patient” (2022 revised Dec 2023) p.14
- “Abuse and Neglect” guideline
- "Broselow Cart/Bags" guideline
- Lee, L (2024). Trauma management Overview of unique pediatric considerations”. Retrieved from
- “CT Dose Outlier Monitoring” guideline