

## **PEDIATRIC EMERGENCIES**

### **Cardio-Respiratory Arrest**

Pale or blue child with no respiration, carotid and femoral pulses are not palpable, inaudible heart sounds or severe bradycardia.

Treatment: Airways – Breathing – Circulation (**ABCs**) + **REASSESS**

**1. Airway:** place in supine position on hard flat surface

Open airway Head tilt-chin lift pull the chin forwards by lifting the angle of the mandible (jaw thrust with cervical injury) suction or endotracheal tube.

**2. Breathing:** evaluate air exchange or abnormal dynamic

- a. Bag and mask.
- c. Endotracheal tube

**3. Circulation:** assess dysrhythmia / pulse, capillary refill.

- a. External cardiac massage by 2 fingers compression on lower sternum or heel of hand on the lower third of the sternum in a child. Consider press hard, fast & allow full chest recoil.
- b. Rate 60 – 100 compressions per/minutes.
- c. Ratio of compression to ventilation is 15-30 : 2 (infant – children)
- d. Palpate femoral pulse to see the response.

**4. Drugs:**

**5. Vascular access** IV or IO (intraosseous) if failed or difficult IV access within 90 seconds.

**6. AED** (Automated External Defibrillation) after the age of 1 yr.

### **Shock**

Inadequate oxygen & nutrient delivery to meet tissue demand. It may be compensated (body maintain vital organs perfusion) or decompensated (poor perfusion & hypotension).

#### ***Etiology:***

1. Hypovolemic shock (commonest): loss of fluid & electrolytes, hemorrhage and burn.
2. Cardiogenic shock: myocarditis, arrhythmias and cardiac tamponade.
3. vasogenic shock:
  - a. Septic shock (2<sup>nd</sup> common ) invasive organisms / immunocompromised
  - b. Neurogenic shock in overdose of hypnotics, tranquilizers & spinal cord injuries.
4. Anaphylactic shock

#### ***Clinical picture: early shock is difficult to detect***

1. Tachycardia, tachypnea, pallor, slow capillary refill & restlessness (early).
2. Skin mottling, cold extremities & poor capillary refill, hypotension is late sign
3. Disturbed level of conscious, agitation followed by confusion and coma.
4. Signs of organ dysfunction/failure if shock persists.

#### ***Treatment: ABCs + Reassess & Reassess***

1. Flat position with elevated legs.
  2. Clear airways, Consider intubation.
  3. Oxygen (very important) 100 % & assisted ventilation.
  4. I.V infusion with normal saline as CPR.
  5. Inotropes as dopamine, dobutamine, adrenaline...
  6. ICU management.
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## Drowning

Laryngeal spasm can lead to cerebral anoxia and death (dry drowning).

1. Water entering the lungs can lead to respiratory failure and cardiac arrest.
2. If the water is polluted the child can die later by pulmonary edema or pneumonia.

### ***Treatment:***

1. Immediate cardiac massage.
2. Clear airway and ventilation.
3. Poor outcome is expected when:
  - a. Water temperature below 21°C.
  - b. Submersion is over 5 minutes.
  - c. The pupils are dilated and fixed.

## Burns

According to the rule of (9) the body surface area (BSA) is divided as follows in children more than 10 years:

- |                          |               |                          |
|--------------------------|---------------|--------------------------|
| - Head = 9 %,            | - arm = 9 %,  | - Anterior trunk = 18 %. |
| - Posterior trunk = 18 % | - legs = 18 % | - genitalia = 1 %.       |

In children younger than 10 years, subtract 0.5 % from each leg for every year & the same % to the head.

### ***Clinical types (degree of burn):***

1. 1<sup>st</sup> degree: superficial epidermis, pain & erythema.
2. 2<sup>nd</sup> degree: entire epidermis (partial thickness), pain & erythema blisters.
3. 3<sup>rd</sup> degree: entire dermis (full thickness) involving nerve eroding (painless).
4. 4<sup>th</sup> degree: if full thickness plus SC tissue involvement.

### ***Treatment:***

1. First aid measures: cold water, cardio respiratory resuscitation.
  2. Hospital admission: for second (10 % BSA) and third degree burn (5% BSA).
  3. Emergency management: I.V. fluids, monitor urine output, use sterile towels for exposed burn, antibiotics if secondary infection occurred & analgesia/narcotic.
  4. Skin will regenerate in the first and second degree burns, but graft is required for the 3<sup>rd</sup> & 4<sup>th</sup> degree.
  5. H2 blocker/antacid for Curling stress ulcer prophylaxis.
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