Initial Assessment & Resuscitation of Pediatric Burn Patients

Airway & Breathing	◦ Signs of inhalation injury (consider early intubation!): *Hoarseness, fascial/oral soot, stridor, singed nasal hair, fascial burn.* ◦ Patients who were trapped in enclosed spaces & have AMS should be tested for CO & should have 100% O2 administered to them. ◦ Edema of the burned airway will worsen over the first 24-48 hrs. Cuffed tubes are preferred to accommodate the potential for changing airway edema. ◦ Steroid are not recommended for treatment of burn patients with airway injury. ◦ Respiratory insufficiency in extensive full-thickness burns of the thorax is an indication for *escharotomy* !
Circulation	◦ Rapid assessment includes: *skin color, capillary refill time, temperature of the peripheral extremities, HR & mental status.* ◦ For extremity burns, pulses should be checked by doppler US if they cannot be palpated. Absence of flow or progressive diminution of the pulse are indications for *escharotomy* ! ◦ The American Burn Association recommends initial fluid resuscitation for patients with burns *> 20% of TBSA* through intravenous route. ◦ A urinary catheter should be placed early in the management.
Fluid Resuscitation	Parkland formula is used to estimate fluid requirements in the first 24 hrs: ◦ 4 mL/kg/% BSA (second & third degree burns) of crystalloid (NS) ◦ Add maintenance D5NS for children < 5 years ◦ Include boluses or pre-hospital fluids in the calculations ◦ Administer ½ of the volume in the 1st 8 hrs and the other ½ over the next 16 hrs
Disability & Exposure	◦ Patient's clothing should be removed to assess for & prevent further injury. ◦ *Hypothermia* can occur rapidly in small children. Core temperature should be monitored. ◦ Provide *proper analgesia* for patients. Morphine may reduce BP especially in patients who are hypovolemic. Fentanyl has less cardiovascular side effects compared to morphine but keep in mind it has a shorter half-life. ◦ Obtain *tetanus vaccination* history & provide prophylaxis as indicated.
CO Poisoning	◦ Administer 100% oxygen & send a carboxyhemoglobin level. ◦ Indications for hyperbaric treatment: *LOC at the scene, persistent neurological symptoms including seizures, evidence of cardiac injury or carboxyhemoglobin level > 25% to 40%.*
Cyanide Poisoning	◦ Indications to consider hydroxycobalamin treatment: *history of CPR, abnormal vital signs, intubation, evidence of hypoxic injury, severe metabolic and/or lactic acidosis.* ◦ Hydroxycobalamin dose: 70 mg/kg.
Transfer to Burn Center	Recommended Guidelines by American Burn Association: https://rb.gy/yi275d

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Source: Fleisher & Ludwig's Textbook of Pediatric Emergency Medicine 8th Edition
American Burn Association