

PATIENT CARE THEORY 2

UNIT 2, PART 6: Burn Care

**Marilyn Niffin BSc, ACP
Winter 2020, 2024**

Burn Care



Reverse Isolation

Burned patients are vulnerable to infection



Airway Management

- ❖ Weigh the risk/benefits of OPA
 - If there is evidence of airway edema, attempt to ventilate without an OPA – but if the A/W can't be maintained, consider an adjunct
- ❖ high-flow (humidified) oxygen for the spontaneous breathing patient who does not meet the criteria for OPA
- ❖ ventilatory support



Burn Care

- ❖ Stop the burning process
 - Irrigate with water (cold as possible) for at least 20Min (thermal and alkali burns)
 - Irrigate acid burns for at least 10 min (if patient is stable)
 - This reduces pain, edema, depth of the burn, overall inflammatory response, improves speed of wound healing, and minimizes scarring
 - **DO NOT USE ICE**
 - This causes severe vasoconstriction and can deepen the burn
- ❖ When removing clothing, cut around any clothing that is adhering to the skin – do not tear off
 - *** Remember to try and maintain patient temp while irrigating and stopping the burning process – Hypothermia can be detrimental to overall outcome



Burn Care

- ❖ Sterile dressings
 - Wet vs Dry dressings
 - Partial thickness: >15% BSA
 - Full thickness: >5% BSA
 - Burn surfaces contacting each other
- ❖ Maintain warmth
 - Prevent hypothermia
 - Consider aggressive fluid therapy
 - Moderate to severe burns
- ❖ Burns over IV sites
 - Place IV in partial thickness burn site over full thickness



Burn Care (BLS PCS)

- ❖ for burn sites estimated <15% of body surface area, cool burns and limit cooling to <30 minutes to prevent hypothermia;
- ❖ cover all superficial thickness and partial thickness burns with *moist* sterile dressing and then cover with dry sheet or blanket;
- ❖ cover all superficial partial thickness and deep partial thickness burns <15% BSA with moist, sterile dressing, then dry sheet or blanket;
- ❖ cover all superficial partial thickness and deep partial thickness burns $\geq 15\%$ BSA with dry, sterile dressing or sheet;



Burn Care (BLS PCS)

- ❖ cover all 3rd degree burns with dry, sterile dressing or sheet;
- ❖ if dressing digits, dress digits individually;
- ❖ leave blisters intact; (this is dealt with in hospital)
- ❖ keep the patient warm



Burn Dressings

- ❖ Use only burn equipment provided by your ambulance service!



CVS Management – Fluid Resuscitation

IV access with two large bore catheters (if possible)

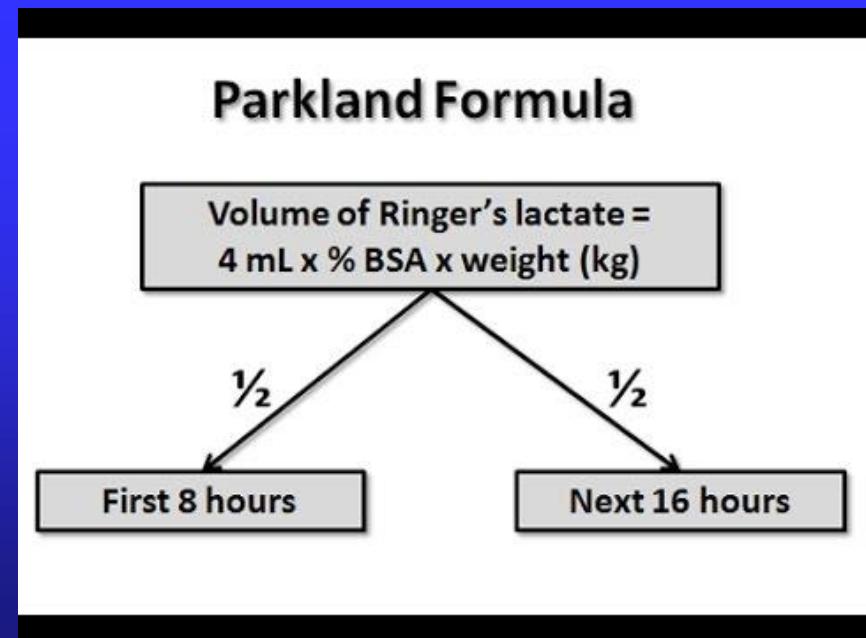
- ❖ Fluid loss is slower than traumatic blood loss, therefore fluid resuscitation may also be slower
- ❖ Fluids of choice: NS or RL
 - ❖ *add to TBSA estimate for inhalation burns



CVS Management – Fluid Resuscitation

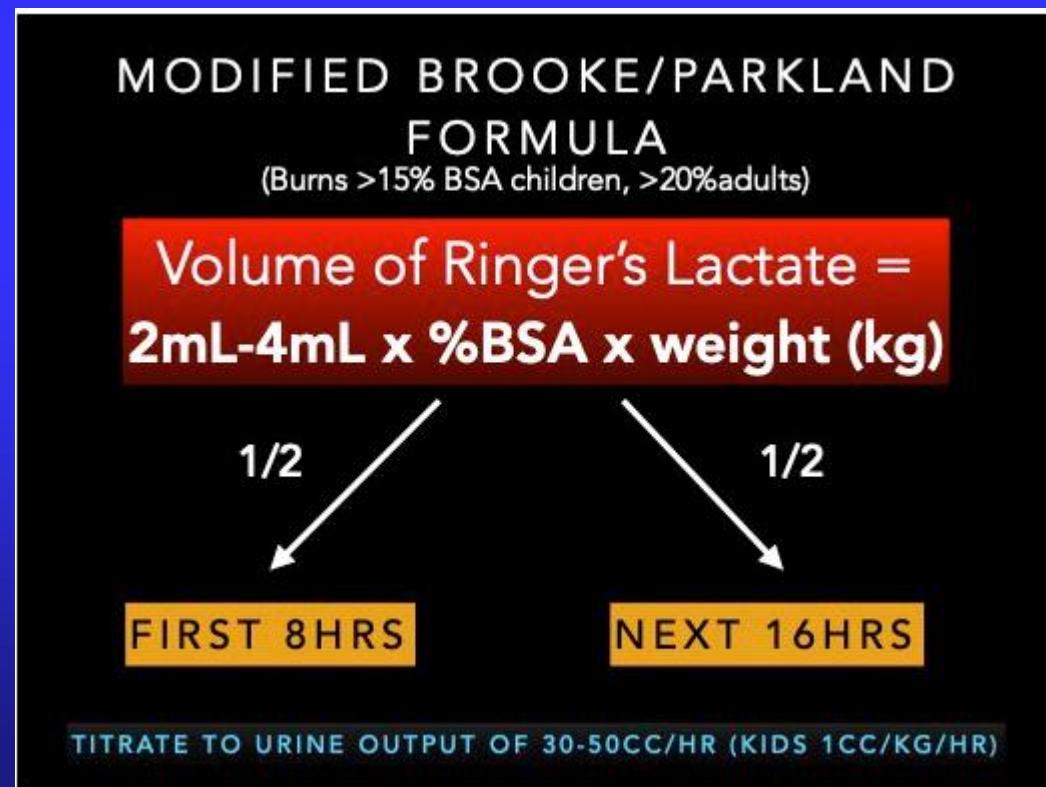
- ❖ Parkland burn formula – old school
- ❖ Over resuscitation is as harmful as under-resuscitation
 - Complications include abdominal compartment syndrome, orbital compartment syndrome, the need for escharotomies, impaired gas exchange and prolonged mechanical ventilation
 - Avoid boluses whenever possible (may increase risk of compartment syndrome)

-- This amount of fluid ($4\text{ml} \times \% \text{BSA} \times \text{kg}$) may be appropriate for inhalation burns, however requires careful monitoring



CVS Management – Fluid Resuscitation

- ❖ New recommendation is the Modified Brooke/Parkland formula
 - Recommended for >15% BSA in children and >20% BSA in adults



Inhalation Burns

Look for the clues to suspect airway involvement

- ❖ burns to the face/neck
- ❖ singed hairs: beard, eyelids, eyelashes, or nasal hairs
- ❖ soot around the mouth, nose, teeth, gums
- ❖ black tongue
- ❖ carbonaceous sputum
- ❖ hoarse voice
- ❖ Stridor (ominous)
- ❖ respiratory distress



Inhalation Burns

Treatment

- ❖ humidified O₂ (ideal, but not always possible)
- ❖ Rapid transport if swelling

ACP

- ❖ oral intubation if possible (ETT = bigger is better, but consider one size smaller than normal due to edema)
- ❖ May require conscious sedation
- ❖ Surgical airway is a last option



Pain Management

- ❖ An important part of burn management
- ❖ Treat early, treat aggressively
 - Helps to prevent psychological trauma
 - Improves immune function and wound healing
- ❖ Multi-modal analgesic approach is recommended
 - Acetaminophen, NSAID's, and narcotics
 - Low threshold for narcotics given the severity of pain associated with burns



Eschar

- ❖ Threat to limb
- ❖ Deeply burned tissue contracts (eschar)
- ❖ Encircling burns contract and may restrict blood flow to the part (e.g. arm, leg, chest)
- ❖ Lights & sirens



Escharotomy

- ❖ Treatment - Load & Go:
- ❖ escharotomy in the hospital



Escharotomy





Consider helicopter scene response when:

- ❖ patient entrapment
- ❖ patient requires definitive A/W management or significant fluid resuscitation
- ❖ Eschars pose a risk to life or limb



Transfer to a Burn Facility

- ❖ Full-thickness (third-degree) burns in any age
- ❖ Partial-thickness (second-degree) burns >10% BSA
- ❖ Any burn involving critical areas (eg, face, hands, feet, genitals, perineum, skin over any major joint), as these have significant risk for functional and cosmetic problems
- ❖ Significant chemical injury, electrical burns, lightning injury, coexisting major trauma, or presence of significant preexisting medical conditions
- ❖ Presence of inhalation injury
- ❖ ***** This applies only if there is a burn center in your region. FTT guidelines do not apply) ***** Follow local service procedures



Additional Reading

eMedicine

<http://www.emedicine.com/EMERG/topic72.htm>

Burnsurgery.org

http://www.burnsurgery.com/Betaweb/Modules/BurnWound/part_v.htm

About Burn Injuries

<http://www.burn-recovery.org/injuries.htm>



Reference:

1. Naradzay, J (2006): Burns, Thermal. eMedicine.com; <http://www.emedicine.com/EMERG/topic72.htm> retrieved Jan. 25, 2007.
2. National Research Council Canada: CBD-144. Toxic Gases and Vapours Produced at Fires. K. Sumi, Y. Tsuchiya. <http://irc.nrc-cnrc.gc.ca/cbd/cbd144e.html>
3. Library of the National Medical Society. <http://www.medical-library.org>
4. J. Fisher. Acute Burn Management: University of Toronto Department of Surgery. <http://surgclerk.med.utoronto.ca/Burn/objectiv.htm>
5. Helman, A. Fish, J. Ivankovic, M. Kovacs, G. Burn and Inhalation Injuries: ED Wound Care, Resuscitation and Airway Management. Emergency Medicine Cases. May, 2019. <https://emergencymedicinecases.com/burn-inhalation-injuries/>. Accessed [January 12, 2020]



Questions?

