



FOUNDATIONS
of Emergency Medicine

Foundations Frameworks

Thermal Burns

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Airway

- Concerning features that raise concern for inhalation injury & intubation
 - Edema or soot in the supraglottic area
 - Inability to handle secretions
 - Hypoxic on 100% FIO2
 - Facial burns, singed nares hairs, carbonaceous sputum
 - Stridor, wheezing
- If obtunded or severe burns: eval as a trauma: A, B, C, D, E
- If intubation necessary
 - Intubate critical/nearly critical or obtunded patients
 - Direct visualization by NP/OP scope
 - Setup: tube on scope & prepare to intubate
 - Cricothyroidotomy: rarely necessary unless upper airway obstruction
- Medications
 - Sedation with Ketamine for visualization
 - Does not compromise pt's breathing
 - RSI
 - Medications drawn up if able to visualize airway
 - Delayed Sequence Intubation

Systemic Toxicity

Assume CO/CN poisoning in any patient with AMS + involved in closed space/structural fire

Carbon Monoxide (CO)

- S/Sx: headache, vision changes, ataxia, confusion/obtusation, seizures, vomiting, CP, SOB
- Diagnosis: VBG w/ carboxyhemoglobin level, pulse CO-oximetry
- Treatment: 100% O2 – NRB vs ETT
 - Consider Hyperbaric Oxygen Tx – syncope, AMS, seizure, CO level > 25%; elevated troponin, pregnant + CO > 15%

Cyanide (CN)

- Typically from smoke exposure in an enclosed space with plastics burning
- Presentation: HA, anxiety, confusion/coma, seizures, SOB, nausea, vomiting, arrhythmias, bradycardia, hypotension
- Dx: assume CN poisoning in any patient with AMS and exposure to closed space fire
 - ↑ LA (typically > 8 mmol/L)
- Antidotes:
 - Cyanokit (Hydroxocobalamin)
 - Cyanide Antidote Package (Lilly Kit)

TBSA

Rule of 9s

	Adult	Children
Arm	9%	9%
Head	9%	18%
Chest	9%	9%
Abd	9%	9%
Back	18%	18%
Leg	18%	13.5%
Genit	1%	1%

Pt's
Palm
⇒ 1%

Degrees

Superficial: epidermis only

(1st Degree)

Superficial Partial: epidermis + upper dermis (2nd Degree)

Deep Partial: epidermis + deeper into dermis (2nd degree)

Full: all layers of dermis ± underlying tissue & structures (3rd Degree)

Fluids

Avoid Fluid Creep

Modified Brooke Formula

2ml * ___ kg * ___ TBSA% = ___ ml of total fluid

___ ml ÷ 2 = ___ ml (total fluid 1st 8 hrs)

___ ml ÷ 8 = ___ ml/hr (rate in 1st 8 hrs)

Rule of 10s

___ TBSA% * 10 = ___ ml/hr (1st 8 hrs)

(if >80kg add 100cc/10kg)

Wound Care

- Gently clean area with soap and water
- Use topical antimicrobial such as bacitracin or mupirocin
- Silver sulfadiazine may interfere with healing
- Cover with non-stick occlusive dressings
- Blisters: ok to leave as 'biologic dressing'

Disposition

Outpatient treatment: partial thickness < 10% TBSA

- Children and elderly may warrant more conservative management

Consider hospital admission for

- Partial thickness 10–20% TBSA

Consider transfer to burn center if

- > 20% TBSA partial thickness (>10% in children/elderly)
- > 5% full thickness burn
- Inhalational injury
- Burns involving face, eyes, ears, hands, feet, genitalia